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stated rental rates and including a 3-month rent abatement. The Second Amendment also has options for a Tenant Improvement Allowance and a Second Extension Term. The Second Extension Term is offered at market rates and there is no economic incentive for the lessee, therefore the Company has determined that it is not part of the original lease term. The Company also leases research and office facilities in Barcelona, Spain for its 100 percent owned Theriva S.L. subsidiary. The lease that was in existence from December 2021 to December 2022 was a short term agreement with a 90-day termination notice provision that can be exercised by either party. On the closing date of the Theriva S.L. acquisition, a sublease was executed for Theriva S.L. to lease research and office facilities at a new location in Parets del Valles (Barcelona) from the former owner of Theriva S.L. This lease was executed for an initial term to begin in January 2023 until October 2026, with an option to renew for an additional five years. On January 15, 2023, Theriva S.L. moved into the facilities and the new lease commenced and the prior lease terminated. Operating lease costs are presented as part of general and administrative expenses in the condensed consolidated statements of operations, and for the three and six months ended June 30, 2024 approximated \$158,000 and \$315,000, respectively and \$158,000 and \$303,000 the three and six months ended June 30, 2023, respectively. For the Barcelona lease, the day one non-cash addition of right of use assets due to adoption of ASC 842 was \$937,000. A maturity analysis of the Company's operating leases as of June 30, 2024 is as follows (amounts in thousands of dollars):

Future undiscounted cash flow for the years ending December 31,	Operating lease liability at June 30, 2024
\$1,958,000	\$1,162,000

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Theriva Biologics, Inc. and Subsidiaries

Notes to Condensed Consolidated Financial Statements

13. Commitments and Contingencies

14. Risks and Uncertainties

The uncertain financial markets, disruptions in supply chains, mobility restraints, and changing priorities as well as volatile asset values could impact the Company's business in the future. The Company and its third-party contract manufacturers, contract research organizations, and clinical sites may also face disruptions in procuring items that are essential to the Company's research and development activities, including, for example, medical and laboratory supplies used in its clinical trials or preclinical studies, in each case, that are sourced from abroad or for which there are shortages because of ongoing efforts to address the outbreak. Further, although the Company has not experienced any material adverse effects on business due to increasing inflation, it has raised operating costs for many businesses and, in the future, could impact demand or pricing manufacturing of its drug candidates or services providers, foreign exchange rates or employee wages. The Company is actively monitoring the effects that these disruptions and increasing inflation could have on its operations. Through the VCN Acquisition, the Company has operations in Spain related to conducting research and development, manufacturing, and clinical trials in Western European countries. The invasion of Ukraine by Russia, the war in the Middle East, and the retaliatory measures that have been taken, or could be taken in the future, by the United States, NATO, and other countries have created global security concerns that could result in a regional conflict and otherwise have a lasting impact on regional and global economies, any or all of which could disrupt the Company's supply chain, and despite the fact that it currently does not plan any clinical trials in Eastern Europe, may adversely impact the cost and conduct of R&D, manufacturing, and international clinical trials of its product candidates.

14. Related Party

On December 14, 2023 the Company approved the retention of MaryAnn Shallcross for compensation of \$152,000, a bonus of \$70,000 and the grant of an option to purchase 75,000 shares of common stock having a value of \$30,000. During the three and six months ended June 30, 2024, we paid compensation to Ms. Shallcross of \$38,000 and \$76,000, respectively.

15. Subject events

On July 30, 2024 The Company received notice from the U.S. Food and Drug Administration (FDA) that it had been granted Rare Pediatric Drug Designation (RPDD) for VCN-01 for the treatment of retinoblastoma. VCN-01, the Company's lead product candidate, is a systemic, selective, stroma-degrading oncolytic adenovirus. Previously, the FDA granted orphan drug designation to VCN-01 for treatment of retinoblastoma. On July 30, 2024, the Company received a notice of conversion from the holder of shares of its Series C Convertible Preferred Stock to convert the 135,431 shares of Series C Convertible Preferred Stock into 888,072 shares of the Company's common stock at a conversion price of \$1.22 per share. On July 31, 2024 the Company sold through the At Market Issuance Sales Agreement and the Amended and Restated Sales Agreement approximately 1.8 million shares of the Company's common stock and received net proceeds of approximately \$0.5 million. The Company previously had an option-license agreement with Massachusetts General Hospital to develop SYN-020 in several potential indications related to inflammation and gut barrier dysfunction. However, this expired in July 2024.

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Item 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

The following discussion should be read in conjunction with our unaudited condensed consolidated financial statements and notes thereto included in this Quarterly Report on Form 10-Q, and our audited consolidated financial statements and notes thereto for the year ended December 31, 2023 included in our 2023 Form 10-K. This discussion contains forward-looking statements reflecting our current expectations that involve risks and uncertainties. See Note A Regarding Forward-Looking Statements for a discussion of the uncertainties, risks and assumptions associated with these statements. Our actual results and the timing of events could differ materially from those expressed or implied by the forward-looking statements due to important factors and risks including, but not limited to, those set forth below under Risk Factors and elsewhere herein, and those identified under Part I, Item 1A of our 2023 Form 10-K.

Overview

We are a diversified clinical-stage company developing therapeutics designed to treat cancer and related diseases in areas of high unmet need. As a result of the acquisition in March 2022 of Theriva Biologics, S.L. (formerly named VCN Biosciences, S.L.), described in more detail below (the "Acquisition"), we began transitioning our strategic focus to oncology, which is now our primary focus, through the development of VCN's new oncolytic adenovirus platform designed for intravenous and intravitreal delivery to trigger tumor cell death, to improve access of co-administered cancer therapies to the tumor, and to promote a robust and sustained anti-tumor response by the patient's immune system. Our lead product candidate, VCN-01, a clinical stage oncolytic human adenovirus that is modified for tumor-selective replication and to express an enzyme, PH20 hyaluronidase, is currently being evaluated in a Phase 2 clinical study for the treatment of pancreatic cancer (the "VIRAGE"), and has recently been used to treat patients in a Phase 1 clinical study for the treatment of retinoblastoma, and Phase 1 clinical studies for the treatment of other solid tumors including head and neck squamous cell carcinoma. Prior to the Acquisition, our focus was on developing therapeutics designed to treat gastrointestinal (GI) diseases which included our clinical development candidates: (1) SYN-004 (ribaxamase) which is designed to degrade certain commonly used intravenous (IV) beta-lactam antibiotics within the GI tract to prevent microbiome damage, thereby preventing overgrowth and infection by pathogenic organisms such as Clostridioides difficile infection (CDI) and vancomycin resistant Enterococci (VRE), and reducing the incidence and severity of acute graft-versus-host-disease (aGVHD) in allogeneic hematopoietic cell transplant (HCT) recipients, and (2) SYN-020, a recombinant oral formulation of the enzyme intestinal alkaline phosphatase (IAP) produced under cGMP conditions and intended to treat both local GI and systemic diseases. As part of our strategic transformation into an oncology focused company, we are exploring value creation options for our SYN-004 and SYN-020 assets, including out-licensing or partnering. Our Current Product Pipeline

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Based on management's current beliefs and expectations

allo-HCT allogeneic hematopoietic cell transplant. CPI immune checkpoint inhibitor. CSR clinical study report. FTD Fast Track Designation. HNSCC head and neck squamous cell carcinoma. IV intravenous. IviT intravitreal. ODD Orphan Drug Designation. For other abbreviations see the text.

Additional products with preclinical proof-of-concept include SYN-006 (carbapenemase) to prevent aGVHD and infection by carbapenem resistant enterococci and SYN-007 (ribaxamase) DR to prevent antibiotic associated diarrhea with oral F2-lactam antibiotics. Depending on funding/partnership. SYN-004 may enter an FDA-agreed Phase 3 clinical trial for the treatment of CDI. Recent Clinical Developments

On May 23, 2024, we announced that the U.S. Food and Drug Administration (FDA) has granted Fast Track Designation (FTD) to lead clinical candidate VCN-01 in combination with gemcitabine and nab-paclitaxel to improve progression-free survival and overall survival in patients with metastatic pancreatic adenocarcinoma. In VIRAGE, the Company's ongoing multinational Phase 2b clinical trial, intravenous VCN-01 is being evaluated in combination with standard-of-care (SoC) chemotherapy (gemcitabine/nab-paclitaxel) as a first line therapy for patients with pancreatic ductal adenocarcinoma (PDAC). Previously, the FDA granted orphan drug designation to VCN-01 for treatment of PDAC. On May 10, 2024, we presented data demonstrating enhanced anti-tumor effects in human pancreatic cancer xenograft-bearing mice treated with lead product candidate VCN-01 and liposomal irinotecan. These data support the potential synergy of VCN-01 and first-line pancreatic cancer chemotherapy regimens. On April 23, 2024, we announced positive top-line data from the investigator sponsored Phase 1 Trial of intravitreal VCN-01 in pediatric patients with refractory retinoblastoma. Safety and clinical outcomes support the therapeutic potential of VCN-01 in retinoblastoma and emphasize VCN-01's potential for use in diverse cancer. The Monitoring Committee determined that the trial results were positive, and therefore, the Company will receive an exclusive, worldwide license, and related patents from Sant Joan de D   Barcelona Children's Hospital for the treatment of pediatric patients with advanced retinoblastoma. According to the IDMC's assessment of clinical data from patients enrolled across 6 sites open in the U.S. and 9 sites open in Spain, the ongoing Phase 2b trial will continue without any changes to the protocol. No safety concerns were raised based on the evaluation of data presented at the IDMC meeting. Intravenous VCN-01 has been well tolerated and demonstrated a safety profile consistent with prior clinical trials. Importantly, no additional toxicities were observed in patients receiving a second dose of VCN-01, providing the first clinical evidence of the feasibility of repeated systemic dosing. VIRAGE is expected to complete enrollment in the third quarter of 2024. Our Current Oncology-Focused Pipeline

Oncolytic Viruses

Our oncology platform is based on oncolytic virotherapy (the "OV therapy"), which exploits the ability of certain viruses to kill tumor cells and trigger an anti-tumor immune response. This novel class of anticancer agents has unique mechanisms of action compared to other cancer drugs. Oncolytic viruses exploit the fact that cancer cells contain mutations that cause them to lose growth control and form tumors. Once inside a tumor cell, oncolytic viruses exploit the tumor cell machinery to generate thousands of additional copies of the virus, which then kill the tumor cell and spread to neighboring cells, causing a chain reaction of cell killing. This infection and tumor cell killing by OVs also alerts the immune system, which can then attack the virus infected tumor cells to help destroy the tumor in some instances. Our OV product candidates are engineered to efficiently infect and selectively replicate to a high extent in tumor cells versus normal host cells, which enables intravenous delivery. By contrast, many other oncolytic viruses in clinical development today are administered by direct injection into the tumor. Intravenous delivery has the potential to expand the therapeutic effect of OVs because the virus can infect both the primary tumor and tumor metastases throughout the body.

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Our first product candidate, VCN-01, is a clinical stage oncolytic human adenovirus that is modified to express an enzyme, PH20 hyaluronidase, that degrades hyaluronan in the tumor stroma, which helps the virus and other molecules to penetrate and spread throughout the tumor. VCN-01 can be used alone or in combination with other cancer therapies, such as chemotherapy and immunotherapy, for difficult to treat cancers. An expanding intellectual property portfolio supports our oncology programs, and because our products are characterized as biologics with Orphan Drug designation in our target indications, they will be further protected by data and/or market exclusivity in major markets. VCN-01 has been administered to 134 patients across multiple Phase 1 clinical trials and Phase 2 VIRAGE trial, including patients with pancreatic cancer, head and neck squamous cell carcinoma, ovarian carcinoma, colorectal cancer, and retinoblastoma.

Current clinical update

We are currently conducting a Phase 2 trial of intravenous VCN-01 with or without nab-paclitaxel plus gemcitabine in patients with PDAC. Additional on-going investigator sponsored studies comprise a Phase 1 trial combining VCN-01 with huCART-meso cells in patients with pancreatic or serous epithelial ovarian cancer, and a Phase 1 trial evaluating the intravenous administration of VCN-01 in patients prior to surgical resection of high-grade brain tumors. Additionally, the Clinical Study Reports (CSRs) are being prepared for the Phase 1 Trial of intravenous VCN-01 in combination with durvalumab in subjects with recurrent/metastatic squamous cell carcinoma of the head and neck (mSCCHN) and the Phase 1 trial evaluating intravitreal VCN-01 in patients with retinoblastoma.

Phase 1 Clinical Trials in PDAC

The safety, tolerability, and potential dosing regimens for VCN-01 in patients with PDAC or colorectal cancer were evaluated in Phase 1 clinical trials evaluating intratumoral (n=8; NCT02045589) and intravenous (n= 42; NCT02045602) VCN-01 either alone or in combination with gemcitabine   nab-paclitaxel (published in J. Immunother. Cancer 2021 Nov;9(11):e003254 and J. Immunother. Cancer 2022 Mar;10(3):e003255, respectively). Intravenous VCN-01 was found to have an acceptable safety/tolerability profile in PDAC and colorectal cancer patients and demonstrated compelling biochemical and clinical outcomes that enabled the advancement of VCN-01 into Phase 2 clinical trial in patients with metastatic PDAC.

Phase 2 Trial of intravenous VCN-01 with or without nab-paclitaxel plus gemcitabine in patients with PDAC

In January 2023, we dosed the first patients in VIRAGE, the Phase 2b randomized, open-label, placebo-controlled, multicenter clinical trial of systemically administered VCN-01 in combination with standard-of-care (SoC) chemotherapy (gemcitabine/nab-paclitaxel) as a first line therapy for patients with newly-diagnosed metastatic pancreatic ductal adenocarcinoma. The study is expected to enroll 92 patients and be conducted at approximately 17 sites in the US and EU. Two doses of VCN-01 are included in the treatment arm: the 1st dose is administered on day 1, then one week later 3 cycles of gemcitabine and nab-paclitaxel as standard of care is administered. The second VCN-01 dose is administered 7 days before the 4th cycle of chemotherapy (approximately 90 days after the first VCN-01 dose), followed by additional cycles of gemcitabine/nab-paclitaxel chemotherapy. Patient dosing was initiated in the U.S. in July 2023. Twenty-three patients have received their second doses of intravenous VCN-01, which were well tolerated and demonstrated the expected VCN-01 safety profile. On June 1, 2024, we presented the design of VIRAGE trial in a poster at the American Society of Clinical Oncology (ASCO) Annual Meeting 2024 Congress held and in Chicago (Illinois) from May 31- June 4, 2024. The poster discussed the objectives, endpoints and key inclusion and exclusion criteria included in the trial protocol, together with the treatment schedule for each arm of the study.

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Retinoblastoma

Phase 1 Trial of intravitreal VCN-01 in patients with retinoblastoma

During the third quarter of 2017, VCN entered into a Clinical Trial Agreement with Hospital Sant Joan de D   (Barcelona, Spain) to conduct an investigator sponsored Phase 1 clinical study evaluating the safety and tolerability of two intravitreal injections of VCN-01 in patients with intraocular retinoblastoma refractory to systemic, intra-arterial or intravitreal chemotherapy, or radiotherapy, in whom enucleation was the only recommended treatment (NCT03284268). Patients received two intravitreal injections of VCN-01, 14 days apart, at a dose of either 2 x 109 vp/eye (n=1) or 2 x 1010 vp/eye (n=8). Enrollment, dosing and safety follow-up in this study have been completed and the clinical study report is being prepared. On April 23, 2024, we announced positive top-line data from this study, with agreement by the study Monitoring Committee that the study had a positive outcome.

  VCN-01 was well tolerated after intravitreal administration at the 2 doses and the most frequently reported treatment-related adverse events were Grade 1 or 2. There were no dose limiting toxicities and no ocular or systemic toxicities equal to or greater than Grade 3 during the evaluation period.   Some degree of ocular inflammation and associated turbidity was observed after VCN-01 injection. Inflammation was managed, and vitreous haze improved in some cases, by local and systemic administration of anti-inflammatory drugs.   VCN-01 does not appear to change the retinal function, and selective VCN-01 replication in retinoblastoma cells has been observed by immunohistochemical analysis.   Replication within retinoblastoma tumors over time was detected.   Intravitreal VCN-01 demonstrated promising anti-tumor activity.   Four patients presented a response characterized by unequivocal improvement in vitreous seed density.   Eye enucleation was avoided in 3 patients to date, one of whom has retained their eye after 4 years of follow-up. Per the terms of the clinical trial agreement, the determination by the study Monitoring Committee that the study had a positive outcome means we will receive an exclusive, worldwide technology license, and related patents from Hospital Sant Joan de D   for the treatment of pediatric patients with advanced retinoblastoma and we will pay to Hospital Sant Joan de D   the amount of three hundred twenty thousand Euros ( , ~320,000) or \$345,000. A pre-IND meeting with the FDA was held on December 19, 2023 to discuss the path forward for VCN-01 as an adjunct to chemotherapy in pediatric patients with advanced retinoblastoma. The FDA provided some guidance on the potential endpoints and patient population for an advanced clinical trial and encouraged submission of a formal protocol under a US IND in order to provide more detailed commentary.

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Phase 1 Trial of intravenous VCN-01 in Combination with Durvalumab in Subjects with Recurrent/ Metastatic SCCHN

In February 2019, VCN entered into a Clinical Trial Agreement with Catalan Institute of Oncology (ICO) (Spain) to conduct an investigator sponsored Phase 1 clinical study to evaluate the safety, tolerability and RP2D of a single intravenous injection of VCN-01 combined with durvalumab in two administration regimens: VCN-01 concomitantly with durvalumab, or sequentially with durvalumab starting two weeks after VCN-01 administration (NCT03799744). The study is also designed to evaluate whether VCN-01 treatment can re-sensitize PD-(L)1 refractory tumors to subsequent anti-PD-L1 therapy. Durvalumab is a human monoclonal antibody (mAb) of the immunoglobulin G (IgG) 1 kappa subclass that inhibits binding of PD-L1. It is marketed as IMFINZI  by AstraZeneca/MedImmune, who supplied the product for its use in the clinical study. This Phase I trial is a multicenter, open label, dose escalation study in patients with histologically confirmed head and neck squamous cell carcinoma from specific sites: oral cavity, oropharynx, larynx or hypopharynx that is recurrent/metastatic (R/M) and not amenable to curative therapy by surgery or radiation. In addition, all patients should have undergone prior exposure to anti-PD-(L) 1 and progressed. Patients are entered at each dose level, according to a planned dose escalation schedule. The treatment is a single intravenous VCN-01 dose combined with concomitant intravenous durvalumab (MED14736) 1500 mg Q4W (Arm I) or durvalumab starting two weeks after VCN-01 administration (  sequential schedule ; Arm II). Patient recruitment into Arm I and Arm II was performed concurrently. Intravenous VCN-01 was administered to each patient only once during the trial at the VCN-01 dose level to which they were randomized. Durvalumab was administered Q4W until disease progression, unacceptable

toxicity, withdrawal of consent, or another discontinuation criterion. Patient recruitment into the study was completed in February 2022 with a total of 18 patients enrolled. On September 05, 2022 we announced a presentation of initial data from this study in a poster at the European Society for Medical Oncology (ESMO) Congress. The poster reported that treatment with VCN-01 had an acceptable safety profile when administered with durvalumab in the sequential schedule and the most common treatment-related adverse events were dose-dependent and reversible pyrexia, flu-like symptoms and increases in liver transaminases. Sustained blood levels of VCN-01 viral genomes and increased serum hyaluronidase levels were maintained for over six weeks and analysis of tumor samples showed an increase in CD8 T cells (a marker of tumor inflammation); upregulation of PD-L1; and downregulation of matrix-related pathways after VCN-01 administration. The last patients in this study are currently being followed for overall survival and patent samples are being analyzed to evaluate potential VCN-01 pharmacodynamic effects. On October 16, 2023, we presented additional data from this study in a poster at the European Society for Medical Oncology (ESMO) 2023 Congress held virtually and in Madrid, Spain from October 20-24, 2023. Key data and conclusions featured in the ESMO presentation include:—20 patients were enrolled with a median of 4 prior lines of therapy, from which six in the concomitant (CS) (single dose of VCN-01 in combination with durvalumab on day 1) and 12 in the sequential (SS) (single dose of VCN-01 on day -14 and durvalumab on day 1) were evaluable for response.â—In the CS cohort at the 3.3Å—1012 viral particles (vp) dose, overall survival (OS) was 10.4 months.â—In the SS cohort at the 3.3Å—1012vp dose OS was 15.5 months, whereas in the SS cohort at the 1Å—1013 vp dose OS was 17.3 months.â—11 patients (61.1%) were alive >12 months (2 in CS; 5 in SS at 3.3Å—1012vp, 4 in SS at 1Å—1013 vp).â—In spite of the advanced stage of the disease, and a global objective response rate for the trial of 5.5%, most of the patients appeared to benefit from subsequent treatment, with 2 patients showing complete responses to palliative chemotherapy and at least one patient still alive 4 years after entering the study.â—Biological activity: Patients showed VCN-01 replication and increased serum hyaluronidase levels were maintained for over six weeks.â—Observed an increase in CD8 T cells, a marker of tumor inflammation and an upregulation of PD-L1 in tumors.â—Increase of PDL1-CPS (16/21; p=0.013) and CD8 T-cells (12/21; p=0.007) from baseline were found in tumor biopsies.â—There was a statistical significant correlation between OS observed in patients and CPS on day 8 (p=0.005).â—Phase 1 Trial evaluating the safety and feasibility of huCART-meso cells when given in combination with VCN-01â—In July 2021, VCN entered into a Clinical Trial Agreement with the University of Pennsylvania (Philadelphia) to conduct an investigator sponsored Phase 1 clinical study to evaluate the safety, tolerability and feasibility of intravenous administration of 28 Table of ContentsVCN-01 in combination with lentiviral transduced huCART-meso cells (developed by the laboratory of Dr. Carl June) in patients with histologically confirmed unresectable or metastatic pancreatic adenocarcinoma and serous epithelial ovarian cancer (NCT05057715). This is a Phase I study evaluating the combination of VCN-01 when given in combination with huCART-meso cells in a dose-escalation design in two cohorts (N = 3-6), where patients receive VCN-01 as a single IV infusion (at 3.3x1012 or 1x1013 vp) on Day 0, followed by a single dose of 5x107 huCART-meso cells on Day 14 via IV infusion. huCART-meso cells are modified T-cells targeting the mesothelin antigen, which is frequently expressed in multiple tumor types, particularly in pancreatic and ovarian cancers. Dr. Juneâ€™s previous clinical studies have shown that huCART-meso cells encounter significant challenges in the tumor microenvironment, including immunosuppressive cells and soluble factors as well as metabolic restrictions. Initial VCN-01 clinical data from the studies described above suggest that administration of VCN-01 may increase tumor immunogenicity and improve access of the huCART-meso cells to tumor cells. This Phase I study will evaluate the safety and tolerability of the VCN-01 huCART-meso cell combination and test the hypothesis that administration of VCN-01 may enhance the potential antitumor effects of the co-administered huCART-meso cells. â—On July 8, 2022, we were notified that the first patient to be dosed with VCN-01 had passed the safety evaluation period in this study. The study is on-going.â—On June 22, 2023, at their Cellicon Valley conference, and again at the Society for Immunotherapy of Cancer (SITC) meeting in San Diego, CA on November 03, 2023, and the International Oncolytic Virotherapy Conference (IOVC2023) in Calgary on November 13 2023, University of Pennsylvania investigators presented preliminary clinical safety and pharmacokinetic data from this study highlighting the feasibility of administering VCN-01 in sequence with huCART-meso cells in pancreatic and ovarian cancer patients. VCN-01 persistence was suggestive of tumor infection and active replication. The peak and duration of huCART-meso T cells in the peripheral blood as well as duration of stable disease in evaluable patients showed encouraging trends. â—The study may test higher doses of VCN-01 and interrogate tumor biopsies to gain further insights. The results will inform and guide optimization of the combination of CAR T cells with oncolytic virus. Phase 1 Trial evaluating the intravenous administration of VCN-01 in patients prior to surgical resection of high-grade brain tumorsIn the second quarter of 2021, VCN entered into a Clinical Trial Agreement with the University of Leeds (UK) to sponsor a proof-of-concept Phase 1 clinical study to evaluate whether intravenously administered VCN-01 can cross the blood-brain barrier and infect the target brain tumor. This is an open-label, non-randomized, single center study of VCN-01 given intravenously at a dose of 1x1013 virus particles to patients prior to planned surgery for recurrent high-grade primary or metastatic brain tumors. We believe that the intravenous delivery of anti-cancer therapy to brain tumors, if effective, may enable the treatment of systemically disseminated brain metastases and may allow for reduction in the need to use neurosurgery to administer the drugs. This study aims to assess the presence of VCN-01 within the resected surgical specimen after systemic VCN-01 delivery and determine the safety of intravenous VCN-01 in patients with recurrent high-grade glioma or brain metastases. By confirming the presence of VCN-01 in high grade brain tumors following intravenous delivery, this study may pave the way for larger trials to study VCN-01 efficacy, both as a monotherapy and in combination with PD-1/PD-L1 blockade. This trial has already received approval from Medicines & Healthcare Products Regulatory Agency (MHRA) from UK Government. On January 9, 2023, we issued a press release announcing that the first patient was dosed in this study and recruitment is on-going. Our Current Gastrointestinal (GI) and Microbiome-Focused Pipeline Our SYN-004 (ribaxamase) and SYN-020 clinical programs are focused on the gastrointestinal tract (GI) and the gut microbiome, which is home to billions of microbial species and composed of a natural balance of both â€œgoodâ€ beneficial species and potentially â€œbadâ€ pathogenic species. When the natural balance or normal function of these microbial species is disrupted, a personâ€™s health can be compromised. All of our programs are supported by our growing intellectual property portfolio. We are maintaining and building our patent portfolio through: filing new patent applications; prosecuting existing applications; and licensing and acquiring new patents and patent applications. We are exploring value creation options for our SYN-004 assets, including out-licensing or partnering. 29 Table of ContentsSYN-004 (ribaxamase) â€ Prevention of antibiotic-mediated microbiome damage, thereby preventing overgrowth and infection by pathogenic organisms such as Clostridioides difficile infection (CDI) and vancomycin resistant Enterococci (VRE), and reducing the incidence and severity of acute graft-versus-host disease (aGVHD) in allogeneic HCT recipients SYN-004 (ribaxamase) is a proprietary oral capsule prophylactic therapy designed to degrade certain IV beta-lactam antibiotics excreted into the GI tract and thereby maintain the natural balance of the gut microbiome. Preventing beta-lactam damage to the gut microbiome has a range of potential therapeutic outcomes, including prevention of CDI, suppression of the overgrowth of pathogenic species (particularly antimicrobial-resistant organisms) and potentially reducing the incidence and/or severity of aGVHD in allogeneic hematopoietic cell transplant (HCT) patients. SYN-004 (ribaxamase) 75 mg capsules are intended to be administered orally while patients are administered certain IV beta-lactam antibiotics. The capsule dosage form is designed to release the SYN-004 (ribaxamase) enzyme into proximal small intestine, where it has been shown to degrade beta-lactam antibiotics in the GI tract without altering systemic antibiotic levels. Beta-lactam antibiotics are a mainstay in hospital infection management and include the commonly used penicillin and cephalosporin classes of antibiotics. Clostridioides difficile Infection Clostridioides difficile (formerly known as Clostridium difficile and often called C. difficile or CDI) is a leading type of hospital acquired infection and is frequently associated with IV beta-lactam antibiotic treatment. The Centers for Disease Control and Prevention (CDC) identified C. difficile as an â€œurgent public health threat,â€ particularly given its resistance to many drugs used to treat other infections. CDI is a major unintended risk associated with the prophylactic or therapeutic use of IV antibiotics, which may adversely alter the natural balance of microflora that normally protect the GI tract, leading to C. difficile overgrowth and infection. Other risk factors for CDI include hospitalization, prolonged length of stay (estimated at 7 days), underlying illness, and immune-compromising conditions including the administration of chemotherapy and advanced age. According to a paper published in BMC Infectious Diseases (Desai K et al. BMC Infect Dis. 2016; 16: 303) the economic cost of CDI was approximately \$5.4 billion in 2016 (\$4.7 billion in healthcare settings; \$725 million in the community) in the U.S., mostly due to hospitalizations. Phase 1b/2a Clinical Study in Allogeneic HCT Recipients In August 2019, we entered into a Clinical Trial Agreement (CTA) with the Washington University School of Medicine (Washington University) to conduct a Phase 1b/2a clinical trial of SYN-004 (ribaxamase). Under the terms of this agreement, we serve as the sponsor of the study and supply SYN-004 (ribaxamase). Dr. Erik R. Dubberke, Professor of Medicine and Clinical Director, Transplant Infectious Diseases at Washington University and a member of the SYN-004 (ribaxamase) steering committee serves as the principal investigator of the clinical trial in collaboration with his Washington University colleague Dr. Mark A. Schroeder, Associate Professor of Medicine, Division of Oncology, Bone Marrow Transplantation and Leukemia. The Phase 1b/2a clinical trial is a single center, randomized, double-blinded, placebo-controlled clinical trial of oral SYN-004 (ribaxamase) in up to 36 evaluable adult allogeneic HCT recipients. The goal of this study is to evaluate the safety, tolerability and potential absorption into the systemic circulation (if any) of oral SYN-004 (ribaxamase; 150 mg four times daily) administered to allogeneic HCT recipients who receive an IV carbapenem or beta-lactam antibiotic to treat fever. Study participants are enrolled into three sequential cohorts administered a different study-assigned IV antibiotic. Each cohort seeks to complete eight evaluable participants treated with SYN-004 (ribaxamase) and four evaluable participants treated with placebo. Safety and pharmacokinetic data for each cohort will be reviewed by an independent Data and Safety Monitoring Committee, which will make a recommendation on whether to proceed to the next IV antibiotic cohort. The study will also evaluate potential protective effects of SYN-004 on the gut microbiome as well as generate preliminary information on potential therapeutic benefits and patient outcomes of SYN-004 in allogeneic HCT recipients. 30 Table of Contents To date, we have completed the first of 3 cohorts (Cohort 1) in this study, which enrolled 19 patients who received at least 1 dose of study drug (SYN-004 or Placebo randomized 2:1). Sixteen patients received at least one dose of intravenous (IV) meropenem and 12 of these patients completed sufficient doses of IV meropenem to be evaluable towards the study endpoints. On September 27, 2022, we issued a press release announcing positive outcomes from the Data and Safety Monitoring Committee (â€œDSMCâ€) review of results from the first Cohort and their recommendation that the study may proceed to enroll Cohort 2 in which study drug (SYN-004 or Placebo) is administered in combination with the IV beta-lactam antibiotic piperacillin/tazobactam. Enrollment into Cohort 2 has completed and, we expect to announce a data readout for the second cohort during the third quarter of 2024. If recommended by the DSMC review of the second cohort results, enrollment into the third cohort could commence in the second half of 2024; however, based upon our current available funding and our focus on our clinical development of VCN-01 we do not anticipate that enrollment for the third cohort will commence unless we out-license the SYN-004 development program or find a partner for the program. On February 16, 2023 and April 13, 2023 we announced the presentation of safety and pharmacokinetic data from Cohort 1 of the Phase 1b/2a Clinical Trial of SYN-004 (ribaxamase) in allogeneic hematopoietic cell transplant recipients at the 2023 Tandem Meetings: Transplantation & Cellular Therapy Meetings of ASTCT and CIBMTR and at the European Congress of Clinical Microbiology & Infectious Diseases (ECCMID) respectively. SYN-020 â€ Oral Intestinal Alkaline Phosphatase (IAP) SYN-020 is a quality-controlled, recombinant version of bovine Intestinal Alkaline Phosphatase (IAP) produced under cGMP conditions and formulated for oral delivery. The published literature indicates that IAP functions to diminish GI and systemic inflammation, tighten the gut barrier to diminish â€œleaky gut,â€ diminish fat absorption, and promote a healthy microbiome. Despite its broad therapeutic potential, a key hurdle to commercialization has been the high cost of IAP manufacture which is commercially available for as much as \$10,000 per gram. We believe we have developed technologies to traverse this hurdle and now have the ability to produce more than 3 grams per liter of SYN-020 and anticipate a cost of roughly a few hundred dollars per gram at commercial scale. Based on the known mechanisms as well as our own supporting animal model data, we intended to initially develop SYN-020 to mitigate the intestinal damage caused by radiation therapy that is routinely used to treat pelvic cancers. While we believe SYN-020 may play a pivotal role in addressing acute and long-term complications associated with radiation exposure to the GI tract, we have also begun planning for potential development of SYN-020 in large market indications with significant unmet medical needs. Such indications include celiac disease, non-alcoholic fatty liver disease (â€œNAFLDâ€), and indications to treat and prevent metabolic and inflammatory disorders associated with aging. On June 30, 2020, we submitted an IND application to the FDA in support of an initial indication for the treatment of radiation enteropathy secondary to pelvic cancer therapy. On July 30, 2020, we announced that we received a study-may-proceed letter from the FDA to conduct a Phase 1a single-ascending-dose (â€œSADâ€) study in healthy volunteers designed to evaluate SYN-020 for safety, tolerability and pharmacokinetic parameters (NCT04815993). On April 1, 2021, we announced that enrollment had commenced in the Phase 1 SAD clinical trial of SYN-020. On June 29, 2021, we announced that enrollment, patient dosing and observation had been completed in the Phase 1, open-label, SAD study of SYN-020. The SAD study enrolled 6 healthy adult volunteers into each of four cohorts with SYN-020 given orally as single doses ranging from 5 mg to 150 mg. The data demonstrated that SYN-020 maintained a favorable safety profile, was well tolerated at all dose levels, and no adverse events were attributed to the study drug. No serious adverse events were reported. During the third quarter of 2021 we initiated a Phase 1 clinical study evaluating multiple ascending doses (â€œMADâ€) of SYN-020 (NCT05045833). On October 21, 2021 we announced that patient enrollment, dosing, and observation commenced in the Phase 1 MAD study of SYN-020. The placebo-controlled, blinded study enrolled 32 healthy adult volunteers into four cohorts with SYN-020 administered orally in doses ranging from 5 mg to 75 mg twice daily for 14 days with a follow-up evaluation at day 35. Each cohort included six subjects who received SYN-020 and two who received placebo. On May 10, 2022, we announced positive safety data from the Phase 1 MAD study demonstrating that SYN-020 maintained a favorable safety profile and was well-tolerated across all dose levels. There were a few treatment-related adverse events, and all were mild (grade 1) and resolved without medical intervention. The most common adverse event, constipation, occurred in three out of 24 subjects in the treatment arm and in one out of eight subjects in the placebo arm. No adverse event led to discontinuation of the study drug and there were no serious adverse events. Additionally, fecal SYN-020 analyses verified intestinal bioavailability while plasma levels of SYN-020 were below the limit of quantitation in all samples at all timepoints verifying that SYN-020 was not absorbed into the systemic circulation. 31 Table of Contents During the second quarter of 2020, we announced that we entered into an agreement with Massachusetts General Hospital (â€œMGHâ€) granting us an option for an exclusive license to intellectual property and technology related to the use of IAP to maintain GI and microbiome health, diminish systemic inflammation, and treat age-related diseases, which option was later amended liver fibrosis in select diseases, including NAFLD. The option expired unexercised on July 1, 2024. The Phase 1 data from our SAD and MAD studies are intended to support the development of SYN-020 in multiple clinical indications including radiation enteritis, NAFLD, celiac disease, and diseases associated with aging. With our transition to an oncology focused Company, we are exploring strategic opportunities to enable advancement of this potentially valuable asset. Research Programs VCN-01 + Topoisomerase Inhibitors On May 10, 2024, we presented non-clinical describing enhanced anti-tumor effects in human pancreatic cancer xenograft-bearing mice treated with lead product candidate VCN-01 and liposomal irinotecan in a poster at the 27th American Society of Gene and Cell Therapy (ASGCT) 2024 Congress held in Baltimore (Maryland) from May 7-11, 2024. These data support the potential synergy of VCN-01 and additional first-line pancreatic cancer chemotherapy regimens FOLFIRINOX and NALIRIFOX. Key finding reported in the poster include:â—The combination of VCN-01 + topoisomerase I (topo1) inhibitors, such as liposomal irinotecan, has a tolerable toxicity profile and may improve efficacy in the treatment of human pancreatic cancer.â—Viral protein expression was increased in human pancreatic cancer cell lines when they were exposed to topo1 inhibiting chemotherapeutics, irinotecan, its active metabolite, SN-38, and topotecan.â—Synergy of VCN-01 plus liposomal irinotecan was observed in animals bearing subcutaneous human pancreatic tumors. In human pancreatic mouse xenograft models, treatment with VCN-01 at a dose of 4x1010 vp or liposomal irinotecan alone (at both the 10 mg/kg and 5 mg/kg doses) resulted in significant tumor growth inhibition compared to saline. o Combination therapy with VCN-01 + liposomal irinotecan at either dose displayed significantly reduced tumor growth compared to each treatment alone. o qPCR analyses performed on tumors collected at end of study confirmed the presence of viral genomes, indicating ongoing transcriptional activity of VCN-01, which is consistent with viral replication for several days after administration. VCN-X Next Generation OVs and Albumin Shieldâ€, Technology In parallel with VCN-01 clinical development, we are developing next-generation oncolytic adenoviruses (termed VCN-X) with novel therapeutic payloads and structural modifications to increase tumor cell killing and improve systemic virus pharmacokinetics. Preclinical proof-of-concept has been established with VCN-11, which has been engineered to contain all of the features of VCN-01 as well as an additional modification to include an albumin binding domain (ABD) in the virus capsid. The virus capsid is the target for neutralizing antibodies (NAbs) that are generated by the host immune system to destroy circulating viruses. The presence of an ABD, however, blocks the binding of most neutralizing antibodies, which allows the virus to reach the tumor following intravenous administration. This â€œAlbumin Shieldâ€ works because human blood contains a large amount of albumin to coat the ABD-containing virus. Importantly, this coating of albumin appears to be displaced after the virus reaches tumor cells to infect them. In pre-clinical mouse studies to test the functionality of the â€œAlbumin Shieldâ€, mice pre-immunized with virus are able to completely neutralize an unmodified OV because they have a large concentration of neutralizing antibodies in their blood.

By contrast, viruses such as VCN-11 that contain the ABD are not neutralized and retain their ability to infect and destroy tumor cells. We believe the results with VCN-11 support the application of the Albumin Shield technology in our VCN-X program to advance treatments for tumors in which rapid multi-dosing may be beneficial.32 Table of ContentsIn March 2021, preclinical data obtained with VCN-11 was published (J Control Release. 2021 Apr 10;332:517-528), showing that the ABD-containing virus induced 450 times more cytotoxicity in tumor cells than in normal cells. Hyaluronidase production was confirmed by measuring the activity of the PH20 enzyme with a hyaluronidic acid-degradation assay, and by measuring PH20 activity in VCN-11 infected tumors in vivo. The ABD-containing virus evaded NABs from different sources and tumor levels of virus were demonstrated in the presence of high levels of NABs in vivo, whereas the control virus without ABD was neutralized. VCN-11 showed a low toxicity profile in athymic nude mice and Syrian hamsters, allowing treatments with high doses and fractionated administrations without major toxicities (up to 1.2x1011vp/mouse and 7.5x1011vp/hamster). ALT levels were increased on day 3 within an acceptable range that returned to normal levels by day 9. Fractionated intravenous administration of the ABD-containing virus (splitting the dose into two portions administered 4 h apart) appeared to improve virus circulation kinetics and increase tumor levels. Antitumor efficacy was observed in the presence of NABs against Ad5 and the ABD-containing virus.In May 2022, we presented data at the 25th Annual Meeting of the American Society of Gene & Cell Therapy (ASGCT). The presentation included preclinical results showcasing the potential of the Albumin Shield Technology to effectively target tumors after intravenous re-administration, even in the presence of high level NABs, with no major toxicities observed. Our internal VCN-X discovery programs are currently evaluating new oncolytic viruses that contain the Albumin Shield technology and may expand the potential efficacy of Theriva’s oncolytic viruses.Intellectual PropertyAll of our programs are supported by growing patent estates. In total, Theriva Biologics has over 130 U.S. and foreign patents and over 55 U.S. and foreign patents pending. VCN, through assignment or exclusive licenses, controls over 40 U.S. and foreign patents and over 15 U.S. and foreign patents pending.The SYN-004 (ribaxamase) program is supported by IP that is assigned to Theriva Biologics, namely U.S. and foreign patents (in most major markets, e.g. Europe (including Germany, Great Britain and France), Japan, China and Canada, among others). For instance, U.S. Patent Nos. 8,894,994 and 9,587,234, which include claims to compositions of matter and pharmaceutical compositions of beta-lactamases, including SYN-004 (ribaxamase), have patent terms to at least 2031. Further, U.S. Patent 9,301,995 and 9,301,996, both of which will expire in at least 2031, cover various uses of beta-lactamases, including SYN-004 (ribaxamase), in protecting the microbiome, and U.S. Patent Nos. 9,290,754, 9,376,673, 9,404,103, 9,464,280, and 9,695,409 which will expire in at least 2035, covers further beta-lactamase compositions of matter related to SYN-004 (ribaxamase).The SYN-020 (oral intestinal alkaline phosphatase (IAP)) program is supported by IP that is assigned to Theriva Biologics, namely U.S. and foreign patents and patent applications (in many major markets, e.g. Europe, China, Japan, Korea, Canada, and Australia). These patents and patent applications, which cover various formulations, medical uses and manufacture of SYN-020, are expected to expire in 2038-2040, without taking potential patent term extensions or patent term adjustment into account.The VCN-01 and Albumin Shield programs are supported by U.S. and foreign patents and patent applications that are assigned to VCN or exclusively licensed from Fundació Privada Institut d’Investigació Biomèdica de Bellvitge (IDIBELL), Institut Català d’Oncologia (ICO), and Hospital Sant Joan de D’ in Barcelona. The patents and patent applications include U.S. patents and foreign patents (in most major markets, e.g. Europe, China, Japan, Korea, Canada, Israel, Mexico, Russia, and Australia) and U.S. and foreign patents pending (in most major markets, e.g. Europe, China, Korea, Canada, Mexico, and India). The patents and patent applications cover compositions of matter and pharmaceutical compositions of oncolytic adenoviruses and various medical uses of the same. For instance, U.S. Patent No. 10,316,065, which expires in 2030 without taking potential patent term extensions or patent term adjustment into account, provides composition of matter and pharmaceutical composition coverage for a genus of engineered oncolytic adenovirus suitable for the treatment of solid tumors. Other patents and patent applications, if granted, will provide protection to 2037 without taking potential patent term extensions or patent term adjustment into account.Our goal is to (i) obtain, maintain, and enforce patent protection for our products, formulations, processes, methods, and other proprietary technologies, (ii) preserve our trade secrets, and (iii) operate without infringing on the proprietary rights of other parties worldwide. We seek, where appropriate, the broadest intellectual property protection for product candidates, proprietary information, and proprietary technology through a combination of contractual arrangements and patents.33 Table of ContentsCritical Accounting EstimatesThe preparation of our consolidated financial statements in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP) which requires the use of estimates, judgments and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the condensed consolidated financial statements, and the reported amounts of expenses in the periods presented. We believe that the accounting estimates employed are appropriate and resulting balances are reasonable; however, due to inherent uncertainties in making estimates, actual results may differ from the original estimates, requiring adjustments to these balances in future periods. There are accounting policies, each of which requires significant judgments and estimates on the part of management, that we believe are significant to the presentation of our consolidated financial statements. The most significant accounting estimates relate to goodwill and IPR&D, research and development costs, contingent consideration, and impairment of long-lived assets. Goodwill and IPR&DWe classify intangible assets into two categories: (1) intangible assets with indefinite lives not subject to amortization and (2) goodwill. Intangible assets that are deemed to have indefinite lives, including goodwill, are reviewed for impairment annually, or more frequently if events or changes in circumstances indicate that the asset might be impaired. The impairment test for indefinite-lived intangibles, other than goodwill, consists of a comparison of the fair value of the intangible asset with their carrying amount. If the carrying amount exceeds the fair value, an impairment charge is recognized in an amount equal to that excess. Indefinite-lived intangible assets, such as goodwill, are not amortized. We test the carrying amounts of goodwill for recoverability on an annual basis or when events or changes in circumstances indicate evidence a potential impairment exists, using a fair value-based test. If a reporting unit’s carrying value exceeds its fair value, then we will record a goodwill impairment charge for the excess amount. IPR&D assets are considered to be indefinite-lived until the completion or abandonment of the associated research and development projects. IPR&D assets represent the fair value assigned to technologies that we acquire, which at the time of acquisition have not reached technological feasibility and have no alternative future use. During the period that the assets are considered indefinite-lived, they are tested for impairment on an annual basis, or more frequently if we become aware of any events occurring or changes in circumstances that indicate that the fair value of the IPR&D assets are less than their carrying amounts. If and when development is complete, which generally occurs upon regulatory approval and the ability to commercialize products associated with the IPR&D assets, these assets are then deemed definite-lived and are amortized based on their estimated useful lives at that point in time. If development is terminated or abandoned, we may have a full or partial impairment charge related to the IPR&D assets, calculated as the excess of carrying value of the IPR&D assets over fair value. We concluded that the IPR&D was not impaired as of June 30, 2024. Goodwill represents the excess of the purchase price paid when we acquired VCN in March 2022, over the fair values of the acquired tangible or intangible assets and assumed liabilities. We will conduct an impairment test of goodwill on an annual basis as of October 1 of each year and will also conduct tests if events occur or circumstances change that would, more likely than not, reduce our fair value below our net equity value. During the quarter ended June 30, 2024, we experienced a sustained decline in the quoted market price of our common stock and we deemed this to be a triggering event for impairment. We performed an interim impairment analysis using the income approach that requires significant judgments, including primarily the estimation of future development costs, the probability of success in various phases of its development programs, potential post-launch cash flows and a risk-adjusted weighted average cost of capital. We concluded that goodwill with a carrying value of \$5.5 million was written down to its estimated fair value of \$1.5 million and an impairment charge of \$4.0 million was recorded during the quarter ended June 30, 2024.34 Table of ContentsContingent ConsiderationConsideration paid in a business combination may include potential future payments that are contingent upon the acquired business achieving certain milestones in the future (contingent consideration). Contingent consideration liabilities are measured at their estimated fair value as of the date of acquisition, with subsequent changes in fair value recorded in the consolidated statements of operations. We estimate the fair value of the contingent consideration as of the acquisition date using the estimated future cash outflows based on the probability of meeting future milestones. The milestone payments will be made upon the achievement of clinical and commercialization milestones. Subsequent to the date of acquisition, we reassess the actual consideration earned and the probability-weighted future earn-out payments at each balance sheet date. Any adjustment to the contingent consideration liability will be recorded in the consolidated statements of operations. Contingent consideration liabilities expected to be settled within 12 months after the balance sheet date are presented in current liabilities, with the non-current portion recorded under long term liabilities in the consolidated balance sheets. Long-Lived Assets Property and equipment is reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to future undiscounted net cash flows expected to be generated by the asset. Recoverability measurement and estimating of undiscounted cash flows is done at the lowest possible level for which we can identify assets. If such assets are considered to be impaired, impairment is recognized as the amount by which the carrying amount of assets exceeds the fair value of the assets. Acquired In-Process Research & Development represents the fair value assigned to those research and development projects that were acquired in a business combination for which the related products have not received regulatory approval and have no alternative future use. IPR&D is capitalized at its fair value as an indefinite-lived intangible asset, and any development costs incurred after the acquisition are expensed as incurred. Upon achieving regulatory approval or commercial viability for the related product, the indefinite-lived intangible asset is accounted for as a finite-lived asset and is amortized on a straight-line basis over the estimated useful life. If the project is not completed or is terminated or abandoned, the Company may have an impairment related to the IPR&D which is charged to expense. Indefinite-lived intangible assets are tested for impairment annually and whenever events or changes in circumstances indicate that the carrying amount may be impaired. Impairment is calculated as the excess of the asset’s carrying value over its fair value. Research and Development CostsWe expense research and development costs associated with developmental products not yet approved by the FDA to research and development expense as incurred. Research and development costs consist primarily of license fees (including upfront payments), milestone payments, manufacturing costs, salaries, stock-based compensation and related employee costs, fees paid to consultants and outside service providers for laboratory development, legal expenses resulting from intellectual property prosecution and other expenses relating to the design, development, testing and enhancement of our product candidates. Research and development expenses include external contract research organization (CRO) services. Additionally, the grant income is used to offset research and development costs. We make payments to the CROs based on agreed upon terms and may include payments in advance of study services. We review and accrue CRO expenses based on services performed and rely on estimates of those costs applicable to the stage of completion of study as provided by the CRO. Accrued CRO costs are subject to revisions as such studies progress to completion. At June 30, 2024 and 2023, we have accrued CRO expenses of \$2.5 million and \$1.0 million, respectively, that are included in accrued expenses. As of June 30, 2024 and 2023, we have prepaid CRO costs of \$0.2 million and \$2.1 million, respectively, that are included in prepaid expenses.35 Table of ContentsResults of OperationsThree Months Ended June 30, 2024 and 2023General and Administrative ExpensesGeneral and administrative expenses decreased to \$1.5 million for the three months ended June 30, 2024, from \$2.7 million for the three months ended June 30, 2023. This decrease of 45% is primarily comprised of the decrease in employee compensation costs, consulting fees, audit fees, lower director and officer insurance, and a decrease in fair value of the contingent consideration adjustment, offset by increased investor relation costs. The charge related to stock-based compensation expense was \$114,000 for the three months ended June 30, 2024, compared to \$106,000 for the three months ended June 30, 2023. Research and Development ExpensesResearch and development expenses decreased to \$3.0 million for the three months ended June 30, 2024, from approximately \$3.1 million for the three months ended June 30, 2023. This decrease of 6% is primarily the result of lower clinical trial expenses related to our VIRAGE Phase 2 clinical trial of VCN-01 in PDAC and lower expenses related to our Phase 1a clinical trial of SYN-020 which has completed, offset by increased expenses to our Phase 1b/2a clinical trial of SYN-004 (ribaxamase) in allogeneic HCT recipients. We anticipate research and development expense to increase as we continue enrollment in our VIRAGE Phase 2 clinical trial of VCN-01 in PDAC, advance our VCN-01 program in retinoblastoma, expand GMP manufacturing activities for VCN-01, and continue supporting our other preclinical and discovery initiatives. The charge related to stock-based compensation expense was \$58,000 for the three months ended June 30, 2024, compared to \$40,000 related to stock-based compensation expense for the three months ended June 30, 2023. The following table sets forth our research and development expenses directly related to our product candidates for the three months ended June 30, 2024 and 2023. These direct expenses were external costs associated with preclinical studies and clinical trials. Indirect research and development expenses related to employee costs, facilities, stock-based compensation and research and development support services that are not directly allocated to specific product candidates are allocated to June 30, 2024 and 2023. Therapeutic Areas 2024 2023 VCN-01 \$ 1,310 \$ 1,659 Ribaxamase \$ 264 \$ 212 SYN-020 \$ 36 \$ 79 Other therapeutic areas \$ 120 \$ 97 Total direct costs \$ 1,730 \$ 2,047 Total indirect costs \$ 1,223 \$ 1,086 Total Research and Development \$ 2,953 \$ 3,133 Goodwill Impairment During the quarter ended June 30, 2024, we experienced a sustained decline in the quoted market price of our common stock and we deemed this to be a triggering event for impairment. The Company performed an interim impairment analysis using the income approach that requires significant judgments, including primarily the estimation of future development costs, the probability of success in various phases of its development programs, potential post-launch cash flows and a risk-adjusted weighted average cost of capital. We concluded that the IPR&D was not impaired as of June 30, 2024, however, goodwill with a carrying value of \$5.5 million was written down to its estimated fair value of \$1.5 million and an impairment charge of \$4.0 million was recorded during the quarter ended June 30, 2024. The decrease in the valuation was primarily driven by an increase in the discount rate which was impacted by an increase in the company specific risk premium, and not by material changes to the clinical and administrative operations of the business.36 Table of ContentsOther Income/ExpenseOther income was \$172,000 for the three months ended June 30, 2024 compared to other income of \$377,000 for the three months ended June 30, 2023. Other income for the three months ended June 30, 2024 is primarily comprised of interest income of \$173,000 and an exchange loss of \$1,000. Other income for the three months ended June 30, 2023 is primarily comprised of interest income of \$381,000 and exchange loss of \$4,000. Net Loss Attributable to Common StockholdersOur net loss attributable to common stockholders was approximately \$8.3 million, or \$0.43 per basic and diluted common share for the three months ended June 30, 2024, compared to a net loss of approximately \$5.1 million, or \$0.34 per basic common share and diluted common share for the three months ended June 30, 2023. Six Months Ended June 30, 2024 and 2023General and Administrative ExpensesGeneral and administrative expenses decreased to \$3.4 million for the six months ended June 30, 2024, from \$4.9 million for the six months ended June 30, 2023. This decrease of 30% is primarily comprised of the decrease in compensation costs, consulting, legal fees, audit fees, investor relation costs, lower director and officer insurance, and a decrease in fair value of the contingent consideration adjustment. The charge related to stock-based compensation expense was \$215,000 for the six months ended June 30, 2024, compared to \$193,000 for the six months ended June 30, 2023. Research and Development ExpensesResearch and development expenses increased to \$6.4 million for the six months ended June 30, 2024, from approximately \$6.1 million for the six months ended June 30, 2023. This increase of 5% is primarily the result of higher clinical trial expenses related to our VIRAGE Phase 2 clinical trial of VCN-01 in PDAC, increased expenses related to the Phase 1 trial of intravitreal VCN-01 in patients with retinoblastoma, and increased expenses related to our Phase 1b/2a clinical trial of SYN-004 (ribaxamase) in allogeneic HCT recipients, offset by lower expenses related to our Phase 1a clinical trial of SYN-020. We anticipate research and development expense to increase as we continue enrollment in our VIRAGE Phase 2 clinical trial of VCN-01 in PDAC, advance our VCN-01 program in retinoblastoma, expand GMP manufacturing activities for VCN-01, and continue supporting our other preclinical and discovery initiatives. The charge related to stock-based compensation expense was \$116,000 for the six months ended June 30, 2024, compared to \$79,000 related to stock-based compensation expense for the six months ended June 30, 2023. The following table sets forth our research and development expenses directly related to our product candidates for the six months ended June 30, 2024 and 2023. These direct expenses were external costs associated with preclinical studies and clinical trials. Indirect research and development expenses related to employee costs, facilities, stock-based compensation and research and development support services that are not directly allocated to specific product candidates are allocated to June 30, 2024 and 2023. Therapeutic Areas 2024 2023 VCN-01 \$ 696 \$ 1,440 Other therapeutic areas \$ 216 \$ 157 Total direct costs \$ 4,066 \$ 4,022 Total indirect costs \$ 2,346 \$ 2,088 Total Research and Development \$ 6,412 \$ 6,11037 Table of ContentsGoodwill ImpairmentDuring the six months ended June 30, 2024, we experienced a sustained decline in the quoted market price of our common stock and we deemed this to be a triggering event for impairment. The Company performed an interim impairment analysis using the income approach that

requires significant judgments, including primarily the estimation of future development costs, the probability of success in various phases of its development programs, potential post-launch cash flows and a risk-adjusted weighted average cost of capital. We concluded that the IPR&D was not impaired as of June 30, 2024, however, goodwill with a carrying value of \$5.5 million was written down to its estimated fair value of \$1.5 million and an impairment charge of \$4.0 million was recorded during the six months ended June 30, 2024. The decrease in the valuation was primarily driven by an increase in the discount rate which was impacted by an increase in the company specific risk premium, and not by material changes to the clinical and administrative operations of the business.â€•Other Income/ExpenseOther income was \$400,000 for the six months ended June 30, 2024 compared to other income of \$746,000 for the six months ended June 30, 2023. Other income for the six months ended June 30, 2024 is primarily comprised of interest income of \$402,000 and an exchange loss of \$2,000. Other income for the six months ended June 30, 2023 is primarily comprised of interest income of \$745,000 and exchange gain of \$1,000. Net Loss Attributable to Common StockholdersOur net loss attributable to common stockholders was approximately \$13.5 million, or \$0.74 per basic and diluted common share for the six months ended June 30, 2024, compared to a net loss of approximately \$9.6 million, or \$0.63 per basic common share and diluted common share for the six months ended June 30, 2023.Liquidity and Capital ResourcesAs of June 30, 2024, the Company has a significant accumulated deficit, and with the exception of the three months ended June 30, 2010 and the three months ended December 31, 2017, the Company has experienced significant losses and incurred negative cash flows since inception. We have incurred an accumulated deficit of \$322.8 million as of June 30, 2024, and expect to continue to incur losses in the foreseeable future with the recognition of revenue being contingent on successful phase 3 clinical trials and requisite approvals by the FDA or foreign equivalents.Our cash and cash equivalents totaled \$16.6 million as of June 30, 2024, a decrease of \$6.6 million from December 31, 2023. During the year ended December 31, 2023 and six months ended June 30, 2024, the primary use of cash was for working capital requirements and operating activities which resulted in a net loss of \$18.3 million and \$13.5 million for the year ended December 31, 2023 and the six months ended June 30, 2024, respectively.With our cash position of approximately \$14.5 million in early August 2024, we believe we will be able to fund our operations into the second quarter of 2025. Following the anticipated completion of our ongoing Phase 1 and Phase 2 clinical trials for VCN-01, and preclinical studies supporting VCN-01 and our discovery initiatives, we will need to obtain additional funds for future clinical trials. We anticipate that our future clinical trials will be much larger in size and require larger cash expenditures than the aforementioned clinical programs. We do not have any committed sources of financing for future clinical trials at this time, and it is uncertain whether additional funding will be available when we need it on terms that will be acceptable to us, or at all. Management believes its plan, which is focused on the advancement of VCN-01 will allow us to meet our financial obligations, further advance key products, and maintain our planned operations. Based upon our current estimates of the funding required to complete our current ongoing VCN-01 clinical trials, we do not anticipate continuing the development of SYN-004 internally and instead are seeking to out-license or partner the development of SYN-004. However, the amount of additional capital needed by us will also depend upon the costs to advance our VCN-01 clinical programs and whether we continue to develop SYN-004 internally, or out-license or partner such development. If necessary, we may attempt to utilize the at the market sales facility (the â€œATMâ€•) or seek to raise additional capital in other financing transactions, neither of which is guaranteed. Use of the ATM is limited by certain restrictions and managementâ€™s plan does not rely on additional capital from either of these sources. If we are not able to obtain additional capital (which is not assured at this time), our long-term business plan may not be accomplished, and we may be forced to cease certain development activities. More specifically, the completion of any later stage clinical trial will require significant financing or a significant partnership.38 Table of ContentsHistorically, we have financed our operations primarily through public and private sales of our securities, and we expect to continue to seek and obtain additional capital in a similar manner. During the year ended December 31, 2023, our only source of cash was from sales of our common stock through the ATM pursuant to which we sold 2.0 million shares of our stock for net proceeds of \$2.2 million. During the three and six months ended June 30, 2024, our only source of cash was from sales of our common stock through the Amended and Restated ATM Sales Agreement pursuant to which we sold 4.4 million shares of our stock for net proceeds of \$1.8 million. There can be no assurance that we will be able to continue to raise funds through the sale of shares of common stock through the ATM or other equity financings. If we raise funds by selling additional shares of common stock or other securities convertible into common stock, the ownership interest of our existing stockholders will be diluted. If we are not able to obtain funding for future clinical trials when needed, we will be unable to carry out our business plan and we will be forced to delay the initiation of future clinical trials until such time as we obtain adequate financing and may need to abandon some of our development programs. We have spent, and expect to continue to spend, a substantial amount of funds in connection with implementing our business strategy, including our planned product development efforts, preparation for our planned clinical trials, performance of clinical trials and our research and discovery efforts. Based on our current plans, our cash and cash equivalents will not be sufficient to enable us to meet our near term or long-term expected plans as it is anticipated that we will not have enough cash to continue our operations for the next twelve months from the date of the filing of this Quarterly Report on Form 10-Q. We will be required to obtain additional funding in order to continue the development of certain product candidates within the anticipated time periods (including initiation of planned clinical trials), if at all, and to continue to fund operations at the current cash expenditure levels. We do anticipate that our current cash or approximately \$14.5 million as of early August, 2024 will allow us to cover overhead costs, manufacturing costs for near-term clinical supply, manufacturing costs of VCN-01 for clinical trial use and limited research efforts, including completing our funding requirements for our ongoing Phase 1b/2a clinical study (cohort II) of SYN-004 (ribaxamase) in allogeneic HCT recipients for the prevention of aGVHD, our ongoing Phase 1 and Phase 2 clinical trials for VCN-01, preclinical studies supporting VCN-01 and our ongoing discovery initiatives, and to fund our committed obligations under the VCN Purchase Agreement for the VCN Acquisition into the second quarter of 2025. Our independent registered public accounting firm has issued a report for the year ended December 31, 2023 that includes an explanatory paragraph referring to our recurring losses from operations (anticipated continued losses in the future) and net capital deficiency that raise substantial doubt in our ability to continue as a going concern without additional capital becoming available. Our ability to continue as a going concern is dependent upon our ability to obtain additional equity or debt financing, attain further operating efficiencies, reduce expenditures, and, ultimately, to generate revenue. Our notes to the consolidated financial statements contain an explanatory paragraph referring to our recurring and continuing losses from operations and expressing substantial doubt in our ability to continue as a going concern without additional capital becoming available. We cannot provide any assurance that we will be able to obtain the required funding to achieve our current business plan, obtain the required regulatory approvals for our product candidates or complete additional corporate partnering or acquisition transactions in order to commercialize such product candidates once regulatory approval is received. If we fail to obtain additional funding for our clinical trials, whether through the sale of securities or a partner or collaborator, and otherwise when needed, we will not be able to execute our business plan as planned and will be forced to cease certain development activities (including initiation of planned clinical trials) until funding is received and our business will suffer, which would have a material adverse effect on our financial position, results of operations and cash flows. 39 Table of ContentsOur ability to continue as a going concern is dependent upon our ability to raise additional capital. Our cash and cash equivalents will not be sufficient to enable us to meet our near term or long-term expected plans, including initiation or completion of future registration studies for VCN-01, any potential future trials of SYN-004 including Phase 3 clinical programs of SYN-004 (ribaxamase) for prevention of CDI or the Phase 1b/2a clinical study of SYN-004 (ribaxamase) in allogeneic HCT recipients, or later-stage clinical trials of SYN-020. Therefore, we do not intend to commence future new studies of VCN-01, SYN-004 (ribaxamase) or SYN-020 until we are confident that we have funding necessary to complete such trials. We are actively pursuing additional equity or debt financing, in the form of either a private placement or a public offering and have been in ongoing discussions with strategic institutional investors and investment banks with respect to such possible offerings. However, we do not currently have commitments from any third parties to provide us with capital. Potential sources of financing that we are pursuing include strategic relationships, public or private sales of our equity (including through the ATM) or debt and other sources. Such additional financing opportunities might not be available to the Company when and if needed, on acceptable terms or at all. We cannot assure that we will meet the requirements for use of the ATM especially in light of the fact that we are currently limited by rules of the SEC as to the number of shares of common stock that we can sell pursuant to the ATM due to the market value of our common stock held by non-affiliates. Even if we meet the requirements for use of the ATM, there can be no assurance that we will be able to raise funds through the sale of shares of common stock through the ATM. Additionally, we may seek to access the public or private equity markets when conditions are favorable due to our long-term capital requirements. If we are unable to obtain additional capital (which is not assured at this time), our long-term business plan may not be accomplished and we may be forced to cease certain development activities. More specifically, the completion of future Phase 3 and/or registration clinical studies will require significant financing or a significant partnership. If we raise funds by selling additional shares of common stock or other securities convertible into common stock, the ownership interest of our existing stockholders will be diluted. If we are not able to obtain funding for future clinical trials when needed, we will be unable to carry out our business plan and we will be forced to delay the initiation of future clinical trials until such time as we obtain adequate financing and our operating results and prospects will be adversely affected.Cash FlowsCash Used in Operating ActivitiesNet cash used in operating activities was \$8.3 million and \$9.5 million during the six months ended June 30, 2024 and 2023, respectively, which was primarily due to the use of funds in our operations related to the development of VCN-01 our product candidate. Cash used in operating activities for the six months ended June 30, 2024 decreased compared to the same period in 2023 due primarily to the reduction of prepaid clinical costs related to our Phase 2 trial incurred in the current year.Cash Used In Investing ActivitiesCash used in investing activities during the six months ended June 30, 2024 and 2023 was \$1,000 and \$17,000 for equipment purchases.Cash Provided by Financing ActivitiesCash provided by financing activities during the six months ended June 30, 2024 included at the market offering proceeds of \$1.8 million from sales of 4.4 million shares of our common stock offset by payments related to loans extended by certain Spanish institutions of \$67,000. Cash provided by financing activities during the six months ended June 30, 2023 included at the market offering proceeds of \$2.2 million from sales of 1.9 shares of our common stock which was offset by \$75,000 of debt payments. Off-Balance Sheet ArrangementsDuring the six months ended June 30, 2024, we did not have, and we do not currently have, any off-balance sheet arrangements, as defined under SEC rules.40 Table of ContentsContractual ObligationsLeasesAt the inception of a contract we determine if the arrangement is, or contains, a lease. Right of use (â€œROUâ€•) assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. ROU assets and liabilities are recognized at the commencement date based on the present value of lease payments over the lease term. We have made certain accounting policy elections whereby we (i) do not recognize ROU assets or lease liabilities for short-term leases (those with original terms of 12-months or less) and (ii) combine lease and non-lease elements of our operating leases. As of June 30, 2024, we did not have any material finance leases.â€•ITEM 3. A QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.The primary objective of our investment activities is to preserve our capital to fund operations. We also seek to maximize income from our investments without assuming significant risk. Our exposure to market risk is confined to our cash and cash equivalents. As of June 30, 2024 our cash and cash equivalents consisted primarily of investments in treasury securities. We do not engage in any hedging activities against changes in interest rates. Due to the short-term duration of our investment portfolio and the low risk profile of our investments, we would not expect our operating results or cash flows to be affected to any significant degree by the effect of a sudden change in market interest rates or credit conditions on our securities portfolio. We may, however, require additional financing to fund future obligations and no assurance can be given that the terms of future sources of financing will not expose us to material market risk.â€•ITEM 4. A CONTROLS AND PROCEDURES.(a) A Evaluation of Disclosure Controls and ProceduresOur management, with the participation of our Chief Executive Officer who also serves as our Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of June 30, 2024. The term â€œdisclosure controls and procedures,â€• as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the rules and forms of the Securities and Exchange Commission (the â€œSECâ€•). Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Companyâ€™s management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure. We have adopted and maintain disclosure controls and procedures (as defined Rules 13a-15(e) and 15d-15(e) under the Exchange Act) that are designed to provide reasonable assurance that information required to be disclosed in the reports filed under the Exchange Act, such as this Quarterly Report on Form 10-Q, is collected, recorded, processed, summarized and reported within the time periods specified in the rules of the SEC. The Companyâ€™s disclosure controls and procedures are also designed to ensure that such information is accumulated and communicated to management to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Due to the material weaknesses in internal control over financial reporting as described below, our Chief Executive Officer who also serves as our Chief Financial Officer concluded that, as of the end of the period covered by this report, our disclosure controls and procedures were not effective. Based on its assessment, management has concluded that the Company did not maintain effective internal control over financial reporting as of June 30, 2024, due to the following previously reported material weaknesses that continued to exist:â€•Management did not design and maintain effective review controls at a sufficient level of precision with certain financial statement areas and over unusual transactions involving complex accounting and related disclosure requirements. 41 Table of Contentsâ€•Management did not maintain effective information technology general controls over user access, program change management, and segregation of duties, within certain key information systems supporting the Companyâ€™s accounting and financial reporting processes. Additionally, many of the Companyâ€™s business process controls dependent upon the information derived from these information systems were also ineffective, as management did not design and implement controls to validate the completeness and accuracy of underlying data utilized in the operation of those controls.Managementâ€™s Plan for RemediationIn response to the material weaknesses, management, with oversight of the Audit Committee of the Board of Directors, has identified and begun to implement steps to remediate the material weaknesses. We have hired a third party consultant during 2024 to assist with the remediation efforts. While we have made progress during 2024, the remediation efforts are ongoing, as additional time is needed to complete the remediation and allow for the internal controls to be tested by management. Our continued internal control remediation efforts include the following:â€•Enhancing existing policies and procedures to facilitate more efficient operations and improve the timely execution of key controls by company personnel.â€•Enhancing program change management, user access provisioning, and monitoring controls to ensure changes to key applications are appropriately reviewed and approved and to enforce appropriate system access and segregation of duties.â€•Improving the design of key controls to ensure reports used in the performance of such controls are complete and accurate as part of the controls execution. We are committed to ensuring that our internal controls over financial reporting are designed and operating effectively. Management believes the efforts taken to date and the planned remediation will improve the effectiveness of our internal control over financial reporting. While these remediation efforts are ongoing, the controls must be operating effectively for a sufficient period of time and be tested by management in order to consider them remediated and conclude that the design is effective to address the risks of material misstatement.Changes in Internal Control Over Financial ReportingExcept for the material weaknesses described above, there has been no change in the Companyâ€™s internal control over financial reporting during the Companyâ€™s most recent quarter that has materially affected, or is reasonably likely to materially affect, the Companyâ€™s internal control over financial reporting.â€•42 Table of ContentsPART II â€œOTHER INFORMATIONâ€•ITEM 1. A LEGAL PROCEEDINGS.From time to time we may become involved in legal proceedings or be subject to claims arising in the ordinary course of our business. We are not presently a party to any legal proceedings that, if determined adversely to us, would individually or taken together have a material adverse effect on our business, operating results, financial condition or cash flows. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.â€•ITEM 1A. RISK FACTORS.The following information updates, and should be read in conjunction with, the information disclosed in Part A I.A Item 1A, â€œRisk Factors,â€• contained in our 2023 Form 10-K. Except as disclosed below, there have been no material changes from the risk factors disclosed in our 2023 Form 10-K.RISKS RELATING TO OUR BUSINESSThere is uncertainty regarding our ability to maintain liquidity sufficient to operate our business effectively, which raises substantial doubt about our ability to continue as a going concern.Our consolidated unaudited financial statements as of June 30, 2024 have been prepared under the assumption that we will continue as a going concern for the next twelve months. Our management concluded that our recurring losses from operations and the fact that as of June 30, 2024 we have an accumulated deficit of approximately \$322.8 and working capital of \$12.9

million raise substantial doubt about our ability to continue as a going concern for the next twelve months after issuance of our financial statements. As of June 30, 2024, we had a cash and cash equivalents and restricted cash balance of approximately \$16.7 million. At December 31, 2023, we had an accumulated deficit of \$309.3 million and working capital of \$20.7 million. As of December 31, 2023, we had a cash and cash equivalents and restricted cash balance of approximately \$23.3 million consisting of cash and investments in highly liquid U.S. money market funds. We expect to continue to incur losses from expenses related to the development of our product candidates and related administrative activities for the foreseeable future. We expect that our current cash will be able to fund operations into the second quarter of 2025 but will not be sufficient to fund operations for twelve months from the date of the filing of this Quarterly Report on Form 10-Q and we will need to seek additional capital to fulfill our operating and capital requirement for the next 12 months to advance our clinical development program to later stages of development and commercialize our clinical product candidate. In addition, our independent registered public accounting firm has issued a report for the year ended December 31, 2023 that includes an explanatory paragraph referring to our recurring losses from operations (anticipated continued losses in the future) and net capital deficiency that raise substantial doubt in our ability to continue as a going concern without additional capital becoming available. Our ability to continue as a going concern is dependent upon our ability to obtain additional equity or debt financing, attain further operating efficiencies, reduce expenditures, and, ultimately, to generate revenue. Although management has been successful in raising capital in the past, there can be no assurance that we will be successful or that any needed financing will be available in the future at terms acceptable to us. As such, we cannot conclude that such plans will be effectively implemented within one year after the date that the financial statements included in this Quarterly Report on Form 10-Q are filed with the SEC and there is uncertainty regarding our ability to maintain liquidity sufficient to operate our business effectively, which raises substantial doubt about our ability to continue as a going concern.43 Table of ContentsWe will need to raise additional capital to operate our business and our failure to obtain funding when needed may force us to delay, reduce or eliminate certain of our development programs or commercialization efforts. During the six months ended June 30, 2024, our operating activities used net cash of approximately \$8.3 million and our cash and cash equivalents were approximately \$16.6 million as of June 30, 2024. With the exception of the three months ended June 30, 2010 and the three months ended December 31, 2017, we have experienced significant losses since inception and have a significant accumulated deficit. As of June 30, 2024, our accumulated deficit totaled approximately \$322.8 million on a consolidated basis. Pursuant to the Purchase Agreement, we have agreed to use reasonable efforts to commercialize VCN-01 and we agreed as a post-closing covenant to commit to fund VCNâ€™s research and development programs, including but not limited to VCN-01 PDAC phase 2 clinical trial, VCN-01 RB trial and necessary G&A within a budgetary plan of approximately \$27.8 million over three years. We expect to incur additional operating losses in the future and therefore expect our cumulative losses to increase. With the exception of the quarter ended June 30, 2010, and limited laboratory revenues from Adeona Clinical Laboratory, which we sold in March 2012, we have generated very minimal revenues. We do not expect to derive revenue from any source in the near future until we or our potential partners successfully commercialize our products. We expect our expenses to increase in connection with our anticipated activities, particularly as we continue research and development, initiate and conduct clinical trials, and seek marketing approval for our product candidates. Until such time as we receive approval from the FDA and other regulatory authorities for our product candidates, we will not be permitted to sell our products and therefore will not have product revenues from the sale of products. For the foreseeable future we will have to fund all of our operations and capital expenditures from equity and debt offerings, cash on hand, licensing and collaboration fees and grants, if any. We will need to raise additional capital to fund our operations and meet our current timelines and we cannot be certain that funding will be available on acceptable terms on a timely basis, or at all. Based on our current plans, our cash and cash equivalents will be sufficient to complete our planned clinical trials of VCN-01 (in PDAC and retinoblastoma), but may not be sufficient for additional trials of VCN-01, SYN-020 or SYN-004, or to complete the last cohort of the Phase 1a/2a clinical trial of SYN-004, which are expected to require significant cash expenditures. In addition, based on the significant anticipated cost of a Phase 3 clinical program in a broad indication for SYN-004, we expect it will not be feasible for us to initiate and complete this trial at this time without a partner given the capital constraints tied to our current market cap and share price. We intend to focus our capital on our VCN-01 clinical trials and do not intend to provide further funding for our development of VCN-004 internally but intend to our license or partner further development of SYN-004. Further development of VCNâ€™s product candidates will require additional funding. To the extent that we raise additional funds by issuing equity securities, our stockholders may experience significant dilution. Any debt financing, if available, may involve restrictive covenants that may impact our ability to conduct our business and also have a dilutive effect on our stockholders. A failure otherwise to secure additional funds when needed in the future whether through an equity or debt financing or a sufficient amount of capital without a strategic partnership could result in us being unable to complete planned preclinical and clinical trials or obtain approval of our product candidates from the FDA and other regulatory authorities. In addition, we could be forced to delay, discontinue or curtail product development, forego sales and marketing efforts, and forego licensing in attractive business opportunities. Our ability to raise capital through the sale of securities may be limited by the rules of the SEC and NYSE American that place limits on the number and dollar amount of securities that may be sold. There can be no assurances that we will be able to raise the funds needed, especially in light of the fact that our ability to sell securities registered on our registration statement on Form S-3 will be limited until such time the market value of our voting securities held by non-affiliates is \$75 million or more. We also may be required to seek collaborators for our product candidates at an earlier stage than otherwise would be desirable and on terms that are less favorable than might otherwise be available. We expect to seek to raise additional capital in the future, which may be dilutive to stockholders or impose operational restrictions. We expect to seek to raise additional capital in the future to help fund development of our proposed products. If we raise additional capital through the issuance of equity or of debt securities, the percentage ownership of our current stockholders will be reduced. We may also enter into strategic transactions, issue equity as consideration for acquisitions or part of license issue fees to our licensors, compensate consultants or settle outstanding payables using equity that may be dilutive. We are authorized to issue 350,000,000 shares of common stock, of which 22,393,158 shares of common stock were outstanding as of June 30, 2024. At June 30, 2024, we had reserved 5,940,228 shares of common stock for issuance upon exercise of our outstanding options, and preferred shares. In addition, at such date, we had 2,826,498 shares of our common stock reserved for future issuance under our equity incentive plans. If all of these securities were to be exercised, the total number of shares of our common stock that we would be required to issue is 8,766,726, which in addition to the 22,393,158 shares outstanding, would leave 318,840,116 authorized but unissued shares of common stock available to be issued.44 Table of ContentsIn order to raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share paid by existing stockholders, thereby subjecting such stockholders to dilution. Our stockholders may experience additional dilution in net book value per share and any additional equity securities may have rights, preferences and privileges senior to those of the holders of our common stock. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by existing stockholders, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by existing stockholders. We have identified material weaknesses in our internal controls, and we cannot provide assurances that these weaknesses will be effectively remediated or that additional material weaknesses will not occur in the future. Our internal control over financial reporting or our disclosure controls and procedures are not effective, we may not be able to accurately report our financial results, prevent fraud, or file our periodic reports in a timely manner, which may cause investors to lose confidence in our reported financial information and may lead to a decline in our stock price. Our management is responsible for establishing and maintaining adequate internal control over our financial reporting, as defined in Rule 13a-15(f) under the Exchange Act. Based on our assessment, we have concluded that as of June 30, 2024 we did not maintain effective review controls at a sufficient level of precision with certain financial statement areas and over unusual transactions involving complex accounting and related disclosure requirements. We also did not maintain effective information technology general controls over user access, program change management, and segregation of duties, within certain key information systems supporting our accounting and financial reporting processes. Additionally, many of our business process controls dependent upon the information derived from these information systems were also ineffective, as we did not design and implement controls to validate the completeness and accuracy of underlying data utilized in the operation of those controls. While we plan to take remedial action to address the material weaknesses, we cannot provide any assurance that such remedial measures, or any other remedial measures we take, will be effective. If we fail to maintain effective internal control over financial reporting, we may not be able to accurately report our financial results, detect or prevent fraud, or file our periodic reports in a timely manner, which may, among other adverse consequences, cause investors to lose confidence in our reported financial information and lead to a decline in our stock price. In addition, a material weakness will not be considered remediated until the applicable controls operate for a sufficient period of time and management has concluded, through testing, that these controls are designed and operating effectively. Although management believes that the material weaknesses will be remediated by the end of the fiscal year there can be no assurance that the deficiencies will be remediated at such time or that the internal control over financial reporting, as modified, will enable us to identify or avoid material weaknesses in the future. We cannot assure you that our common stock will be liquid or that it will remain listed on the NYSE American. Our common stock is listed on the NYSE American. The NYSE Americanâ€™s listing standards generally mandate that we meet certain requirements relating to stockholdersâ€™ equity, stock price, market capitalization, aggregate market value of publicly held shares and distribution requirements. We cannot assure you that we will be able to maintain the continued listing standards of the NYSE American. The NYSE American requires companies to meet certain continued listing criteria including a minimum stockholdersâ€™ equity of \$6.0 million if an issuer has sustained losses from continuing operations and/or net losses in its five most recent years, as outlined in the NYSE American Company Guide and trading of the stock above \$0.10 per share. The NYSE American Company Guide also states that the NYSE normally will not consider removing from listing securities of an issuer if it is in compliance with all of the following: a total value of market capitalization of at least \$50.0 million; 1,100,000 publicly-held shares; a market value of publicly held shares of at least \$15.0 million; and 400 round lot shareholders. In addition, the NYSE American has informed us that it can commence delisting proceedings and immediately suspend trading in the event that our common stock trades at levels viewed to be abnormally low and no longer suitable for listing pursuant to Section 1003(f)(v) of the NYSE American Company Guide. Generally the NYSE American views trading at or below a price of \$0.10 to be abnormally low. As stated above, in the event that we were to fail to meet the requirements of NYSE American per share price requirement the NYSE American could commence delisting proceedings and immediately suspend trading of our common stock or the NYSE American or if we fail to meet other requirements such as the stockholdersâ€™ equity requirement and we could not timely cure such deficiency, our listing could become subject to NYSE American continued listing evaluation and follow-up procedures, which could result in delisting procedures.45 Table of ContentsWe previously received notification from the NYSE American citing failure to comply with the minimum stockholdersâ€™ equity continued listing standard as set forth in Part 10, Section 1003 of the Company Guide. Although in the past we have been able to cure previously cited deficiencies, there can be no assurance that we will continue to meet the NYSE American continued listing requirements. In addition, in the future we may not be able to ensure that our common stock trades at levels not viewed to be abnormally low and no longer suitable for listing or maintain minimum stockholdersâ€™ equity and/or issue additional equity securities in exchange for cash or other assets, if available, to maintain certain minimum stockholdersâ€™ equity required by the NYSE American. If we are delisted from the NYSE American then our common stock will trade, if at all, only on the over-the-counter market, such as the OTC Bulletin Board securities market, and then only if one or more registered broker-dealer market makers comply with quotation requirements. In addition, delisting of our common stock could depress our stock price, substantially limit liquidity of our common stock and materially adversely affect our ability to raise capital on terms acceptable to us, or at all. Delisting from the NYSE American could also have other negative results, including the potential loss of confidence by suppliers and employees, the loss of institutional investor interest and fewer business development opportunities. We cannot assure you that our common stock will be liquid or that it will remain listed on the NYSE American. A failure to regain compliance with the NYSE American stockholdersâ€™ equity requirements or failure to continue to meet the other listing requirements could result in a de-listing of our common stock.ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS. (a) Unregistered Sales of Equity Securities We did not sell any equity securities during the six months ended June 30, 2024 in transactions that were not registered under the Securities Act other than as previously disclosed in our filings with the SEC. (b) Use of Proceeds Not applicable. (c) Issuer Purchases of Equity Securities Not applicable.â€¢ITEM 3. A DEFAULTS UPON SENIOR SECURITIES. Not applicable.â€¢ITEM 4. A MINE SAFETY DISCLOSURES. Not applicable.â€¢ITEM 5. A OTHER INFORMATION. During the six months ended June 30, 2024, no director or officer of the Company adopted or terminated a â€¢Rule 10b5-1 trading arrangementâ€¢ or â€¢nonRule 10b5-1 trading arrangementâ€¢ as each term is defined in Item 408(a) of Regulation S-K.â€¢ITEM 6. EXHIBITS The exhibits filed or furnished as part of this Quarterly Report on Form 10-Q are set forth on the Exhibit A Index, which Exhibit A Index is incorporated herein by reference.â€¢46 Table of ContentsSIGNATURESPursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.â€¢THERIVA BIOLOGICS, INC.â€¢â€¢â€¢â€¢By:/s/ Steven A. Shallcrossâ€¢â€¢Steven A. Shallcrossâ€¢â€¢Chief Executive Officer, Chief Financial Officerâ€¢â€¢(Principal Executive Officer, Principal Financial Officer and Principal Accounting Officer)â€¢â€¢â€¢â€¢Date: August 13, 2024â€¢â€¢â€¢47 Table of ContentsEXHIBIT A INDEXâ€¢â€¢Exhibit NumberA A A Exhibit Title1.1â€¢Amendment No.2 to Amended and Restated At Market Issuance Agreement dated May 2, 2024 between Theriva Biologics, Inc. and A.G.P./Alliance Global Partners (Incorporated by reference to Exhibit 10.3 to the Registrantâ€™s Current Report on Form 8-K filed May 2, 2024, File No. 001-12584)â€¢â€¢â€¢3.1â€¢Certificate of Incorporation, as amended (Incorporated by reference to (i) Exhibit 3.1 of the Registrantâ€™s Current Report on Form 8-K filed October 16, 2008, File No. 001-12584, (ii) Exhibit 3.1 of the Registrantâ€™s Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2001 filed August 14, 2001, File No. 001-12584; and (iii) Exhibits 3.1, 4.1 and 4.2 of the Registrantâ€™s Quarterly Report on Form 10-Q for the quarterly period ended June 30, 1998 filed August 14, 1998, File No. 001-12584)â€¢â€¢â€¢3.2â€¢Articles of Merger (Incorporated by reference to Exhibit 3.1 of the Registrantâ€™s Current Report on Form 8-K filed October 19, 2009, File No. 001-12584)â€¢â€¢â€¢3.3â€¢Certificate of Merger filed with the Secretary of State of Delaware (Incorporated by reference to Exhibit 3.2 of the Registrantâ€™s Current Report on Form 8-K filed October 19, 2009, File No. 001-12584)â€¢â€¢â€¢3.4â€¢Articles of Incorporation filed with the Nevada Secretary of State (Incorporated by reference to Exhibit 3.3 of the Registrantâ€™s Current Report on Form 8-K filed October 19, 2009, File No. 001-12584)â€¢â€¢â€¢3.5â€¢Certificate of Amendment to Articles of Incorporation (Incorporated by reference to Exhibit 3.1 of the Registrantâ€™s Current Report on Form 8-K filed February 16, 2012, File No. 001-12584)â€¢â€¢â€¢3.6â€¢Certificate of Amendment to Articles of Incorporation (Incorporated by reference to Exhibit 3.1 of the Registrantâ€™s Current Report on Form 8-K filed May 18, 2015, File No. 001-12584)â€¢â€¢â€¢3.7â€¢Certificate of Amendment to Articles of Incorporation (Incorporated by reference to Exhibit 3.1 of the Registrantâ€™s Current Report on Form 8-K filed September 8, 2017, File No. 001-12584)â€¢â€¢â€¢3.8â€¢Certificate of Designations for Series A Preferred Stock to Certificate of Incorporation (Incorporated by reference to Exhibit 3.1 of the Registrantâ€™s Current Report on Form 8-K filed September 12, 2017, File No. 001-12584)â€¢â€¢â€¢3.9â€¢Certificate of Change Pursuant to NRS 78. 209 (Incorporated by reference to Exhibit 3.1 of the Registrantâ€™s Current Report on Form 8-K filed August 13, 2018, File No. 001-12584)â€¢â€¢â€¢3.10â€¢Certificate of Amendment to Articles of Incorporation (Incorporated by reference to Exhibit 3.1 of the Registrantâ€™s Current Report on Form 8-K filed September 26, 2018, File No. 001-12584)â€¢â€¢â€¢3.11â€¢Certificate of Designations for Series B Preferred Stock to Certificate of Incorporation (Incorporated by reference to Exhibit 3.1 of the Registrantâ€™s Current Report on Form 8-K filed October 15, 2018, File No. 001-12584)â€¢â€¢â€¢3.12â€¢Certificate of Amendment to Certificate of Designation for Series B Preferred Stock to Certificate of Incorporation (Incorporated by reference to Exhibit 3.2 of the Registrantâ€™s Current Report on Form 8-K filed October 15, 2018, File No. 001-12584)â€¢â€¢â€¢3.13â€¢Certificate of Amendment to the Certificate of Designation for the Series A Convertible Preferred Stock (Incorporated by reference to Exhibit 3.1 of the Registrantâ€™s Current Report on Form 8-K/A filed on February 1, 2021 File No. 001-12584)â€¢â€¢â€¢3.14â€¢Certificate of Designation for Series C Preferred Stock to Certificate of Incorporation (Incorporated by reference to Exhibit 3.1 of the Registrantâ€™s Current Report on Form 8-K filed July 29, 2022, File No. 001-12584)â€¢â€¢â€¢3.15â€¢Certificate of Designation for Series D Preferred Stock to Certificate of Incorporation (Incorporated by reference to Exhibit 3.2 of the Registrantâ€™s Current Report on Form 8-K filed July 29, 2022, File No. 001-12584)â€¢48 Table of Contentsâ€¢â€¢â€¢3.16â€¢Second Amended and Restated Bylaws (Incorporated by reference to Exhibit 3.1 of the Registrantâ€™s Current Report on Form 8-K filed August 11, 2023, File No. 001-12584)â€¢â€¢â€¢31.1â€¢Certification of Principal Executive Officer and Principal Financial Officer pursuant to Rule 13a-14(a)/15d-14(a)*â€¢â€¢â€¢32.1â€¢Certification of Principal Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002*â€¢â€¢â€¢101.InSâ€¢â€¢Inline XBRL Instance

Document#101.SCH#Inline XBRL Taxonomy Extension Schema#101.CAL#Inline XBRL Taxonomy Extension Calculation Linkbase#101.DEF#Inline XBRL Taxonomy Extension Definition Linkbase#101.LAB#Inline XBRL Taxonomy Extension Label Linkbase#101.PRE#Inline XBRL Taxonomy Extension Presentation Linkbase#104#Cover Page Additional Data File (formatted in XBRL in Exhibit 101) Filed herewith.#104-49 EX-31.1 2mb-20240630xex31d1.htm EX-31.1 EXHIBIT 31.1 CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER AND PRINCIPAL FINANCIAL OFFICER PURSUANT TO RULE 13a-14(a) OR RULE 15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002. Steven A. Shallcross, certify that:1.I have reviewed this Quarterly Report on Form 10-Q of Theriva Biologics, Inc.;2.Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;3.Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;4.The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:a)Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;b)Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;c)Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; andd)Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and5.The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):a)All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; andb)Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.Date: August 13, 2024A A By:/s/ Steven A. Shallcross#104-49 EX-31.1 2mb-20240630xex31d1.htm EX-32.1 EXHIBIT 32.1 CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER AND PRINCIPAL FINANCIAL OFFICER PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002Pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, the undersigned officer of Theriva Biologics, Inc. (the "Registrant") hereby certifies, to such officer's knowledge, that:(1)the accompanying Quarterly Report on Form 10-Q of the Registrant for the quarter ended June 30, 2024 (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and(2)the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Registrant.Date: August 13, 2024A A By:/s/ Steven A. 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M2T1Q8^Fk 99K4BY>UFU2^6%Y=P=8\]NTSD9\(^49R>?\)^M%D6,\[L3\(HN/M.S*5^\(R^6\(Y^F\)9Z8LK.*+L=DQ&%#R\\$IEU%3-J8\[L# OU;8%8MAY\)/R M1G@C QZQ10/Q/@SX/^/ 7B^4M9TBWDBN\[Y-C^8PB\('OS!3C<=S \\$B>?2M&M\]\(V%QX:&BQW%Y-O\).UQ;/SEBC=G9RO2?"LW# CJP:Z6B@#SB7X#~ WMB MK->U:WC2,QMY-WMP\\$.\]-WR P#@<XP.\]@%#.OV?A POJ<5W#>O\]Y;SI M2037.Y+>#&\)G.< ,\[SSSUR,*\]H HV \]-/&M7T^AK\(727&D121P# M:PJY^N4\\$ M:M^PB^8%>Y10IU-QK\)= L15H^*UOO#^9\)\]EY&+ H\(L\)\]/36%!^SWH\\$ MSI,JGK-Q>LJ1^@SDNSBCDY^+8MQ7J=% 'E-\[^S3X/O1:173 M1>?9I< KAX^-713\(S3\(V;=>\\$KJZ1?/OF04^*SAT^<SM;+!!&L4:~HJJ. ? MD^FHGH 9JSJ1 .BB;|GX^<=>%"1NH4C%#@=#Z=YB?WE .BB@ /QR/ G1YB? MWE .BB@ /QR/ G1YB?WE .BB@ /QR/ G1YB?WE .BB@ /QR/ G1YB?WE .MBB@ /QR/ G39\)%> YD^WHHH 7SD O^CSD O^BB@ Y/\(PIF8-U^>9M MV\(\)G\)> %>%% YIR M^PA1YR^WA110 >%>G\) >%%>% YIR^WA1YR^WA110 >%>DEO M@88?>Z^**~^%G\)> %>%% YIR^WA1YR^WA110 >> MGJX^>%G\)> %>%%>% YIR^WA3^EOO^=>PX/****~^%G\)> %>%%>% YIR^WA1YR^WA110 >%>G\) ?>-%%>% YIR^WA1YR^WA110 V2167 .3D?SHHHH _V0\\$! end EX-101.SCH 5 20240630.xsd EX-101.SCH 995200100 - Statement - Condensed Consolidated Balance Sheets link:calculationLink link:definitionLink link:definitionLink 995200200 - Statement - Condensed Consolidated Statements of Operations and Comprehensive Loss link:presentationLink link:calculationLink link:definitionLink 00200 - Statement - Condensed Consolidated Statements of Operations and Comprehensive Loss \(Calc2\) link:presentationLink link:calculationLink link:definitionLink 995200400 - Statement - Condensed Consolidated Statements of Cash Flows link:presentationLink link:calculationLink link:definitionLink 00400 - Statement - Condensed Consolidated Statements of Cash Flows \(Calc2\) link:presentationLink link:calculationLink link:definitionLink 99940701 - Disclosure - Selected Balance Sheet Information - Schedule of Prepaid expenses and other current assets \(Details\) link:presentationLink link:calculationLink link:definitionLink 99940702 - Disclosure - Selected Balance Sheet Information - Schedule of Property and equipment, net \(Details\) link:presentationLink link:calculationLink link:definitionLink 99940703 - Disclosure - Selected Balance Sheet Information - Schedule of Accrued expenses \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940704 - Disclosure - Selected Balance Sheet Information - Schedule of Accrued employee benefits \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99941203 - Disclosure - Loans Payable - Maturity analysis of the debt \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99941301 - Disclosure - Commitments and Contingencies - Maturity analysis of operating leases \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99941401 - Disclosure - Commitments and Contingencies - Maturity analysis of operating leases \(Details\) Calc2 link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995200105 - Statement - Condensed Consolidated Balance Sheets \(Parenthetical\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995200300 - Statement - Condensed Consolidated Statements of Stockholder's Equity link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940101 - Disclosure - Organization, Nature of Operations and Basis of Presentation \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940201 - Disclosure - Going Concern \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940301 - Disclosure - Summary of Significant Accounting Policies \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940402 - Disclosure - Goodwill and Intangibles - In-process R&D \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940501 - Disclosure - Fair Value of Financial Instruments - Narratives \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940502 - Disclosure - Fair Value of Financial Instruments - Change in fair value of contingent consideration \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940503 - Disclosure - Fair Value of Financial Instruments - Fair value of financial instruments measured on a recurring basis \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940504 - Disclosure - Fair Value of Financial Instruments - Contingent Consideration \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940601 - Disclosure - Research and Development Tax Credits \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940801 - Disclosure - Stock-Based Compensation - Stock incentive plan and other information \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940802 - Disclosure - Stock-Based Compensation - Summary of stock option activity \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940901 - Disclosure - Stock Warrants \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940902 - Disclosure - Stock Warrants - summary of all warrant activity \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99941001 - Disclosure - Net Loss per Share \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99941101 - Disclosure - Common and Preferred Stock \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99941201 - Disclosure - Loans Payable - Additional Information \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99941202 - Disclosure - Loans Payable - Non-current asset on the balance sheet \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99941302 - Disclosure - Commitments and Contingencies - Additional Information \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99941401 - Disclosure - Related Party \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99941501 - Disclosure - Subsequent events \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995200090 - Document - Document and Entity Information link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995210101 - Disclosure - Organization, Nature of Operations and Basis of Presentation link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995210201 - Disclosure - Going Concern link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995210301 - Disclosure - Summary of Significant Accounting Policies link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995210401 - Disclosure - Goodwill and Intangibles link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995210501 - Disclosure - Fair Value of Financial Instruments link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995210601 - Disclosure - Research and Development Tax Credits link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995210701 - Disclosure - Selected Balance Sheet Information link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995210801 - Disclosure - Stock-Based Compensation link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995210901 - Disclosure - Stock Warrants link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995211001 - Disclosure - Net Loss per Share link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995211101 - Disclosure - Common and Preferred Stock link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995211201 - Disclosure - Loans Payable link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995211301 - Disclosure - Commitments and Contingencies link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995211401 - Disclosure - Related Party link:presentationLink link:calculationLink link:definitionLink link:definitionLink 995211501 - Disclosure - Subsequent Events link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99920302 - Disclosure - Summary of Significant Accounting Policies \(Policies\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99930403 - Disclosure - Goodwill and Intangibles \(Tables\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99930503 - Disclosure - Fair Value of Financial Instruments \(Tables\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99930703 - Disclosure - Selected Balance Sheet Information \(Tables\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99930803 - Disclosure - Stock-Based Compensation \(Tables\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99930903 - Disclosure - Stock Warrants \(Tables\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99931203 - Disclosure - Loans Payable \(Tables\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99931303 - Disclosure - Commitments and Contingencies \(Tables\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940401 - Disclosure - Goodwill and Intangibles - Goodwill \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 99940403 - Disclosure - Goodwill and Intangibles - Narrative \(Details\) link:presentationLink link:calculationLink link:definitionLink link:definitionLink 999900 - Disclosure - Standard And Custom Axis Domain Defaults link:presentationLink link:calculationLink link:definitionLink EX-101.CAL 6 tmb-20240630_cal.xml EX-101.CAL EX-101.DEF 7 tmb-20240630_def.xml EX-101.DEF EX-101.LAB 8 tmb-20240630_lab.xml EX-101.LAB Document and Entity Information Document Type Document Quarterly Report Document Period End Date Document Transition Report Entity File Number Entity Registrant Name Entity Incorporation, State or Country Code Entity Tax Identification Number Entity Address, Address Line One Entity Address, City or Town Entity Address, Country Entity Address, Postal Zip Code City Area Code Local Phone Number Title of 12\(b\) Security Trading Symbol Security Exchange Name Entity Current Reporting Status Entity Interactive Data Current Entity Filer Category Entity Small Business Entity Emerging Growth Company Entity Shell Company Entity Common Stock, Shares Outstanding Entity Central Index Key Current Fiscal Year End Date Document Fiscal Year Focus Document Fiscal Period Focus Amendment Flag Condensed Consolidated Balance Sheets Statement \[Table\] Class of Stock \[Axis\] Class of Stock \[Domain\] Represents the information pertaining to Series C convertible preferred stock. Series C Convertible Preferred Stock \[Member\] Series C convertible preferred stock Series C Preferred Stock Represents the information pertaining to Series D convertible preferred stock](#)

Financing Activities Effect of Exchange Rate on Cash and Cash Equivalents Effects of exchange rate changes on cash and cash equivalents Cash, Cash Equivalents, Restricted Cash and Restricted Cash Equivalents, Period Increase (Decrease), Including Exchange Rate Effect Net decrease in cash and cash equivalents and restricted cash Cash, Cash Equivalents, Restricted Cash, and Restricted Cash Equivalents Cash and cash equivalents and restricted cash at the end of this period Cash and cash equivalents and restricted at the beginning of this period Total cash, cash equivalents, and restricted cash shown in the statement of cash flows Cash, Cash Equivalents, Restricted Cash and Restricted Cash Equivalents [Abstract] Reconciliation of cash, cash equivalents, and restricted cash reported in the consolidated balance sheet Restricted Cash and Cash Equivalents Restricted cash included in other long-term assets Noncash Investing and Financing Items [Abstract] Supplemental non-cash investing and financing activities: Conversion of Stock, Amount Converted Conversion of Series C Preferred Stock to Common Shares Conversion of series C preferred stock Right-of-Use Asset Obtained in Exchange for Operating Lease Liability Right of use assets obtained in exchange for lease liabilities Right of use assets exchanged for operating lease obligation Organization, Nature of Operations and Basis of Presentation n/a. Going Concern Substantial Doubt about Going Concern [Text Block] Going Concern Summary of Significant Accounting Policies Significant Accounting Policies [Text Block] Summary of Significant Accounting Policies Goodwill and Intangibles Goodwill and Intangible Assets Disclosure [Text Block] Goodwill and Intangibles Fair Value of Financial Instruments Fair Value Disclosures [Text Block] Fair Value of Financial Instruments n/a Research and Development Tax Credits The federal research and development (R&D) tax credit results in a dollar for dollar reduction in a company's tax liability for certain domestic. Research and Development Tax Credits [Text Block] Research and Development Tax Credits No definition available. Selected Balance Sheet Information Supplemental Balance Sheet Disclosures [Text Block] Selected Balance Sheet Information Stock-Based Compensation Disclosure of Compensation Related Costs, Share-based Payments [Text Block] Stock-Based Compensation Stock Warrants The entire disclosure for stock warrants. Stock Warrants Disclosure [Text Block] Stock Warrants Net Loss per Share Earnings Per Share [Text Block] Net Loss per Share Common and Preferred Stock Stockholders' Equity Note Disclosure [Text Block] Common and Preferred Stock Loans Payable Debt Disclosure [Text Block] Loans Payable Commitments and Contingencies Commitments and Contingencies Disclosure [Text Block] Commitments and Contingencies Related Party Related Party Transactions Disclosure [Text Block] Related Party Subsequent Events Subsequent Events [Text Block] Subsequent Events In Process Research and Development, Policy [Policy Text Block] IPR&D Goodwill and Intangible Assets, Goodwill, Policy [Policy Text Block] Goodwill Disclosure of accounting policy for completed business combinations, Contingent consideration (purchase method, acquisition method or combination of entities under common control). Business Combinations Policy, Contingent Consideration, Policy [Policy Text Block] Contingent Consideration Disclosure of accounting policy for long-lived assets include property, equipment and right-of-use assets. Long Lived Assets For Assets Property Equipment And Right Of Use Assets, Policy [Policy Text Block] Long-Lived Assets Disclosure of accounting policy for research and development tax credit. Research And Development Tax Credit Policy [Policy Text Block] Research and Development Tax Credits New Accounting Pronouncements, Policy [Policy Text Block] Recent Accounting Pronouncements and Developments Schedule of Goodwill [Table Text Block] Schedule of Company's goodwill Schedule of Finite-Lived Intangible Assets [Table Text Block] Schedule of Company's in-process R&D Fair Value, Liabilities Measured on Recurring Basis, Unobservable Input Reconciliation [Table Text Block] Schedule of change in fair value as determined by Level 3 inputs for the contingent consideration liabilities Fair Value, Liabilities Measured on Recurring Basis [Table Text Block] Schedule of fair value of financial instruments measured on a recurring basis Fair Value Measurement Inputs and Valuation Techniques [Table Text Block] Schedule of fair value measurements of contingent consideration for which a liability is recorded Schedule of Other Current Assets [Table Text Block] Schedule of prepaid expenses and other current assets Property, Plant and Equipment [Table Text Block] Schedule of property and equipment, net Tabular disclosure of accrued expenses. Accrued Expenses [Table Text Block] Schedule of accrued expenses Tabular disclosure of information related to accrued employee benefits. Accrued Employee Benefits [Table Text Block] Schedule of accrued employee benefits Share-based Compensation, Stock Options, Activity [Table Text Block] Summary of stock option activity Tabular disclosure of warrant activity. Schedule Of Warrant Activity [Table Text Block] Summary of all warrant activity Schedule of Debt [Table Text Block] Schedule of debt Schedule of Maturities of Long-term Debt [Table Text Block] Schedule of maturity analysis of debt Lessee, Operating Lease, Liability, Maturity [Table Text Block] Schedule of maturity analysis of operating leases Number of Operating Segments Number of operating segments Number of Reportable Segments Number of reportable segments Fair Value, Recurring and Nonrecurring [Table] Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items] Fair Value of Financial Instruments Going Concern Summary of Significant Accounting Policies [Table] Guarantor Obligations, Nature [Axis] Guarantor Obligations, Nature [Domain] Research and Development Arrangement [Member] Research and Development Program Summary of Significant Accounting Policies [Line Items] Summary of Significant Accounting Policies Asset Impairment Charges Impairment charge Research and development expenditure period. Research And Development Expenditure Period Research and development expenditure period (in months) Goodwill [Roll Forward] Goodwill, Foreign Currency Translation Gain (Loss) Effects of exchange rates Schedule of Finite-Lived Intangible Assets [Table] Finite-Lived Intangible Assets by Major Class [Axis] Finite-Lived Intangible Assets, Major Class Name [Domain] In Process Research and Development [Member] In-process R&D Finite-Lived Intangible Assets [Line Items] Goodwill and Intangibles Finite-lived Intangible Assets [Roll Forward] Finite-Lived Intangible Assets Finite-Lived Intangible Assets, Net Balance at the end Balance at the beginning Finite-Lived Intangible Assets, Foreign Currency Translation Gain (Loss) Effects of exchange rates Goodwill, Gross Goodwill, at carrying value Goodwill, Fair Value Disclosure Goodwill, fair value Fair Value Measurement Inputs and Valuation Techniques [Table] Business Acquisition [Axis] Business Acquisition, Acquiree [Domain] This member stands for the information pertaining to V C N Biosciences S. L V C N [Member] V C N Fair Value Measurement Inputs and Valuation Techniques [Line Items] Fair Value of Financial Instruments Amount of additional consideration paid on a business combination upon achievement of milestones. Business Combination, Contingent Consideration Arrangements, Additional Amount Paid On Achievement Of certain Milestones Additional consideration related to the achievement of certain milestones Amount paid due to approval. Amount to be paid due to approval Amount to be paid due to approval Financial Liabilities Fair Value Disclosure Fair value of contingent consideration Fair value of liabilities Fair Value, Measurement with Unobservable Inputs Reconciliation, Recurring Basis, Liability, Gain (Loss) Included in Earnings Change in fair value Operating expense relating to fair value adjustment Fair Value, Liabilities Measured on Recurring Basis, Unobservable Input Reconciliation [Table] Liability Class [Axis] Fair Value by Liability Class [Domain] Commitments [Member] Contingent consideration Fair Value, Liabilities Measured on Recurring Basis, Unobservable Input Reconciliation [Line Items] Fair Value of Financial Instruments Fair Value, Liabilities Measured on Recurring Basis, Unobservable Input Reconciliation, Calculation [Roll Forward] Fair Value, Measurement with Unobservable Inputs Reconciliation, Recurring Basis, Liability Value Balance at ending Balance at beginning Payment for Contingent Consideration Liability, Investing Activities Payment of contingent consideration Fair Value Hierarchy and NAV [Axis] Fair Value Hierarchy and NAV [Domain] Fair Value, Inputs, Level 3 [Member] Level 3 Measurement Input Type [Axis] Measurement Input Type [Domain] Measurement Input Discount Rate [Member] Discount rate Measurement input using Weighted average discount rate. Weighted Average Discount rate [Member] Weighted Average Discount rate Measurement input using Probability of Occurrence. Probability Of Occurrence [Member] Probability of occurrence Measurement input using Probability of Occurrence Cumulative. Probability Of Occurrence. [Member] Probability of occurrence (cumulative through each milestone) Range [Axis] Range [Domain] Minimum [Member] Minimum Maximum [Member] Maximum Derivative Liability, Measurement Input Contingent consideration, measurement Input Schedule of Guarantor Obligations [Table] Guarantor Obligations [Line Items] Research and Development Tax Credits Amount of deferred research and development tax credit grant receivable. Deferred Research and Development Tax Credit, Grant Receivable Deferred research and development tax credit grant receivable. Amount of Prepaid Manufacturing Expense. Prepaid Manufacturing Expense Prepaid manufacturing expenses Sum of the amount paid in advance for clinical research organization. Prepaid Clinical Research Organizations Expense Current Prepaid consulting, subscriptions and other expenses Prepaid Insurance Prepaid insurance Sum of the amount paid in advance for consulting, subscriptions and other expenses. Prepaid Consulting Subscriptions And Other Expenses Prepaid clinical research organizations Other Receivables, Net, Current VAT receivable Property, Plant and Equipment [Table] Property, Plant and Equipment, Type [Axis] Property, Plant and Equipment, Type [Domain] Computers and office equipment [Member] Computers and office equipment Other Property, Plant and Equipment [Member] Other property, plant and equipment Leasehold Improvements [Member] Leasehold improvements Software [Member] Software Property, Plant and Equipment [Line Items] Selected Balance Sheet Information Property, Plant and Equipment, Gross Property, Plant and Equipment, Gross Total Accumulated Depreciation, Depletion and Amortization, Property, Plant, and Equipment Less: accumulated depreciation and amortization The carrying value of accrued clinical consulting services payable as on balance sheet date. Accrued Clinical Consulting Services Accrued clinical consulting services The manufacturing costs incurred in the production of goods for sale. Accrued manufacturing costs Accrued manufacturing costs Carrying value as of the balance sheet date of obligations and payables pertaining to vendor payments. Accrued Vendor Payments Accrued vendor payments Carrying value as of the balance sheet date of obligations incurred and payable, pertaining to costs that are statutory in nature, are incurred on contractual obligations, or accumulate over time and for which invoices have not yet been received or will not be rendered. Examples include taxes, interest, rent and utilities. Used to reflect the current portion of the liabilities (due within one year or within the normal operating cycle if longer). Accrued expenses Total Accrued Bonuses, Current Accrued bonus expense Accrued Employee Benefits, Current Accrued compensation expense Accrued Vacation, Current Accrued vacation expense Schedule of Share-based Compensation Arrangements by Share-based Payment Award [Table] Plan Name [Axis] Plan Name [Domain] 2010 Stock Plan [Member] 2010 Stock Plan Represents information pertaining to 2020 Stock Plan. 2020 Stock Plan [Member] 2020 Stock Plan Related Party [Axis] Related Party [Domain] n/a. Consultant [Member] Consultant Income Statement Location [Axis] Income Statement Location [Domain] General and Administrative Expenses and Research and Development Expense [Member] General and Administrative Expenses and Research and Development Expense Sale of Stock [Axis] Sale of Stock [Domain] Employee Stock [Member] Employees Share-based Compensation Arrangement by Share-based Payment Award [Line Items] Stock-Based Compensation and Warrants Stock Warrants Share-based Compensation Arrangement by Share-based Payment Award, Options, Outstanding, Number Options, Ending balance Options, Beginning balance Share-based payment award, options, outstanding, number Number of options issued, including both vested and non-vested options. Share Based Compensation Arrangement By Share Based Payment Award Options Issued Number Shares Share-based payment award, options, issued, number Share-based Compensation Arrangement by Share-based Payment Award, Number of Additional Shares Authorized Share-based compensation arrangement by share-based payment award, number of shares authorized Number of stock expired on granted period Share-Based Compensation Arrangement by Share-Based Payment Award, Grant, Expirations in Period Share-based payment award, options, grants, expired period The amount represents Share Based Compensation Arrangement By Share Based Payment Award Shares Available In Period Share-based Compensation Arrangement by Share-based Payment Award, Options, Grants in Period, Gross Options granted (in shares) Share-based payment award, options, grants in period, gross Allocated Share-based Compensation Expense Allocated share-based compensation expense Employee Service Share-based Compensation, Nonvested Awards, Compensation Not yet Recognized, Stock Options Unrecognized stock-based compensation expense Stock Option Share-based Compensation Arrangement by Share-based Payment Award, Options, Expirations in Period Options, Expired Share-based Compensation Arrangement by Share-based Payment Award, Options, Forfeitures in Period Options, Forfeited Share-based Compensation Arrangement by Share-based Payment Award, Options, Exercisable, Number Options, Exercisable Share-based Compensation Arrangement by Share-based Payment Award, Options, Outstanding, Weighted Average Exercise Price Weighted Average Exercise Price, Ending balance Weighted Average Exercise Price, Beginning balance Share-based Compensation Arrangements by Share-based Payment Award, Options, Grants in Period, Weighted Average Exercise Price Weighted Average Exercise Price, Granted Share-based Compensation Arrangements by Share-based Payment Award, Options, Expirations in Period, Weighted Average Exercise Price Weighted Average Exercise Price, Expired Share-based Compensation Arrangement by Share-based Payment Award, Options, Forfeitures and Expirations in Period, Weighted Average Exercise Price Weighted Average Exercise Price, Forfeited Share-based Compensation Arrangement by Share-based Payment Award, Options, Exercisable, Weighted Average Exercise Price Weighted Average Exercise Price, Exercisable Share-based Compensation Arrangement by Share-based Payment Award, Options, Outstanding, Weighted Average Remaining Contractual Term Weighted Average Remaining Contractual Life, Outstanding Share-based Compensation Arrangement by Share-based Payment Award, Options, Exercisable, Weighted Average Remaining Contractual Term Weighted Average Remaining Contractual Life, Exercisable Fair value of stock (or other type of equity) granted during the period as a result of any equity-based compensation plan other than an employee stock ownership plan (ESOP). Share Based Compensation Arrangement By Share Based Payment Award Options Grants In Period Grant Date Fair Value Grant date fair value of options granted Share-based Compensation Arrangement by Share-based Payment Award, Options, Grants in Period, Weighted Average Grant Date Fair Value Weighted average grant date fair value Class of Treasury Stock [Table] Warrant [Member] Warrant Auction Market Preferred Securities, Stock Series [Axis] Auction Market Preferred Securities, Stock Series, Title [Domain] Series B [Member] Series B Common Class A Class A common stock Series B Preferred Stock [Member] Series B Preferred Stock Equity, Class of Treasury Stock [Line Items] Stock Warrants Proceeds from Issuance or Sale of Equity Gross proceeds Stock Issued During Period, Shares, New Issues Number of shares issued Stock issued during period (in shares) Class of Warrant or Right, Number of Securities Called by Warrants or Rights Number of warrants to purchase shares The price per share at which the preferred stock of an entity that has priority over common stock in the distribution of dividends and in the event of liquidation of the entity can be converted. Preferred Stock Conversion Price Per Share Preferred stock conversion price per share Conversion of Stock, Shares Converted Conversion of stock, shares converted Common stock, conversion holder shares It represent additional of warrant to purchase of common stock. Issue of warrants to purchase common stock Issue of warrants to purchase common stock Shares of stock issued as a result of the exercise of warrants. Stock Issued During Period Shares Warrants Exercised Warrants exercised Class of Warrant or Right, Exercise Price of Warrants or Rights Exercise price per warrant Class Of Warrant Or Right Outstanding Warrant outstanding Share-based Compensation Arrangement by Share-based Payment Award, Equity Instruments Other than Options, Nonvested, Number Number of Warrants, Ending balance Number of Warrants, Beginning balance Share-based Compensation Arrangement by Share-based Payment Award, Equity Instruments Other than Options, Forfeited in Period Number of Warrants, Forfeited Share-based Compensation Arrangement by Share-based Payment Award, Equity Instruments Other than Options, Nonvested, Weighted Average Grant Date Fair Value Weighted Average Exercise Price, Ending balance Weighted Average Exercise Price, Beginning balance Share-based Compensation Arrangement by Share-based Payment Award, Equity Instruments Other than Options, Forfeitures, Weighted Average Grant Date Fair Value Weighted Average Exercise Price, Forfeited Share-based Compensation Arrangement by Share-based Payment Award, Equity Instruments Other than Options, Outstanding, Weighted Average Remaining Contractual Terms Weighted Average Remaining Contractual Life (in years) Schedule of Antidilutive Securities Excluded from Computation of Earnings Per Share [Table] Antidilutive Securities [Axis] Antidilutive Securities, Name [Domain] Equity Option [Member] Equity Option Financial Instrument [Axis] Financial Instruments [Domain] Antidilutive Securities Excluded from Computation of Earnings Per Share [Line Items] Net Loss per Share Antidilutive Securities Excluded from Computation of Earnings Per Share, Amount Number of options and warrants for the purchase of common stock that were excluded from the computations of net loss per common share Schedule reflecting stockholders equity. Stockholder's Equity [Table] Series C Preferred Stock [Member] Series C preferred stock Represents the information pertaining to at the market offering. At the market offering [Member] At the market offering This member stands for Amendment 2022. Amendment 2022 [Member] Amendment 2022 Line items represent financial concepts included in a table. These concepts are used to disclose reportable information associated with domain members defined in one or many axes to the table. Stockholder's Equity [Line Items] Common and Preferred Stock Sale of Stock, Price Per Share Offering price Proceeds from Issuance of Preferred Stock and Preference Stock Gross proceeds Preferred Stock, Convertible, Conversion Price Conversion price The number of votes that common share is entitled. Common Stock Number Of Votes Per Share Votes per share Proceeds from Issuance of Common Stock Net proceeds from issuance of common stock Schedule of Capitalization, Long-term Debt [Table] Schedule of Capitalization, Long-term Debt [Line Items] Loans Payable Debt Instrument, Interest Rate, Effective Percentage Loans acquired, interest rate Schedule of Capitalization [Table] Derivative Financial Instruments, Liabilities [Member] NEBT Loan Represents information pertaining to RETOS 2015. Retos 2015 [Member] RETOS 2015 Schedule of Capitalization [Line Items] Loans Payable Long-Term Debt, Maturity, Year One 2025 Long-Term Debt, Maturity, Year Two 2026 Long-Term Debt, Maturity, Year Three 2027 Long-Term Debt, Maturity, Year Four 2028 Amount, after unamortized (discount) premium and debt issuance costs, of long-term debt. Includes, but not limited to, notes payable, bonds payable, debentures, mortgage loans and commercial paper. Excludes capital lease obligations. Long Term Debt Total Lessee, Operating Lease, Liability, Payments, Remainder of Fiscal Year 2024 Lessee, Operating Lease, Liability, Payments, Due Next Twelve Months 2025 Lessee, Operating Lease, Liability, Payments, Due Year 2026 Lessee, Operating Lease, Liability,

Payments, Due Year Three2027 Lessee, Operating Lease, Liability, Payments, DueTotal Lessee, Operating Lease, Liability, Undiscounted Excess AmountDiscount factor Operating Lease, LiabilityOperating lease liability Lessee, Operating Lease, Renewal TermRenewed lease term Duration of lease rent abatement.Lease Rent Abatement Period 1Lease rent abatement period Percentage of office leases owned by subsidiary.Percentage of Office Leases Owned By SubsidiaryPercentage of office leases owned by subsidiary Term of lessee's operating lease short term agreements, in 'PnYnMnDTnHnMnS' format, for example, 'P1Y5M13D' represents reported fact of one year, five months, and thirteen days.Lessee, Operating Lease, Short Term Agreement TermTermination notice period (in days) Term of lessee's operating lease additional renewal, in 'PnYnMnDTnHnMnS' format, for example, 'P1Y5M13D' represents reported fact of one year, five months, and thirteen days.Lessee, Operating Lease, Additional Renewal TermAdditional lease renewal term Operating Lease, CostOperating lease cost Schedule of Related Party Transactions, by Related Party [Table] Title of Individual [Axis] Relationship to Entity [Domain] Board of Directors [Member]Board of DirectorsDirectors Related Party [Member]Related Party Counterparty Name [Axis] Counterparty Name [Domain] Represents the information pertaining to Ms. Shallcross.MaryAnn Shallcross [Member]Ms. Shallcross Related Party Transaction [Line Items]Related Party Amount of compensation that is agreed to be paid for the director.Approved Compensation PayableApproved compensation The amount of approved bonus payable as at the end of the reporting period.Approved Bonus PayableApproved bonus payable Value of shares granted during the period.Share Based Compensation Arrangement By Share Based Payment Award Options Grants In Period, ValueValue of shares Amount of cash outflow for compensation expense.Payments for Compensation ExpenseCompensation paid Subsequent Event [Table] Subsequent Event Type [Axis] Subsequent Event Type [Domain] Subsequent Event Subsequent Event [Line Items]Subsequent events Stock Issued During Period, Shares, Conversion of UnitsConversion of stock (in shares) EX-101.PRE 9 tmb-20240630_pre.xml EX-101.PRE XML 11 R1.htm IDEA: XBRL DOCUMENT

Document and Entity Information - shares	6 Months Ended Jun. 30, 2024	Aug. 09, 2024
Document and Entity Information		
Document Type	10-Q	
Document Quarterly Report	true	
Document Period End Date	Jun. 30, 2024	
Document Transition Report	false	
Entity File Number	001-12584	
Entity Registrant Name	THERIVA BIOLOGICS, INC.	
Entity Incorporation, State or Country Code	NV	
Entity Tax Identification Number	13-3808303	
Entity Address, Address Line One	9605 Medical Center Drive, Suite 270	
Entity Address, City or Town	Rockville	
Entity Address, Country	MD	
Entity Address, Postal Zip Code	20850	
City Area Code	301	
Local Phone Number	417-4364	
Title of 12(b) Security	Common Stock	
Trading Symbol	TOVX	
Security Exchange Name	NYSE	
Entity Current Reporting Status	Yes	
Entity Interactive Data Current	Yes	
Entity Filer Category	Non-accelerated Filer	
Entity Small Business	true	
Entity Emerging Growth Company	false	
Entity Shell Company	false	
Entity Common Stock, Shares Outstanding		25,131,230
Entity Central Index Key	0000894158	
Current Fiscal Year End Date	--12-31	
Document Fiscal Year Focus	2024	
Document Fiscal Period Focus	Q2	
Amendment Flag	false	

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Condensed Consolidated Balance Sheets - USD (\$)	Jun. 30, 2024	Dec. 31, 2023
Current Assets		
Cash and cash equivalents	\$ 16,593,000	\$ 23,177,000
Tax credit receivable	1,759,000	1,812,000
Prepaid expenses and other current assets	1,363,000	2,414,000
Total Current Assets	19,715,000	27,403,000
Non-Current Assets		
Property and equipment, net	336,000	422,000
Restricted cash	99,000	102,000
Right of use asset	1,519,000	1,759,000
In-process research and development	19,179,000	19,755,000
Goodwill	1,465,000	5,700,000
Deposits and other assets	77,000	78,000
Total Assets	42,390,000	55,219,000
Current Liabilities:		
Accounts payable	935,000	770,000
Accrued expenses	3,489,000	2,995,000
Accrued employee benefits	969,000	1,517,000
Deferred research and development tax credit-current portion	880,000	906,000
Loans payable-current	62,000	63,000
Operating lease liability-current portion	513,000	487,000
Total Current Liabilities	6,848,000	6,738,000
Non-current Liabilities		
Non-current contingent consideration	6,201,000	6,274,000
Loan Payable - non-current	93,000	162,000
Non-current deferred research and development tax credit	440,000	906,000
Non-current operating lease liability	1,162,000	1,442,000
Total Liabilities	14,744,000	15,522,000
Commitments and Contingencies (Note 13)		
Stockholders' Equity:		
Common stock, \$0.001 par value: 350,000,000 shares authorized, 23,113,391 issued and 22,393,158 outstanding at June 30, 2024 and 17,868,282 issued and 17,148,049 outstanding at December 31, 2023	23,000	18,000
Additional paid-in capital	349,673,000	346,519,000
Treasury stock at cost, 720,233 shares at June 30, 2024 and at December 31, 2023	(288,000)	(288,000)
Accumulated other comprehensive (loss) income	(709,000)	32,000
Accumulated deficit	(322,799,000)	(309,318,000)
Total Stockholders' Equity	25,900,000	36,963,000
Total Liabilities and Stockholders' Equity	42,390,000	55,219,000
Series C convertible preferred stock		
Temporary Equity		
Convertible preferred stock	1,018,000	2,006,000
Series D convertible preferred stock		
Temporary Equity		
Convertible preferred stock		
	\$ 728,000	\$ 728,000

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Condensed Consolidated Balance Sheets (Parenthetical) - \$ / shares	Jun. 30, 2024	Dec. 31, 2023
Convertible preferred stock, shares authorized	10,000,000	10,000,000
Common stock, par value (in dollars per share)	\$ 0.001	\$ 0.001
Common stock, shares authorized	350,000,000	350,000,000
Common stock, shares issued	23,113,391	17,868,282

Common stock, shares outstanding	22,393,158	17,148,049
Treasury stock	720,233	720,233
Series C convertible preferred stock		
Convertible preferred stock, par value (in dollars per share)	\$ 0.001	\$ 0.001
Convertible preferred stock, shares issued	275,000	275,000
Convertible preferred stock, shares outstanding	139,569	139,569
Series D convertible preferred stock		
Convertible preferred stock, par value (in dollars per share)	\$ 0.001	\$ 0.001
Convertible preferred stock, shares issued	100,000	100,000
Convertible preferred stock, shares outstanding	100,000	100,000

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Condensed Consolidated Statements of Operations and Comprehensive Loss - USD (\$) \$ in Thousands	3 Months Ended		6 Months Ended	
	Jun. 30, 2024	Jun. 30, 2023	Jun. 30, 2024	Jun. 30, 2023

Operating Costs and Expenses:

General and administrative	\$ 1,467	\$ 2,687	\$ 3,401	\$ 4,888
Research and development	2,953	3,133	6,412	6,110
Goodwill impairment	4,068		4,068	
Total Operating Costs and Expenses	8,488	5,820	13,881	10,998
Loss from Operations	(8,488)	(5,820)	(13,881)	(10,998)
Other Income/Expense:				
Foreign currency exchange (loss) gain	(1)	(4)	(2)	1
Interest income	173	381	402	745
Total Other Income	172	377	400	746
Net Loss	(8,316)	(5,443)	(13,481)	(10,252)
Income tax benefit		359		689
Net Loss Attributable to Common Stockholders	\$ (8,316)	\$ (5,084)	\$ (13,481)	\$ (9,563)
Net Loss Per Share - Basic (in dollars per share)	\$ (0.43)	\$ (0.34)	\$ (0.74)	\$ (0.63)
Net Loss Per Share - Dilutive (in dollars per share)	\$ (0.43)	\$ (0.34)	\$ (0.74)	\$ (0.63)
Weighted average number of shares outstanding during the period - Basic (in shares)	19,393,401	15,166,209	18,270,725	15,145,252
Weighted average number of shares outstanding during the period - dilutive (in shares)	19,393,401	15,166,209	18,270,725	15,145,252
Net Loss	\$ (8,316)	\$ (5,084)	\$ (13,481)	\$ (9,563)
(Loss) gain on foreign currency translation	(172)	(51)	(741)	323
Total comprehensive loss	\$ (8,488)	\$ (5,135)	\$ (14,222)	\$ (9,240)

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Condensed Consolidated Statements of Stockholder's Equity - USD (\$) \$ in Thousands	Common Stock	Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Treasury Stock	Total
Balance at Dec. 31, 2022	\$ 16	\$ 343,750	\$ (290,969)	\$ (679)	\$ (288)	\$ 51,830
Balance (in shares) at Dec. 31, 2022	15,844,061					
Stock-based compensation		126				126
Translation gains(loss)				(374)		(374)
Net loss			(4,478)			(4,478)
Balance at Mar. 31, 2023	\$ 16	343,876	(295,447)	(305)	(288)	47,852
Balance (in shares) at Mar. 31, 2023	15,844,061					
Balance at Dec. 31, 2022	\$ 16	343,750	(290,969)	(679)	(288)	51,830
Balance (in shares) at Dec. 31, 2022	15,844,061					
Net loss						(9,563)
Balance at Jun. 30, 2023	\$ 18	346,176	(300,531)	(356)	(288)	45,019
Balance (in shares) at Jun. 30, 2023	17,761,777					
Balance at Mar. 31, 2023	\$ 16	343,876	(295,447)	(305)	(288)	47,852
Balance (in shares) at Mar. 31, 2023	15,844,061					
Stock-based compensation		146				146
Stock issued under "at-the-market" offering	\$ 2	2,154				2,156
Stock issued under "at-the-market" offering (in shares)	1,917,716					
Translation gains(loss)				51		51
Net loss			(5,084)			(5,084)
Balance at Jun. 30, 2023	\$ 18	346,176	(300,531)	(356)	(288)	45,019
Balance (in shares) at Jun. 30, 2023	17,761,777					
Balance at Dec. 31, 2023	\$ 18	346,519	(309,318)	32	(288)	36,963
Balance (in shares) at Dec. 31, 2023	17,868,282					
Stock-based compensation		160				160
Foreign currency exchange gains (losses)				(569)		(569)
Net loss			(5,165)			(5,165)
Balance at Mar. 31, 2024	\$ 18	346,679	(314,483)	(537)	(288)	31,389
Balance (in shares) at Mar. 31, 2024	17,868,282					
Balance at Dec. 31, 2023	\$ 18	346,519	(309,318)	32	(288)	36,963
Balance (in shares) at Dec. 31, 2023	17,868,282					
Net loss						(13,481)
Balance at Jun. 30, 2024	\$ 23	349,673	(322,799)	(709)	(288)	25,900
Balance (in shares) at Jun. 30, 2024	23,113,391					
Balance at Mar. 31, 2024	\$ 18	346,679	(314,483)	(537)	(288)	31,389
Balance (in shares) at Mar. 31, 2024	17,868,282					
Stock-based compensation		172				172
Stock issued under "at-the-market" offering	\$ 4	1,835				1,839
Stock issued under "at-the-market" offering (in shares)	4,357,037					
Foreign currency exchange gains (losses)				(172)		(172)
Series C Preferred Stock conversion to Common	\$ 1	987				988
Series C Preferred Stock conversion to Common (in shares)	888,072					
Net loss			(8,316)			(8,316)
Balance at Jun. 30, 2024	\$ 23	\$ 349,673	\$ (322,799)	\$ (709)	\$ (288)	\$ 25,900
Balance (in shares) at Jun. 30, 2024	23,113,391					

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Condensed Consolidated Statements of Cash Flows - USD (\$)	3 Months Ended		6 Months Ended	
	Jun. 30, 2024	Jun. 30, 2023	Jun. 30, 2024	Jun. 30, 2023
Cash Flows From Operating Activities:				
Net loss			\$ (8,316,000)	\$ (5,084,000)
Adjustments to reconcile net loss to net cash used in operating activities:			\$ (13,481,000)	\$ (9,563,000)

Stock-based compensation			332,000	272,000
Income tax benefit		(359,000)		(689,000)
Goodwill impairment	4,068,000		4,068,000	
Change in fair value of contingent consideration			(73,000)	568,000
Non-cash lease expense			199,000	181,000
Depreciation			77,000	64,000
Deferred research and development tax credit	(221,000)		(444,000)	
Changes in operating assets and liabilities:				
Prepaid expenses and other current assets			1,018,000	53,000
Accounts payable			179,000	(181,000)
Accrued expenses			564,000	335,000
Accrued employee benefits			(538,000)	(337,000)
Operating lease liability			(234,000)	(205,000)
Net Cash Used In Operating Activities			(8,333,000)	(9,502,000)
Cash Flows from Investing Activities				
Purchase of property and equipment			(1,000)	(17,000)
Net Cash Used in Investing Activities			(1,000)	(17,000)
Cash Flows from Financing Activities				
Payment of loans payable			(67,000)	(75,000)
Proceeds from issuance ATM offering, net of issuance costs			1,840,000	2,156,000
Net Cash provided by Financing Activities			1,773,000	2,081,000
Effects of exchange rate changes on cash and cash equivalents			(26,000)	(98,000)
Net decrease in cash and cash equivalents and restricted cash			(6,587,000)	(7,536,000)
Cash and cash equivalents and restricted at the beginning of this period			23,279,000	41,884,000
Cash and cash equivalents and restricted cash at the end of this period	16,692,000	34,348,000	16,692,000	34,348,000
Reconciliation of cash, cash equivalents, and restricted cash reported in the consolidated balance sheet				
Cash and cash equivalents	16,593,000	34,248,000	16,593,000	34,248,000
Restricted cash included in other long-term assets	99,000	100,000	99,000	100,000
Total cash, cash equivalents, and restricted cash shown in the statement of cash flows	\$ 16,692,000	\$ 34,348,000	16,692,000	34,348,000
Supplemental non-cash investing and financing activities:				
Right of use assets obtained in exchange for lease liabilities			937,000	\$ 937,000
Series C Preferred Stock				
Supplemental non-cash investing and financing activities:				
Conversion of Series C Preferred Stock to Common Shares			\$ 988,000	

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Organization, Nature of Operations and Basis of Presentation
[Organization, Nature of Operations and Basis of Presentation](#)
[Organization, Nature of Operations and Basis of Presentation](#)
[Organization, Nature of Operations and Basis of Presentation](#)

	6 Months Ended Jun. 30, 2024
1. Organization, Nature of Operations and Basis of Presentation	
<i>Description of Business</i>	
Theriva Biologics, Inc. (the “Company” or “Theriva Biologics”) is a diversified clinical-stage company developing therapeutics in areas of high unmet need. As a result of the acquisition of Theriva Biologics S.L. (“VCN”, formerly known as VCN Biosciences, S.L.) (the “Acquisition”), described in more detail below, the Company transitioned its strategic focus to oncology through the development of VCN’s new oncolytic adenovirus platform designed for intravenous and intravitreal delivery to trigger tumor cell death, to improve access of co-administered cancer therapies to the tumor, and to promote a robust and sustained anti-tumor response by the patient’s immune system. Prior to the Acquisition, the Company’s focus was on developing therapeutics designed to treat gastrointestinal (GI) diseases in areas which included its clinical development candidates: (1) SYN-004 (ribaxamase) which is designed to degrade certain commonly used intravenous (IV) beta-lactam antibiotics within the GI tract to prevent microbiome damage thereby preventing overgrowth and infection by pathogenic organisms such as <i>Clostridioides difficile</i> infection (CDI), and vancomycin resistant Enterococci (VRE), and reducing the incidence and severity of acute graft-versus-host-disease (aGVHD) in allogeneic hematopoietic cell transplant (HCT) recipients, and (2) SYN-020, a recombinant oral formulation of the enzyme intestinal alkaline phosphatase (IAP) produced under cGMP conditions and intended to treat both local GI and systemic diseases.	
<i>Basis of Presentation</i>	
The accompanying condensed consolidated financial statements have been prepared pursuant to the rules and regulations of the Securities and Exchange Commission (“SEC”) for interim financial information. Accordingly, they do not include all the information and notes required by Accounting Principles Generally Accepted in the United States of America (“U.S. GAAP”) for complete financial statements. The accompanying condensed consolidated financial statements include all adjustments, comprised of normal recurring adjustments, considered necessary by management to fairly state the Company’s results of operations, financial position, and cash flows. The operating results for the interim periods are not necessarily indicative of results that may be expected for any other interim period or for the full year. These condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and notes thereto included in the Company’s 2023 Form 10-K. The condensed consolidated financial statements are prepared in conformity with U.S. GAAP, which requires the use of estimates, judgments and assumptions that affect the amounts of assets and liabilities at the reporting date and the amounts of revenue and expenses in the periods presented. The Company believes that the accounting estimates employed are appropriate and the resulting balances are reasonable; however, due to the inherent uncertainties in making estimates, actual results may differ from the original estimates, requiring adjustments to these balances in future periods. As of June 30, 2024, the Company has one operating segment (which includes the legacy Company business and the VCN business) and therefore one reporting segment.	

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Going Concern
[Going Concern](#)
[Going Concern](#)

	6 Months Ended Jun. 30, 2024
2. Going Concern	
The accompanying consolidated financial statements have been prepared assuming the Company will continue as a going concern. The Company continues to incur losses and, as of June 30, 2024, the Company had an accumulated deficit of approximately \$322.8 million. These factors raise substantial doubt about the Company’s ability to continue as a going concern. Since inception, the Company has financed its activities principally from the proceeds from the issuance of equity securities. The Company’s ability to continue as a going concern is dependent upon the Company’s ability to raise additional debt and equity capital. There can be no assurance that such capital will be available in sufficient amounts or on terms acceptable to the Company. The accompanying consolidated financial statements do not include any adjustments relating to the recoverability of the recorded assets or the classification of liabilities that may be necessary should the Company be unable to continue as a going concern.	
2. Going Concern - (continued)	
The Company does not have sufficient capital to fund its operations beyond the date that is twelve months from the date of the filing of this Quarterly Report on Form 10-Q . In order to address the Company’s capital needs, including its planned clinical trials, the Company is actively pursuing additional equity or debt financing in the form of either a private placement or a public offering. The Company has been in ongoing discussions with strategic institutional investors and investment banks with respect to such possible offerings. Such additional financing opportunities might not be available to the Company when and if needed, on acceptable terms or at all. If the Company is unable to obtain additional financing in sufficient amounts or on acceptable terms under such circumstances, the Company’s operating results and prospects will be adversely affected. At June 30, 2024, the Company had cash and cash equivalents of approximately \$16.6 million. Based upon the Company’s current business plans, management believes that the Company’s current cash on hand will be sufficient to fully execute its plans into the second quarter of 2025. Commencement of planned future clinical trials is subject to the Company’s successful pursuit of opportunities that will allow it to establish the clinical infrastructure and financial resources necessary to successfully initiate and complete its plan. The Company anticipates its current cash will allow it to cover overhead costs, manufacturing costs for near-term clinical supply and limited research efforts, including completing its funding requirements for its ongoing current trials for VCN-01. The Company will be required to obtain additional funding in order to continue the development of its current product candidates within the anticipated time periods (including initiation of its planned future clinical trials), if at all, and to continue to fund operations at the current cash expenditure levels. Currently, the Company does not have commitments from any third parties to provide it with capital. Potential sources of financing include strategic relationships, public or private sales of equity (including through its at the market offering sales agreement (the “ATM Sales Agreement”)) or debt and other sources. The Company cannot assure that it will meet the requirements for use of the ATM Sales Agreement or that additional funding will be available on favorable terms at all. If the Company fails to obtain additional funding for its clinical trials, whether through the sale of securities or a partner or collaborator, and otherwise when needed, it will not be able to execute its business plan as planned and will be forced to cease certain development activities (including initiation of planned clinical trials) until funding is received and its business will suffer, which would have a material adverse effect on its financial position, results of operations and cash flows. The actual amount of funds the Company will need to operate is subject to many factors, some of which are beyond its control. These factors include the following: ● the progress of its research activities; ● the number and scope of its research programs; ● the ability to recruit patients for clinical studies in a timely manner; ● the progress of its preclinical and clinical development activities; ● the progress of the development efforts of parties with whom the Company has entered into research and development agreements and amount of funding received from partners and collaborators; ● its ability to maintain current research and development licensing arrangements and to establish new research and development and licensing arrangements; ● the Company’s ability to achieve its milestones under licensing arrangements; ● the costs associated with manufacturing-related services to produce material for use in its clinical trials; ● the costs involved in prosecuting and enforcing patent claims and other intellectual property rights; and	

- the costs and timing of regulatory approvals.

2. Going Concern - (continued)

The Company has based its estimates of funding requirements on assumptions that may prove to be wrong. The Company may need to obtain additional funds sooner or in greater amounts than it currently anticipates.

If the Company raises funds by selling additional shares of common stock or other securities convertible into common stock, the ownership interest of the existing stockholders will be diluted. If the Company is not able to obtain financing when needed, it may be unable to carry out its business plan. As a result, the Company may have to significantly limit its operations and its business, financial condition and results of operations would be materially harmed.

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Summary of Significant Accounting Policies
[Summary of Significant Accounting Policies](#)
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6 Months Ended
Jun. 30, 2024

3. Summary of Significant Accounting Policies

The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. Such estimates and assumptions impact, among others, the following: the estimated useful lives for property and equipment, research and development costs, business combinations, contingent consideration, fair value of long-lived assets, valuation of goodwill and in process research and development, warrants, preferred stock and stock options granted for services or compensation, respectively, and the valuation allowance for deferred tax assets due to continuing and expected future operating losses.

Making estimates requires management to exercise significant judgment. It is at least reasonably possible that the estimate of the effect of a condition, situation or set of consolidated financial statements, which management considered in formulating its estimate could change in the near term due to one or more future confirming events. Accordingly, actual results could differ from those estimates.

There have been no new or material changes to the significant accounting policies discussed in the Company’s audited financial statements and the notes thereto included in the 2023 Form 10-K.

IPR&D

IPR&D assets represent the fair value assigned to technologies that the Company acquired, which at the time of acquisition have not reached technological feasibility and have no alternative future use. IPR&D assets are considered to have indefinite-lives until the completion or abandonment of the associated research and development projects. If and when development is complete, which generally occurs upon regulatory approval and the ability to commercialize products associated with the IPR&D assets, these assets are then deemed to have definite lives and are amortized based on their estimated useful lives at that point in time. If development is terminated or abandoned, the Company may have a full or partial impairment charge related to the IPR&D assets, calculated as the excess of carrying value of the IPR&D assets over fair value.

During the period that the assets are considered indefinite-lived, they are tested for impairment on an annual basis on October 1, or more frequently if the Company becomes aware of any events occurring or changes in circumstances that could indicate an impairment. The impairment test consists of a comparison of the estimated fair value of the IPR&D with its carrying amount. If the carrying amount exceeds the fair value, an impairment charge is recognized in an amount equal to that excess. The key assumptions used to value IPR&D include estimates of future cash flows and to the discount rate applicable to the future cash flow periods.

Goodwill

The Company tests the carrying amounts of goodwill for recoverability on an annual basis on October 1 or more frequently if events or changes in circumstances indicate that the asset might be impaired. The Company performs a one-step test in its evaluation of the carrying value of goodwill if qualitative factors determine it is necessary to complete a goodwill impairment test. In the evaluation, the fair value of the relevant reporting unit is determined and compared to its carrying value. If the fair value is greater than the carrying value, then the carrying value is deemed to be recoverable, and no further action is required. If the fair value estimate is less than the carrying value, goodwill is considered impaired for the amount by which the carrying amount exceeds the reporting unit’s fair value, and a charge is reported in impairment of goodwill in the Company’s consolidated statements of operations. The key assumptions used to value the reporting unit include estimates of future cash flows, the discount rate applicable and those future cash flow periods, and the implied control premium.

3. Summary of Significant Accounting Policies - (continued)

Contingent Consideration

Consideration paid in a business combination may include potential future payments that are contingent upon the acquired business achieving certain milestones in the future (“contingent consideration”). Contingent consideration liabilities are measured at their estimated fair value as of the date of acquisition, with subsequent changes in fair value recorded in the consolidated statements of operations. The Company estimates the fair value of the contingent consideration as of the acquisition date using the estimated future cash outflows based on the probability of meeting future milestones. Payments for amounts not in excess of original fair values established at acquisition date (including measurement period adjustments), and not paid within a period considered to be close to the transaction date, are reflected as financing activities in the statement of cash flows. Subsequent to the date of acquisition, the Company reassesses the actual consideration earned and the probability-weighted future earn-out payments at each balance sheet date. The discounted cash flow is the method used to value the contingent consideration which includes inputs of not readily observable market data, which are level 3 inputs. Any adjustment to the contingent consideration liability will be recorded in the consolidated statements of operations. Contingent consideration liabilities expected to be settled within 12 months after the balance sheet date are presented in current liabilities, with the non-current portion recorded under long-term liabilities in the consolidated balance sheets. See Fair Value of Financial Instruments below.

Long-Lived Assets

Long-lived assets include property, equipment, and right of use assets. Management reviews the Company’s long-lived assets for impairment annually or whenever events or changes in circumstances indicate that the carrying amount of an asset or asset group may not be fully recoverable. The Company determines the extent to which an asset may be impaired based upon its expectation of the asset’s future usability as well as whether there is reasonable assurance that the future cash flows associated with the asset will be in excess of its carrying amount. If the total of the expected undiscounted future cash flows is less than the carrying amount of the asset, a loss is recognized for the difference between the fair value and the carrying value of the asset. No impairment charges were recorded during the three and six months ended June 30, 2024 and 2023.

Research and Development Tax Credits

The Company, through its Theriva S.L. subsidiary, participates in a Research and Development incentive program sponsored by the Spanish government. The program provides for reimbursement of certain expenses incurred in research and development efforts the Company incurs in Spain. The program provides for certain limits on the types and amounts of expenses and requires participants to complete a certification and apply for the refund annually. Subsequent to the period in which expenses are incurred, the program requires participants to maintain certain workforce levels and research and development expenditures over a 24-month period. The Company accounts for the reimbursement as a tax credit receivable related to amounts that had been approved by the Spanish government and a corresponding deferred research and development tax credit as it was determined that amounts became probable of being received upon the receipt of the approval. Additionally, the Company has elected to account for the tax credit as a contra-expense as this most appropriately reflects the nature of the transaction and will reduce future research and development expenditures as the Company continues to incur expenses in the upcoming 24-month period.

Recent Accounting Pronouncements and Developments

In August 2020, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) 2020-06, *Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging - Contracts in Entity’s Own Equity (subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity’s Own Equity*. This ASU amends the guidance on convertible instruments and the derivatives scope exception for contracts in an entity’s own equity and improves and amends the related earnings per share guidance for both Subtopics. The ASU is effective for annual reporting periods after December 15, 2023 and interim periods within those annual periods and early adoption is permitted in annual reporting periods ending after December 15, 2020. The Company adopted ASU 2020-06 on January 1, 2022. The ASU impacted the analysis of the accounting treatment for the issuance of Convertible Preferred Series C & D stock during the third quarter, specifically the cash conversion and beneficial conversion features.

3. Summary of Significant Accounting Policies - (continued)

In December 2023, the FASB issued final guidance in ASU No. 2023-09, Income Taxes (ASC 740): Improvements to Income Tax Disclosures requiring entities to provide additional information in the rate reconciliation and disclosures about income taxes paid. For public business entities, the guidance is effective for annual periods beginning after December 15, 2024. The Company is not early adopting, and therefore, this ASU is not adopted in the current period. The Company does not expect this ASU to have a material impact on the consolidated financial statements.

In November 2023, the FASB issued ASU No. 2023-07, Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures which requires public entities to disclose significant segment expenses regularly provided to the chief operating decision-maker. Public entities with a single reporting segment have to provide all disclosures required by ASC 280, including the significant segment expense disclosures. For public business entities, the guidance is effective for annual periods beginning after December 15, 2024. The Company is not early adopting, and therefore has not adopted this ASU in the current period. The Company does not expect this ASU to have a material impact on the consolidated financial statements.

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Goodwill and Intangibles
[Goodwill and Intangibles](#)
[Goodwill and Intangibles](#)
[Goodwill and Intangibles](#)

6 Months Ended
Jun. 30, 2024

4. Goodwill and Intangibles

The following table provides the Company’s Goodwill as of June 30, 2024.

	Goodwill (in thousands)	
Balance at December 31, 2023	\$	5,700
Goodwill impairment		(4,068)
Effects of exchange rates		(167)
Balance at June 30, 2024	\$	1,465

The following table provides the Company’s in-process R&D as of June 30, 2024.

	In-process R&D (in thousands)	
Balance at December 31, 2023	\$	19,755
Effects of exchange rates		(576)
Balance at June 30, 2024	\$	19,179

During the quarter ended June 30, 2024, the Company experienced a sustained decline in the quoted market price of the Company’s common stock and the Company deemed this to be a triggering event for impairment. The Company performed an interim impairment analysis using the “Income approach” that requires significant judgments, including primarily the estimation of future development costs, the probability of success in various phases of its development programs, potential post-launch cash flows and a risk-adjusted weighted average cost of capital. The Company concluded that the IPR&D was not impaired as of June 30, 2024, however, goodwill with a carrying value of \$5.5 million was written down to its estimated fair value of \$1.5 million and an impairment charge of \$4.0 million was recorded during the quarter ended June 30, 2024.

Fair Value of
Financial Instruments
[Fair Value of
Financial Instruments](#)
[Fair Value of Financial
Instruments](#)

6 Months Ended
Jun. 30, 2024

5. Fair Value of Financial Instruments

Accounting Standards Codification (“ASC”) 820, *Fair Value Measurement*, defines fair value as the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is determined based upon assumptions that market participants would use in pricing an asset or liability. Fair value measurements are classified on a three-tier hierarchy as follows:

- Level 1 inputs: Quoted prices (unadjusted) for identical assets or liabilities in active markets;
- Level 2 inputs: Inputs, other than quoted prices, that are observable either directly or indirectly; and
- Level 3 inputs: Unobservable inputs for which there is little or no market data, which require the reporting entity to develop its own assumptions.

In many cases, a valuation technique used to measure fair value includes inputs from multiple levels of the fair value hierarchy described above. The lowest level of significant input determines the placement of the entire fair value measurement in the hierarchy.

The carrying amounts of the Company’s short-term financial instruments, including cash and cash equivalents, accounts payable and accrued liabilities, approximate fair value due to the relatively short period to maturity for these level 1 instruments.

As a result of the acquisition of VCN the Company acquired interest-free or below-market interest rate loans extended by Spanish government. The carrying value of the loans payable approximate fair value and are classified under level 2.

In connection with the Acquisition of VCN, the Company is required to pay up to \$70.2 million in additional consideration upon the achievement of certain milestones, including regulatory filings completed. In August 2023, the Company initiated patient dosing in the U.S. in its Phase 2 clinical trial of VCN-01 in PDAC. As a result, payment was made in the fourth quarter 2023 in the amount of \$3.25 million. The discounted cash flow method used to value this contingent consideration includes inputs of not readily observable market data, which are Level 3 inputs. The fair value of the contingent consideration was \$6.2 million as of June 30, 2024 and is all reflected as non-current contingent consideration liability. During the three months ended June 30, 2024 and 2023, the Company recognized in operating expense a \$275,000 decrease and \$432,000 increase, respectfully, fair value adjustment to contingent consideration. During the six months ended June 30, 2024 and 2023, the Company recognized in operating expense a \$73,000 decrease and \$568,000 increase, respectfully, fair value adjustment to contingent consideration There were no transfers in or out of the level 3 liabilities during the six months ended June 30, 2024 and 2023.

The following table summarizes the change in the fair value as determined by Level 3 inputs for the contingent consideration liabilities as of June 30, 2024:

	(in thousands)
Balance at December 31, 2022	\$ 10,184
Payment of contingent consideration	(3,250)
Change in fair value	(660)
Balance at December 31, 2023	\$ 6,274
Contingent consideration, current portion	\$ —
Contingent consideration, net of current portion	6,274
Balance at December 31, 2023	\$ 6,274

5. Fair Value of Financial Instruments - (continued)

	(in thousands)
Balance at December 31, 2023	\$ 6,274
Change in fair value	(73)
Balance at June 30, 2024	\$ 6,201
Contingent consideration, current portion	\$ —
Contingent consideration, net of current portion	6,201
Balance at June 30, 2024	\$ 6,201

The fair value of financial instruments measured on a recurring basis is as follows:

Description	As of June 30, 2024			
	Total	Level 1	Level 2	Level 3
Liabilities:				
Contingent consideration	\$ 6,201	\$ —	\$ —	\$ 6,201
Total liabilities	\$ 6,201	\$ —	\$ —	\$ 6,201
Description	As of December 31, 2023			
	Total	Level 1	Level 2	Level 3
Liabilities:				
Contingent consideration	\$ 6,274	\$ —	\$ —	\$ 6,274
Total liabilities	\$ 6,274	\$ —	\$ —	\$ 6,274

The recurring Level 3 fair value measurements of contingent consideration for which a liability is recorded include the following significant unobservable inputs:

		As of June 30, 2024	
Valuation Methodology	Significant Unobservable Input	Weighted Average (range, if applicable)	
Contingent Consideration	Discounted Cash Flows	Milestone dates	2026-2028
		Discount rate	14.2% to 14.6%
		Weighted Average Discount rate	14.44%
		Probability of Occurrence (periodic for each Milestone)	11.7% to 92.0%
		Probability of occurrence (cumulative through each Milestone)	5.3% to 48.8%
		As of December 31, 2023	
Valuation Methodology	Significant Unobservable Input	Weighted Average (range, if applicable)	
Contingent Consideration	Discounted Cash Flows	Milestone dates	2025-2028
		Discount rate	12.9% to 13.6%
		Weighted Average Discount rate	13.16%
		Probability of Occurrence (periodic for each Milestone)	11.7% to 92.0%
		Probability of occurrence (cumulative through each Milestone)	5.3% to 48.8%

The Company measures certain non-financial assets on a non-recurring basis, including goodwill and in-process R&D. As a result of those measurements, during the year ended June 30, 2024, goodwill with a total carrying value of \$5.5 million was written down and an impairment charge of \$4.0 million was recorded. This analysis requires significant judgments, including primarily the estimation of future development costs, the probability of success in various phases of its development programs, potential post-launch cash flows and a risk-adjusted weighted average cost of capital.

The fair value of our reporting unit was determined using an income approach that utilizes a discounted cash flow model. The discounted cash flow models are dependent upon our estimates of future cash flows and other factors. Our estimates of future cash flows are based on a comprehensive product by product forecast over a period which covers Phase 1 to approval and 15 years of commercialized revenue and involve assumptions concerning (i) future operating performance, including research and development costs through approval of the drug, the future addressable market, future sales, long-term growth rates, operating margins, allocation and timing of cash flows and the probability of achieving the estimated cash flows and (ii) future economic conditions, all which may differ from actual future cash flows.

Assumptions related to future operating performance are based on management’s annual and ongoing budgeting, forecasting and planning processes and represent our best estimate of the future results of our operations as of a point in time. These estimates are subject to many assumptions, such as the economic environments in which we operate, demand for the products and competitor actions. Estimated future cash flows are discounted to present value using a market participant, weighted average cost of capital, which considers the risk inherent in the probability adjusted future cash flows from each product. The financial and credit market volatility directly impacts certain inputs and assumptions used to develop the weighted average cost of capital such as the risk-free interest rate, industry beta, debt interest rate and our market capital structure. These assumptions are based on significant inputs not observable in the market and thus represent Level 3 measurements within the fair value hierarchy. The use of different inputs and assumptions could increase or decrease our estimated discounted future cash flows, the resulting estimated fair values and the amounts of related goodwill impairments, if any.

Research and
Development Tax
Credits
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6 Months Ended
Jun. 30, 2024

6. Research and Development Tax Credits

The Company, through its Theriva S.L. subsidiary, participates in a Research and Development program sponsored by the Spanish government. The program provides for reimbursement of certain expenses incurred in research and development efforts the Company incurs in Spain. The reimbursements can be through either tax credits or direct refunds. The program provides for certain limits on the types and amounts of expenses for which reimbursement may be sought and requires participants to complete a certification and apply for the refund annually. Subsequent to the period in which expenses are incurred, the program requires participants to maintain certain workforce levels and research and development expenditures over a 24-month period.

In the quarter ended June 30, 2023, the Company completed the certification and applied for direct reimbursement, as opposed to a tax credit, for its qualifying research and development expenses incurred in the year ended December 31, 2022. The Company received approvals from the Spanish government in September and October 2023.

The Company evaluated the program and concluded that it qualified to be accounted for as government assistance. Accordingly, the Company, as allowed by U.S. GAAP, elected to account for the grant by analogizing to the guidance provided by International Accounting Standards (“IAS”) 20, Accounting for Government Grants and Disclosure of Government Assistance. Accordingly, the Company recognized a tax credit receivable of \$1.8 million related to amounts that had been approved by the Spanish government and a corresponding deferred research and development tax credit current portion of \$880,000 and a deferred research and development tax credit non-current portion of \$440,000, as it was determined that amounts became probable of being received upon the receipt of the approval. Additionally, the

Company has elected to account for the tax credit as a contra-expense as this most appropriately reflects the nature of the transaction and will reduce future research and development expenditures as the Company continues to incur expenses in the upcoming 24-month period. During the three and six months ending June 30, 2024 the Company recorded \$221,000 and 444,000, respectively, as a reduction in research and development expense.

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Selected Balance Sheet Information
Selected Balance Sheet Information
Selected Balance Sheet Information

6 Months Ended
Jun. 30, 2024

7. Selected Balance Sheet Information

Prepaid expenses and other current assets (in thousands)

	June 30, 2024	December 31, 2023
Prepaid manufacturing expenses	\$ 475	\$ 491
Prepaid consulting, subscriptions and other expenses	271	180
Prepaid insurance	233	496
Prepaid clinical research organizations	213	1,119
VAT receivable	171	128
Total	\$ 1,363	\$ 2,414

Prepaid clinical research organizations (CROs) expense is classified as a current asset. The Company makes payments to the CROs based on agreed upon terms that include payments in advance of study services.

7. Selected Balance Sheet Information - (continued)

Property and equipment, net (in thousands)

	June 30, 2024	December 31, 2023
Computers and office equipment	\$ 711	\$ 902
Other property, plant and equipment	404	417
Leasehold improvements	94	94
Software	11	11
	1,220	1,424
Less: accumulated depreciation and amortization	(884)	(1,002)
Total	\$ 336	\$ 422

Accrued expenses (in thousands)

	June 30, 2024	December 31, 2023
Accrued clinical consulting services	\$ 2,495	\$ 1,700
Accrued manufacturing costs	616	843
Accrued vendor payments	378	452
Total	\$ 3,489	\$ 2,995

Accrued employee benefits (in thousands)

	June 30, 2024	December 31, 2023
Accrued bonus expense	\$ 650	\$ 1,307
Accrued compensation expense	190	127
Accrued vacation expense	129	83
Total	\$ 969	\$ 1,517

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Stock-Based Compensation
Stock-Based Compensation
Stock-Based Compensation

6 Months Ended
Jun. 30, 2024

8. Stock-Based Compensation

Stock Incentive Plans

On November 2, 2010, the Board of Directors and stockholders adopted the 2010 Stock Incentive Plan ("2010 Stock Plan") for the issuance of up to 8,572 shares of common stock to be granted through incentive stock options, nonqualified stock options, stock appreciation rights, dividend equivalent rights, restricted stock, restricted stock units and other stock-based awards to officers, other employees, directors and consultants of the Company and its subsidiaries. From time to time the number of shares authorized for options was increased such that 400,000 were authorized as of September 5, 2019. The exercise price of stock options under the 2010 Stock Plan is determined by the compensation committee of the Board of Directors and may be equal to or greater than the fair market value of the Company's common stock on the date the option is granted. Options become exercisable over various periods from the date of grant and expire between five and ten years after the grant date. As of June 30, 2024, there were 195,782 options issued and outstanding under the 2010 Stock Plan. There are no shares available to be issued under this plan. Only options were issued under the plan.

8. Stock-Based Compensation - (continued)

On September 17, 2020, the stockholders approved and adopted the 2020 Stock Incentive Plan ("2020 Stock Plan") for the issuance of up to 400,000 shares of common stock to be granted through incentive stock options, nonqualified stock options, stock appreciation rights, dividend equivalent rights, restricted stock, restricted stock units and other stock-based awards to officers, other employees, directors and consultants of the Company and its subsidiaries. The number of shares authorized for options was increased such that 7,000,000 were authorized as of December 31, 2022. As of June 30, 2024, there were 4,173,502 options issued and outstanding under the 2020 Stock Plan. Only options have been issued under the plan.

In the event of an employee's termination, the Company will cease to recognize compensation expense for that employee. Stock option forfeitures are recognized as incurred. The fair value of the stock-based payment is recognized over the stated vesting period.

The Company has applied fair value accounting for all stock-based payment awards since inception. The fair value of each option granted is estimated on the date of grant using the Black-Scholes option pricing model. There were no options granted during the six months ended June 30, 2024 and 2023.

Expected dividends—The Company has never declared or paid dividends on its common stock and has no plans to do so in the foreseeable future.

Expected volatility—Volatility is a measure of the amount by which a financial variable such as a share price has fluctuated (historical volatility) or is expected to fluctuate (expected volatility) during a period. The expected volatility assumption is derived from the historical volatility of the Company's common stock over a period approximately equal to the expected term.

Risk-free interest rate—The assumed risk-free rate used is a zero coupon U.S. Treasury security with a maturity that approximates the expected term of the option.

Expected life of the option—The period of time that the options granted are expected to remain unexercised. Options granted during the prior year have a maximum term of seven years. The Company estimates the expected life of the option term based on the weighted average life between the dates that options become fully vested and the maximum life of options granted.

The Company records stock-based compensation based upon the stated vesting provisions in the related agreements. The vesting provisions for these agreements have various terms as follows:

- immediate vesting,
- in full on the one-year anniversary date of the grant date,
- half vesting immediately and the remaining over three years,
- quarterly over three years,
- annually over three years,

8. Stock-Based Compensation - (continued)

- one-third immediate vesting and the remaining annually over two years,
- one-half immediate vesting and the remaining over nine months,
- one-quarter immediate vesting and the remaining over three years,
- one-quarter immediate vesting and the remaining over 33 months,
- monthly over one year, and
- monthly over three years.

A summary of stock option activity for the six months ended June 30, 2024 and the year ended December 31, 2023 is as follows:

	Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life	Aggregate Intrinsic Value
Balance - December 31, 2022	2,295,898	\$ 3.53	6.44 years	\$ —

Granted	2,195,000	0.59		
Expired	(104,270)	14.73		
Forfeited	(10,847)	1.11		
Balance - December 31, 2023	4,375,781	1.80	7.70 years	—
Expired	(6,497)	90.30		
Forfeited	—	—		
Balance - June 30, 2024 - outstanding	4,369,284	\$ 1.66	7.21 years	\$ —
Balance - June 30, 2024 - exercisable	1,964,867	\$ 2.95	5.86 years	\$ —
Grant date fair value of options granted - year ended December 31, 2023		\$ 873,140		
Weighted average grant date fair value - year ended December 31, 2023		\$ 0.40		

8. Stock-Based Compensation - (continued)

Stock-based compensation expense included in general and administrative expenses and research and development expenses relating to stock options issued to employees for the three months ended June 30, 2024 and 2023 was \$118,000 and \$102,000, respectively. Stock-based compensation expense included in general and administrative expenses and research and development expenses relating to stock options issued to consultants for the three months ended June 30, 2024 and 2023 was \$54,000 and \$44,000, respectively. Stock-based compensation expense included in general and administrative expenses and research and development expenses relating to stock options issued to employees for the six months ended June 30, 2024 and 2023 was \$224,000 and \$184,000, respectively. Stock-based compensation expense included in general and administrative expenses and research and development expenses relating to stock options issued to consultants for the six months ended June 30, 2024 and 2023 was \$108,000 and \$88,000, respectively.

As of June 30, 2024, total unrecognized stock-based compensation expense related to stock options was \$934,000 million, which is expected to be expensed through May 2026.

The FASB's guidance for stock-based payments requires cash flows from excess tax benefits to be classified as a part of cash flows from operating activities. Excess tax benefits are realized tax benefits from tax deductions for exercised options in excess of the deferred tax asset attributable to stock compensation costs for such options. The Company did not record any excess tax benefits during the three and six months ended June 30, 2024 and 2023.

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Stock Warrants

[Stock Warrants](#)
[Stock Warrants](#)

**6 Months Ended
Jun. 30, 2024**

9. Stock Warrants

On October 15, 2018, the Company closed its underwritten public offering pursuant to which it received gross proceeds of approximately \$18.6 million before deducting underwriting discounts, commissions and other offering expenses payable by the Company and sold (i) Class A Units (the "Class A Units"), consisting of an aggregate of 252,000 shares of the Common Stock, warrants to purchase an aggregate of 252,000 shares of Common Stock at an exercise price of \$13.80 per share, which subsequently was reduced to \$6.90 per share and then again to \$1.22 (each a "Warrant" and collectively, the "Warrants") and (ii) Class B Units (the "Class B Units", and together with the Class A Units, the "Units"), consisting of an aggregate of 15,723 shares of the Company's Series B Convertible Preferred Stock (the "Series B Preferred Stock"), with a stated value of \$1,000 and convertible into shares of Common Stock at the stated value divided by a conversion price of \$11.50 per share, with all shares of Series B Preferred Stock convertible into an aggregate of 1,367,218 shares of Common Stock, and issued with a warrant to purchase an aggregate of 1,367,218 shares of Common Stock. The Warrants were valued on the date of grant using Monte Carlo simulations. There were no Warrants exercised during the year ended December 31, 2023. The Warrants expired in October 2023 and are no longer outstanding. Upon expiration, the balance in additional paid - in capital related to the warrants was transferred to the additional paid - in capital balance related to common stock with no effect on additional paid - in capital.

A summary of all warrant activity for the Company for the year ended December 31, 2023 is as follows:

	Number of Warrants	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life
Balance at December 31, 2022	634,426	\$ 1.22	0.78 years
Granted	—	—	
Exercised	—	—	
Forfeited	(634,426)	1.22	
Balance at December 31, 2023	—	\$ —	—

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Net Loss per Share

[Net Loss per Share](#)
[Net Loss per Share](#)

**6 Months Ended
Jun. 30, 2024**

10. Net Loss per Share

Basic net loss per share is computed by dividing net loss by the weighted average number of common shares outstanding. Diluted net loss per share is computed by dividing net loss by the weighted average number of common shares outstanding including the effect of common share equivalents. Diluted net loss per share assumes the issuance of potential dilutive common shares outstanding for the period and adjusts for any changes in income and the repurchase of common shares that would have occurred from the assumed issuance, unless such effect is anti-dilutive. Net loss attributable to common stockholders for the three and six months ended June 30, 2024 was \$8.3 million and \$13.5 million, respectively. Net loss attributable to common stockholders for the three and six months ended June 30, 2023 was \$5.1 million and \$9.6 million, respectively. The number of options and warrants for the purchase of common stock that were excluded from the computations of net loss per common share for the three and six months ended June 30, 2024 were 4,369,284 and 0, respectively, and for the three and six months ended June 30, 2023 were 2,284,336 and 634,426, respectively, because their effect is anti-dilutive

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Common and Preferred Stock

[Common and Preferred Stock](#)
[Common and Preferred Stock](#)
[Common and Preferred Stock](#)

**6 Months Ended
Jun. 30, 2024**

11. Common and Preferred Stock

Series C and D Preferred Stock

On July 29, 2022, the Company closed a private placement offering pursuant to the terms of a Securities Purchase Agreement dated as of July 28, 2022 entered into with MSD Credit Opportunity Master Fund, L.P.(the "Securities Purchase Agreement"), pursuant to which the Company issued and sold 275,000 shares of the Company's Series C Convertible Preferred Stock, par value \$0.001 per share (the "Series C Preferred Stock"), and 100,000 shares of the Company's Series D Convertible Preferred Stock, par value \$0.001 per share (the "Series D Preferred Stock," and together with the Series C Preferred Stock, the "Preferred Stock"), at an offering price of \$8.00 per share, for gross proceeds of approximately \$3.0 million in the aggregate, before the deduction of discounts, fees and offering expenses. The shares of Preferred Stock are convertible, at a conversion price (the "Conversion Price") of \$1.22 per share (subject in certain circumstances to adjustments), into an aggregate of 2,459,016 shares of the Company's Common Stock, at the option of the holders of the Preferred Stock and, in certain circumstances, by the Company. The Securities Purchase Agreement contains customary representations, warranties and agreements by the Company and customary conditions to closing.

The Company included certain proposals at its 2022 annual meeting of stockholders, including (i) an amendment to the Company's Articles of Incorporation, as amended (the "Charter"), to change the name of the Company to "Theriva Biologics, Inc." (the "Name Change"), (ii) an amendment to the Articles of Incorporation, as amended to increase the number of authorized shares of Common Stock from 20,000,000 to 350,000,000 (the "Authorized Common Stock Increase") and (iii) to adjourn any meeting of stockholders called for the purpose of voting on the Authorized Common Stock Increase (collectively, the "Stockholder Items"). The purchaser of the Preferred Stock agreed in the Purchase Agreement to (i) not transfer, offer, sell, contract to sell, hypothecate, pledge or otherwise dispose of the shares of the Preferred Stock until the earlier of the date that the Authorized Common Stock Increase is effected or October 26, 2022 (which could have been extended to December 31, 2022 if certain conditions were met), and (ii) vote the shares of the Series C Preferred Stock purchased in the Offering in favor of the Stockholder Items.

Pursuant to the Securities Purchase Agreement, the Company filed certificates of designation (the "Certificates of Designation") with the Secretary of the State of Nevada designating the rights, preferences and limitations of the shares of Series C Preferred Stock and Series D Preferred Stock. The Certificate of Designation for the Series C Preferred Stock provides, in particular, that the Series C Preferred Stock will have no voting rights other than the right to vote as a class on the Stockholder Items and the right to cast votes on an as converted to Common Stock basis on the Stockholder Items. The Certificate of Designation for the Series D Preferred Stock provides, in particular, that the Series D Preferred Stock will have no voting rights other than the right to vote as a class on the Stockholder Items and the right to cast 20,000 votes per share of Series D Preferred Stock on the Stockholder Items and to vote the shares of the Series D Preferred Stock purchased in the Offering in the same proportion as shares of Common Stock and any other shares of capital stock of the Company that are entitled to vote thereon (excluding any shares of Common Stock that are not voted) on the Stockholder Items.

The holders of Preferred Stock will be entitled to dividends, on an as-if converted basis, equal to dividends actually paid, if any, on shares of Common Stock. The Conversion Price may be adjusted pursuant to the Certificates of Designation for stock dividends and stock splits, subsequent rights offering, pro rata distributions of dividends or the occurrence of a fundamental transaction (as defined in the applicable Certificate of Designation).

11. Common and Preferred Stock - (continued)

The Series C Preferred Stock and Series D Preferred Stock are classified as temporary equity as a result of the deemed liquidation provision. Transaction expenses paid to third parties will be charged to temporary equity and will not be accreted as deemed dividends until redemption becomes probable.

During May 2024, the Company issued 888,072 shares of its common stock upon the conversion effected on such date by the holder of 135,431 shares of its Series C Convertible Preferred Stock at a conversion price of \$1.22 per share. As a result of the conversion the Company reduced the Series C Stock \$988,000 and increased Common Stock \$1,000 and Additional Paid in Capital \$987,000.

At Market Issuance Sales Agreement

On May 2, 2024, the "Company and A.G.P./Alliance Global Partners ("AGP") entered into Amendment No. 2 ("Amendment No. 2") to that certain Amended and Restated Sales Agreement among the Company, AGP and FBR Capital Markets & Co. (now known as B. Riley Securities) dated as of February 9, 2021, as amended by Amendment No. 1 thereto dated May 3, 2021 (the "Sales Agreement"), pursuant to which the Company may offer and sell, from time to time, at its option, shares of the Company's common stock, par value \$0.001 per share (the "Common Stock"), through A.G.P./Alliance Global Partners, as sales agent, in an "at the market offering" as defined in Rule 415(a)(4) under the Securities Act of 1933, as amended (the "Securities Act"). Sales in the "at the market offering" may occur under the Company's current effective registration statement on Form S-3 (File No. 333-255726) utilizing a prior prospectus and related prospectus supplements thereto or a newly filed registration statement on Form S-3 once it has been declared effective under the Securities Act. In addition, on May 1, 2024, the Company and B. Riley Securities, Inc. mutually agreed to enter into a notice of termination whereby B. Riley Securities, Inc. would no longer be a party to the Sales Agreement. During the three and six months ended June 30, 2024, the Company sold through the At Market Issuance Sales Agreement and the Amended and Restated Sales Agreement approximately 4.4 million shares of the Company's common stock and received net proceeds of approximately \$1.8 million. During the three and six months ended June 30, 2023, the Company sold through the At Market Issuance Sales Agreement and the Amended and Restated Sales Agreement approximately 1.9 million shares of the Company's common stock and received net proceeds of approximately \$2.2 million.

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Loans Payable

Loans Payable
Loans Payable

12. Loans Payable

As a result of the acquisition of VCN, the Company acquired interest-free or below-market interest rates loans (0%-1%) extended by Spanish governmental institutions of Ministerio de Ciencia, Innovacion y Universidades (RETOS loan) and ACC10 Generalitat de Catalunya (NEBT loan). The maturities of these loans are between 2024 and 2028. As a result of the VCN Acquisition, the Company maintains a restricted cash collateral account of \$99,000 relating to the RETOS loan, which is reflected as a non-current asset on the balance sheet.

	June 30, 2024 Current	June 30, 2024 Non-current	December 31, 2023 Current	December 31, 2023 Non-current
NEBT Loan	8	\$ 16	8	24
RETOS 2015	54	77	55	138
	\$ 62	\$ 93	\$ 63	\$ 162

A maturity analysis of the debt as of June 30, 2024 is as follows (amounts in thousands of dollars):

2025	62
2026	51
2027	32
2028	10
Total	155

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Commitments and Contingencies

Commitments and Contingencies
Commitments and Contingencies
Commitments and Contingencies

13. Commitments and Contingencies

The Company's existing leases as of June 30, 2024 for its U.S. and Spanish facilities are classified as operating leases. During the quarter ended June 30, 2021, the Company renewed its Rockville, MD facility lease by entering into a Second Lease Amendment which extends the lease term for 63 months beginning on September 1, 2022 and ending on December 31, 2027 at stated rental rates and including a 3-month rent abatement. The Second Amendment also has options for a Tenant Improvement Allowance and a Second Extension Term. The Second Extension Term is offered at market rates and there is no economic incentive for the lessee, therefore the Company has determined that it is not part of the original lease term.

The Company also leases research and office facilities in Barcelona, Spain for its 100 percent owned Theriva S.L. subsidiary. The lease that was in existence from December 2021 to December 2022 was a short term agreement with a 90-day termination notice provision that can be exercised by either party. On the closing date of the Theriva S.L. acquisition, a sublease was executed for Theriva S.L. to lease research and office facilities at a new location in Parets del Valles (Barcelona) from the former owner of Theriva S.L. This lease was executed for an initial term to begin in January 2023 until October 2026, with an option to renew for an additional five years. On January 15, 2023, Theriva S.L. moved into the facilities and the new lease commenced and the prior lease terminated.

Operating lease costs are presented as part of general and administrative expenses in the condensed consolidated statements of operations, and for the three and six months ended June 30, 2024 approximated \$158,000 and \$315,000, respectively and \$158,000 and \$303,000 the three and six months ended June 30, 2023, respectively. For the Barcelona lease, the day one non-cash addition of right of use assets due to adoption of ASC 842 was \$937,000.

A maturity analysis of the Company's operating leases as of June 30, 2024 is as follows (amounts in thousands of dollars):

Future undiscounted cash flow for the years ending December 31,	
2024	331
2025	671
2026	588
2027	368
Total	1,958
Discount factor	(283)
Operating lease liability	1,675
Operating lease liability - current	(513)
Operating lease liability - long term	\$ 1,162

13. Commitments and Contingencies - (continued)

Risks and Uncertainties

The uncertain financial markets, disruptions in supply chains, mobility restraints, and changing priorities as well as volatile asset values could impact the Company's business in the future. The Company and its third-party contract manufacturers, contract research organizations, and clinical sites may also face disruptions in procuring items that are essential to the Company's research and development activities, including, for example, medical and laboratory supplies used in its clinical trials or preclinical studies, in each case, that are sourced from abroad or for which there are shortages because of ongoing efforts to address the outbreak. Further, although the Company has not experienced any material adverse effects on business due to increasing inflation, it has raised operating costs for many businesses and, in the future, could impact demand or pricing manufacturing of its drug candidates or services providers, foreign exchange rates or employee wages. The Company is actively monitoring the effects that these disruptions and increasing inflation could have on its operations.

Through the VCN Acquisition, the Company has operations in Spain related to conducting research and development, manufacturing, and clinical trials in Western European countries. The invasion of Ukraine by Russia, the war in the Middle East, and the retaliatory measures that have been taken, or could be taken in the future, by the United States, NATO, and other countries have created global security concerns that could result in a regional conflict and otherwise have a lasting impact on regional and global economies, any or all of which could disrupt the Company's supply chain, and despite the fact that it currently does not plan any clinical trials in Eastern Europe, may adversely impact the cost and conduct of R&D, manufacturing, and international clinical trials of its product candidates.

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Related Party

Related Party
Related Party

14. Related Party

On December 14, 2023 the Company approved the retention of MaryAnn Shallcross for compensation of \$152,000, a bonus of \$70,000 and the grant of an option to purchase 75,000 shares of common stock having a value of \$30,000. During the three and six months ended June 30, 2024, we paid compensation to Ms. Shallcross of \$38,000 and \$76,000, respectively.

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Subsequent Events

Subsequent Events
Subsequent Events

15. Subsequent events

On July 30, 2024 The Company received notice from the U.S. Food and Drug Administration (FDA) that it had been granted Rare Pediatric Drug Designation (RPDD) for VCN-01 for the treatment of retinoblastoma. VCN-01, the Company's lead product candidate, is a systemic, selective, stroma-degrading oncolytic adenovirus. Previously, the FDA granted orphan drug designation to VCN-01 for treatment of retinoblastoma.

On July 30, 2024, the Company received a notice of conversion from the holder of shares of its Series C Convertible Preferred Stock to convert the 135,431 shares of Series C Convertible Preferred Stock into 888,072 shares of the Company's common stock at a conversion price of \$1.22 per share.

On July 31, 2024 the Company sold through the At Market Issuance Sales Agreement and the Amended and Restated Sales Agreement approximately 1.8 million shares of the Company's common stock and received net proceeds of approximately \$0.5 million.

The Company previously had an option-license agreement with Massachusetts General Hospital to develop SYN-020 in several potential indications related to inflammation and gut barrier dysfunction. however, this expired in July 2024.

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Insider Trading Arrangements

Trading Arrangements, by Individual

Rule 10b5-1 Arrangement Adopted	false
Non-Rule 10b5-1 Arrangement Adopted	false
Rule 10b5-1 Arrangement Terminated	false
Non-Rule 10b5-1 Arrangement Terminated	false

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Summary of Significant Accounting Policies (Policies)

Summary of Significant Accounting Policies
IPR&D

IPR&D

IPR&D assets represent the fair value assigned to technologies that the Company acquired, which at the time of acquisition have not reached technological feasibility and have no alternative future use.

6 Months Ended Jun. 30, 2024

6 Months Ended Jun. 30, 2024

6 Months Ended Jun. 30, 2024

6 Months Ended Jun. 30, 2024

IPR&D assets are considered to have indefinite-lives until the completion or abandonment of the associated research and development projects. If and when development is complete, which generally occurs upon regulatory approval and the ability to commercialize products associated with the IPR&D assets, these assets are then deemed to have definite lives and are amortized based on their estimated useful lives at that point in time. If development is terminated or abandoned, the Company may have a full or partial impairment charge related to the IPR&D assets, calculated as the excess of carrying value of the IPR&D assets over fair value.

During the period that the assets are considered indefinite-lived, they are tested for impairment on an annual basis on October 1, or more frequently if the Company becomes aware of any events occurring or changes in circumstances that could indicate an impairment. The impairment test consists of a comparison of the estimated fair value of the IPR&D with its carrying amount. If the carrying amount exceeds the fair value, an impairment charge is recognized in an amount equal to that excess. The key assumptions used to value IPR&D include estimates of future cash flows and to the discount rate applicable to the future cash flow periods.

GoodwillGoodwill

The Company tests the carrying amounts of goodwill for recoverability on an annual basis on October 1 or more frequently if events or changes in circumstances indicate that the asset might be impaired. The Company performs a one-step test in its evaluation of the carrying value of goodwill if qualitative factors determine it is necessary to complete a goodwill impairment test. In the evaluation, the fair value of the relevant reporting unit is determined and compared to its carrying value. If the fair value is greater than the carrying value, then the carrying value is deemed to be recoverable, and no further action is required. If the fair value estimate is less than the carrying value, goodwill is considered impaired for the amount by which the carrying amount exceeds the reporting unit's fair value, and a charge is reported in impairment of goodwill in the Company's consolidated statements of operations. The key assumptions used to value the reporting unit include estimates of future cash flows, the discount rate applicable and those future cash flow periods, and the implied control premium.

Contingent Contingent Consideration

Consideration paid in a business combination may include potential future payments that are contingent upon the acquired business achieving certain milestones in the future ("contingent consideration"). Contingent consideration liabilities are measured at their estimated fair value as of the date of acquisition, with subsequent changes in fair value recorded in the consolidated statements of operations. The Company estimates the fair value of the contingent consideration as of the acquisition date using the estimated future cash outflows based on the probability of meeting future milestones. Payments for amounts not in excess of original fair values established at acquisition date (including measurement period adjustments), and not paid within a period considered to be close to the transaction date, are reflected as financing activities in the statement of cash flows. Subsequent to the date of acquisition, the Company reassesses the actual consideration earned and the probability-weighted future earn-out payments at each balance sheet date. The discounted cash flow is the method used to value the contingent consideration which includes inputs of not readily observable market data, which are level 3 inputs. Any adjustment to the contingent consideration liability will be recorded in the consolidated statements of operations. Contingent consideration liabilities expected to be settled within 12 months after the balance sheet date are presented in current liabilities, with the non-current portion recorded under long-term liabilities in the consolidated balance sheets. See Fair Value of Financial Instruments below.

Long-Lived AssetsLong-Lived Assets

Long-lived assets include property, equipment, and right of use assets. Management reviews the Company's long-lived assets for impairment annually or whenever events or changes in circumstances indicate that the carrying amount of an asset or asset group may not be fully recoverable. The Company determines the extent to which an asset may be impaired based upon its expectation of the asset's future usability as well as whether there is reasonable assurance that the future cash flows associated with the asset will be in excess of its carrying amount. If the total of the expected undiscounted future cash flows is less than the carrying amount of the asset, a loss is recognized for the difference between the fair value and the carrying value of the asset. No impairment charges were recorded during the three and six months ended June 30, 2024 and 2023.

Research and Development Tax Credits

The Company, through its Theriva S.L. subsidiary, participates in a Research and Development incentive program sponsored by the Spanish government. The program provides for reimbursement of certain expenses incurred in research and development efforts the Company incurs in Spain. The program provides for certain limits on the types and amounts of expenses and requires participants to complete a certification and apply for the refund annually. Subsequent to the period in which expenses are incurred, the program requires participants to maintain certain workforce levels and research and development expenditures over a 24-month period. The Company accounts for the reimbursement as a tax credit receivable related to amounts that had been approved by the Spanish government and a corresponding deferred research and development tax credit as it was determined that amounts became probable of being received upon the receipt of the approval. Additionally, the Company has elected to account for the tax credit as a contra-expense as this most appropriately reflects the nature of the transaction and will reduce future research and development expenditures as the Company continues to incur expenses in the upcoming 24-month period.

Recent Accounting Pronouncements and Developments

In August 2020, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2020-06, *Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging - Contracts in Entity's Own Equity (subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity*. This ASU amends the guidance on convertible instruments and the derivatives scope exception for contracts in an entity's own equity and improves and amends the related earnings per share guidance for both Subtopics. The ASU is effective for annual reporting periods after December 15, 2023 and interim periods within those annual periods and early adoption is permitted in annual reporting periods ending after December 15, 2020. The Company adopted ASU 2020-06 on January 1, 2022. The ASU impacted the analysis of the accounting treatment for the issuance of Convertible Preferred Series C & D stock during the third quarter, specifically the cash conversion and beneficial conversion features.

In December 2023, the FASB issued final guidance in ASU No. 2023-09, *Income Taxes (ASC 740): Improvements to Income Tax Disclosures* requiring entities to provide additional information in the rate reconciliation and disclosures about income taxes paid. For public business entities, the guidance is effective for annual periods beginning after December 15, 2024. The Company is not early adopting, and therefore, this ASU is not adopted in the current period. The Company does not expect this ASU to have a material impact on the consolidated financial statements.

In November 2023, the FASB issued ASU No. 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures* which requires public entities to disclose significant segment expenses regularly provided to the chief operating decision-maker. Public entities with a single reporting segment have to provide all disclosures required by ASC 280, including the significant segment expense disclosures. For public business entities, the guidance is effective for annual periods beginning after December 15, 2024. The Company is not early adopting, and therefore has not adopted this ASU in the current period. The Company does not expect this ASU to have a material impact on the consolidated financial statements.

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Goodwill and Intangibles (Tables)Goodwill and IntangiblesSchedule of Company's goodwill

		6 Months Ended Jun. 30, 2024	
		Goodwill (in thousands)	
Balance at December 31, 2023	\$	5,700	
Goodwill impairment		(4,068)	
Effects of exchange rates		(167)	
Balance at June 30, 2024	\$	1,465	
		In-process R&D (in thousands)	
Balance at December 31, 2023	\$	19,755	
Effects of exchange rates		(576)	
Balance at June 30, 2024	\$	19,179	

Schedule of Company's in-process R&D

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Fair Value of Financial Instruments (Tables)6 Months Ended Jun. 30, 2024Fair Value of Financial InstrumentsSchedule of change in fair value as determined by Level 3 inputs for the contingent consideration liabilities

		6 Months Ended Jun. 30, 2024			
		(in thousands)			
Balance at December 31, 2022	\$	10,184			
Payment of contingent consideration		(3,250)			
Change in fair value		(660)			
Balance at December 31, 2023	\$	6,274			
Contingent consideration, current portion	\$	—			
Contingent consideration, net of current portion		6,274			
Balance at December 31, 2023	\$	6,274			
		(in thousands)			
Balance at December 31, 2023	\$	6,274			
Change in fair value		(73)			
Balance at June 30, 2024	\$	6,201			
Contingent consideration, current portion	\$	—			
Contingent consideration, net of current portion		6,201			
Balance at June 30, 2024	\$	6,201			

Schedule of fair value of financial instruments measured on a recurring basis

Description	Total	As of June 30, 2024		
		Level 1	Level 2	Level 3
Liabilities:				
Contingent consideration	\$ 6,201	\$ —	\$ —	\$ 6,201
Total liabilities	\$ 6,201	\$ —	\$ —	\$ 6,201
Description	Total	As of December 31, 2023		
		Level 1	Level 2	Level 3
Liabilities:				
Contingent consideration	\$ 6,274	\$ —	\$ —	\$ 6,274
Total liabilities	\$ 6,274	\$ —	\$ —	\$ 6,274

As of June 30, 2024			
Contingent Consideration	Va-luation Methodology	Significant Unobservable Input	Weighted Average (range, if applicable)
	Discounted Cash Flows	Milestone dates	2026-2028
Discount rate			14.2% to 14.6%

Schedule of fair value measurements of contingent consideration for which a liability is recorded

	Weighted Average Discount rate	14.44%
	Probability of Occurrence (periodic for each Milestone)	11.7% to 92.0%
	Probability of occurrence (cumulative through each Milestone)	5.3% to 48.8%
	As of December 31, 2023	
	Valuation Methodology	Significant Unobservable Input
Contingent Consideration	Discounted Cash Flows	Milestone dates
		2025-2028
		Discount rate
		12.9% to 13.6%
		Weighted Average Discount rate
		13.16%
		Probability of Occurrence (periodic for each Milestone)
		11.7% to 92.0%
		Probability of occurrence (cumulative through each Milestone)
		5.3% to 48.8%

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Selected Balance Sheet Information (Tables)

Selected Balance Sheet Information

[Schedule of prepaid expenses and other current assets](#) *Prepaid expenses and other current assets (in thousands)*

	June 30, 2024	December 31, 2023
Prepaid manufacturing expenses	\$ 475	\$ 491
Prepaid consulting, subscriptions and other expenses	271	180
Prepaid insurance	233	496
Prepaid clinical research organizations	213	1,119
VAT receivable	171	128
Total	\$ 1,363	\$ 2,414

[Schedule of property and equipment, net](#)

	June 30, 2024	December 31, 2023
Computers and office equipment	\$ 711	\$ 902
Other property, plant and equipment	404	417
Leasehold improvements	94	94
Software	11	11
	1,220	1,424
Less: accumulated depreciation and amortization	(884)	(1,002)
Total	\$ 336	\$ 422

[Schedule of accrued expenses](#)

	June 30, 2024	December 31, 2023
Accrued clinical consulting services	\$ 2,495	\$ 1,700
Accrued manufacturing costs	616	843
Accrued vendor payments	378	452
Total	\$ 3,489	\$ 2,995

[Schedule of accrued employee benefits](#)

	June 30, 2024	December 31, 2023
Accrued bonus expense	\$ 650	\$ 1,307
Accrued compensation expense	190	127
Accrued vacation expense	129	83
Total	\$ 969	\$ 1,517

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Stock-Based Compensation (Tables)

Stock-Based Compensation

[Summary of stock option activity](#)

	Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life	Aggregate Intrinsic Value
Balance - December 31, 2022	2,295,898	\$ 3.53	6.44 years	\$ —
Granted	2,195,000	0.59		
Expired	(104,270)	14.73		
Forfeited	(10,847)	1.11		
Balance - December 31, 2023	4,375,781	1.80	7.70 years	—
Expired	(6,497)	90.30		
Forfeited	—	—		
Balance - June 30, 2024 - outstanding	4,369,284	\$ 1.66	7.21 years	\$ —
Balance - June 30, 2024 - exercisable	1,964,867	\$ 2.95	5.86 years	\$ —
Grant date fair value of options granted - year ended December 31, 2023		\$ 873,140		
Weighted average grant date fair value - year ended December 31, 2023		\$ 0.40		

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Stock Warrants (Tables)

Stock Warrants

[Summary of all warrant activity](#)

	Number of Warrants	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life
Balance at December 31, 2022	634,426	\$ 1.22	0.78 years
Granted	—	—	
Exercised	—	—	
Forfeited	(634,426)	1.22	
Balance at December 31, 2023	—	\$ —	—

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Loans Payable (Tables)

Loans Payable

[Schedule of debt](#)

	June 30, 2024 Current	June 30, 2024 Non-current	December 31, 2023 Current	December 31, 2023 Non-current
NEBT Loan RETOS 2015	8	\$ 16	8	24
	54	77	55	138
	\$ 62	\$ 93	\$ 63	\$ 162

[Schedule of maturity analysis of debt](#) A maturity analysis of the debt as of June 30, 2024 is as follows *(amounts in thousands of dollars)*:

2025	62
2026	51
2027	32
2028	10
Total	155

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Commitments and Contingencies

6 Months Ended Jun. 30, 2024

Schedule of maturity analysis of operating leases A maturity analysis of the Company's operating leases as of June 30, 2024 is as follows (amounts in thousands of dollars):

Future undiscounted cash flow for the years ending December 31,	
2024	331
2025	671
2026	588
2027	368
Total	1,958
Discount factor	(283)
Operating lease liability	1,675
Operating lease liability - current	(513)
Operating lease liability - long term	\$ 1,162

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Organization, Nature of Operations and Basis of Presentation (Details)	6 Months Ended Jun. 30, 2024 segment
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Organization, Nature of Operations and Basis of Presentation

Number of operating segments	1
Number of reportable segments	1

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Going Concern (Details) - USD (\$) \$ in Thousands	Jun. 30, 2024	Dec. 31, 2023	Jun. 30, 2023
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Going Concern

Accumulated deficit	\$ (322,799)	\$ (309,318)	
Cash and cash equivalents	\$ 16,593	\$ 23,177	\$ 34,248

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Summary of Significant Accounting Policies (Details) - USD (\$) \$ in Thousands	3 Months Ended Jun. 30, 2024	Jun. 30, 2023	6 Months Ended Jun. 30, 2024	Jun. 30, 2023
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Summary of Significant Accounting Policies

Goodwill impairment	\$ 4,068		\$ 4,068	
Impairment charge	\$ 0	\$ 0	\$ 0	\$ 0

Research and Development Program

Summary of Significant Accounting Policies

Research and development expenditure period (in months)	24 months
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Goodwill and Intangibles - Goodwill (Details) - USD (\$) \$ in Thousands	3 Months Ended Jun. 30, 2024	6 Months Ended Jun. 30, 2024
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Goodwill

Balance at the beginning	\$ 5,700
Goodwill impairment	\$ (4,068)
Effects of exchange rates	(167)
Balance at the end	\$ 1,465

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Goodwill and Intangibles - In-process R&D (Details) - In-process R&D \$ in Thousands	6 Months Ended Jun. 30, 2024 USD (\$)
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Finite-Lived Intangible Assets

Balance at the beginning	\$ 19,755
Effects of exchange rates	(576)
Balance at the end	\$ 19,179

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Goodwill and Intangibles - Narrative (Details) \$ in Thousands	3 Months Ended Jun. 30, 2024 USD (\$)	6 Months Ended Jun. 30, 2024 USD (\$)
--	---	---

Goodwill and Intangibles

Goodwill, at carrying value	\$ 5,500	\$ 5,500
Goodwill, fair value	1,500	1,500
Goodwill impairment	\$ 4,068	\$ 4,068

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Fair Value of Financial Instruments - Narratives (Details) - USD (\$)	3 Months Ended Jun. 30, 2024	Dec. 31, 2023	Jun. 30, 2023	6 Months Ended Jun. 30, 2024	Jun. 30, 2023
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Fair Value of Financial Instruments

Fair value of contingent consideration	\$ 6,201,000	\$ 6,274,000		\$ 6,201,000	
Goodwill, at carrying value	5,500,000			5,500,000	
Goodwill impairment	4,068,000			4,068,000	

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Fair Value of Financial Instruments

Additional consideration related to the achievement of certain milestones				70,200,000	
Amount to be paid due to approval		\$ 3,250,000			
Fair value of contingent consideration	6,200,000			6,200,000	
Operating expense relating to fair value adjustment	\$ 275,000		\$ 432,000	\$ 73,000	\$ 568,000

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Fair Value of Financial Instruments - Change in fair value of contingent consideration (Details) \$ in Thousands	6 Months Ended Jun. 30, 2024 USD (\$)	12 Months Ended Dec. 31, 2023 USD (\$)
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Fair Value, Liabilities Measured on Recurring Basis, Unobservable Input Reconciliation [Roll Forward]

Contingent consideration, net of current portion	\$ 6,201	\$ 6,274
Contingent consideration		

Fair Value, Liabilities Measured on Recurring Basis, Unobservable Input Reconciliation [Roll Forward]

Balance at beginning	6,274	10,184
Payment of contingent consideration		(3,250)
Change in fair value	(73)	(660)
Balance at ending	6,201	6,274
Contingent consideration, net of current portion	\$ 6,201	\$ 6,274

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Fair Value of
Financial Instruments
- Fair value of
financial instruments
measured on a
recurring basis
(Details) - USD (\$)
\$ in Thousands

Jun. 30, 2024 Dec. 31, 2023

Fair Value of Financial Instruments

Fair value of liabilities \$ 6,201 \$ 6,274

Contingent consideration

Fair Value of Financial Instruments

Fair value of liabilities 6,201 6,274

Level 3

Fair Value of Financial Instruments

Fair value of liabilities 6,201 6,274

Level 3 | Contingent consideration

Fair Value of Financial Instruments

Fair value of liabilities \$ 6,201 \$ 6,274

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Fair Value of
Financial Instruments
- Contingent
Consideration
(Details) - Level 3 -
Contingent
consideration

Jun. 30, 2024 Dec. 31, 2023

Discount rate | Minimum

Fair Value of Financial Instruments

Contingent consideration, measurement Input

0.142 0.129

Discount rate | Maximum

Fair Value of Financial Instruments

Contingent consideration, measurement Input

0.146 0.136

Weighted Average Discount rate

Fair Value of Financial Instruments

Contingent consideration, measurement Input

0.1444 0.1316

Probability of occurrence | Minimum

Fair Value of Financial Instruments

Contingent consideration, measurement Input

0.117 0.117

Probability of occurrence | Maximum

Fair Value of Financial Instruments

Contingent consideration, measurement Input

0.920 0.920

Probability of occurrence (cumulative through each Milestone) | Minimum

Fair Value of Financial Instruments

Contingent consideration, measurement Input

0.053 0.053

Probability of occurrence (cumulative through each Milestone) | Maximum

Fair Value of Financial Instruments

Contingent consideration, measurement Input

0.488 0.488

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Research and
Development Tax
Credits (Details) -
USD (\$)

3 Months Ended 6 Months Ended

Jun. 30, 2024 Jun. 30, 2024 Dec. 31, 2023

Research and Development Tax Credits

Deferred research and development tax credit grant receivable \$ 1,800,000 \$ 1,800,000

Deferred research and development tax credit-current portion 880,000 880,000 \$ 906,000

Non-current deferred research and development tax credit 440,000 440,000 \$ 906,000

Increase (Decrease) in Deferred Research and Development Tax Credit \$ 221,000 \$ 444,000

Research and Development Program

Research and Development Tax Credits

Research and development expenditure period (in months) 24 months

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Selected Balance
Sheet Information -
Schedule of Prepaid
expenses and other
current assets
(Details) - USD (\$)
\$ in Thousands

Jun. 30, 2024 Dec. 31, 2023

Selected Balance Sheet Information

Prepaid manufacturing expenses \$ 475 \$ 491

Prepaid consulting, subscriptions and other expenses 271 180

Prepaid insurance 233 496

Prepaid clinical research organizations 213 1,119

VAT receivable 171 128

Total \$ 1,363 \$ 2,414

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Selected Balance
Sheet Information -
Schedule of Property
and equipment, net
(Details) - USD (\$)
\$ in Thousands

Jun. 30, 2024 Dec. 31, 2023

Selected Balance Sheet Information

Property, Plant and Equipment, Gross Total \$ 1,220 \$ 1,424

Less: accumulated depreciation and amortization (884) (1,002)

Total 336 422

Computers and office equipment

Selected Balance Sheet Information

Property, Plant and Equipment, Gross Total 711 902

Other property, plant and equipment

Selected Balance Sheet Information

Property, Plant and Equipment, Gross Total 404 417

Leasehold improvements

Selected Balance Sheet Information

Property, Plant and Equipment, Gross Total 94 94

Software

Selected Balance Sheet Information

Property, Plant and Equipment, Gross Total \$ 11 \$ 11

XML 54 R44.htm IDEA: XBRL DOCUMENT

Selected Balance
Sheet Information -

Schedule of Accrued expenses (Details) - USD (\$)
\$ in Thousands

Jun. 30, 2024Dec. 31, 2023

Selected Balance Sheet Information

Accrued clinical consulting services	\$ 2,495	\$ 1,700
Accrued manufacturing costs	616	843
Accrued vendor payments	378	452
Total	\$ 3,489	\$ 2,995

XML 55 R45.htm IDEA: XBRL DOCUMENT

Selected Balance Sheet Information - Schedule of Accrued employee benefits (Details) - USD (\$)
\$ in Thousands

Jun. 30, 2024Dec. 31, 2023

Selected Balance Sheet Information

Accrued bonus expense	\$ 650	\$ 1,307
Accrued compensation expense	190	127
Accrued vacation expense	129	83
Total	\$ 969	\$ 1,517

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Stock-Based Compensation - Stock incentive plan and other information (Details) - USD (\$)

Stock-Based Compensation - Stock incentive plan and other information (Details) - USD (\$)	Sep. 05, 2019	Nov. 02, 2010	3 Months Ended		6 Months Ended		12 Months Ended	
			Jun. 30, 2024	Jun. 30, 2023	Jun. 30, 2024	Jun. 30, 2023	Dec. 31, 2022	Sep. 17, 2020
Stock-Based Compensation and Warrants								
Share-based payment award, options, grants in period, gross					0	0		
Unrecognized stock-based compensation expense			\$		\$			
			934,000,000,000		934,000,000,000			

General and Administrative Expenses and Research and Development Expense | Employees

Stock-Based Compensation and Warrants

Allocated share-based compensation expense	118,000	\$ 102,000	224,000	\$ 184,000
Consultant General and Administrative Expenses and Research and Development Expense				

Stock-Based Compensation and Warrants

Allocated share-based compensation expense	\$ 54,000	\$ 44,000	\$ 108,000	\$ 88,000
2010 Stock Plan				

Stock-Based Compensation and Warrants

Share-based payment award, options, outstanding, number	8,572	195,782	195,782	
Share-based payment award, options, issued, number		198,782	198,782	
Share-based compensation arrangement by share-based payment award, number of shares authorized	400,000			
Shares available		0	0	
2010 Stock Plan Minimum				

Stock-Based Compensation and Warrants

Share-based payment award, options, grants, expired period	5 years
2010 Stock Plan Maximum	

Stock-Based Compensation and Warrants

Share-based payment award, options, grants, expired period	10 years
2020 Stock Plan	

Stock-Based Compensation and Warrants

Share-based payment award, options, outstanding, number	4,173,502	4,173,502		400,000
Share-based payment award, options, issued, number	4,173,502	4,173,502		
Share-based compensation arrangement by share-based payment award, number of shares authorized			7,000,000	

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Stock-Based Compensation - Summary of stock option activity (Details) - USD (\$)

	6 Months Ended		12 Months Ended	
	Jun. 30, 2024	Jun. 30, 2023	Dec. 31, 2023	Dec. 31, 2022
Stock-Based Compensation and Warrants				
Options granted (in shares)	0	0		
Stock Option				
Stock-Based Compensation and Warrants				
Options, Beginning balance	4,375,781	2,295,898	2,295,898	
Options granted (in shares)			2,195,000	
Options, Expired	(6,497)		(104,270)	
Options, Forfeited			(10,847)	
Options, Ending balance	4,369,284		4,375,781	2,295,898
Options, Exercisable	1,964,867			
Weighted Average Exercise Price, Beginning balance	\$ 1.80	\$ 3.53	\$ 3.53	
Weighted Average Exercise Price, Granted			0.59	
Weighted Average Exercise Price, Expired	90.30		14.73	
Weighted Average Exercise Price, Forfeited			1.11	
Weighted Average Exercise Price, Ending balance	1.66		\$ 1.80	\$ 3.53
Weighted Average Exercise Price, Exercisable	\$ 2.95			
Weighted Average Remaining Contractual Life, Outstanding	7 years 2 months 15 days		7 years 8 months 12 days	6 years 5 months 8 days
Weighted Average Remaining Contractual Life, Exercisable	5 years 10 months 9 days			
Grant date fair value of options granted			\$ 873,140	
Weighted average grant date fair value			\$ 0.40	

XML 58 R48.htm IDEA: XBRL DOCUMENT

Stock Warrants (Details) - USD (\$)
\$ / shares in Units, \$ in Millions

	12 Months Ended				
	Oct. 15, 2018	Dec. 31, 2023	Jun. 30, 2024	Oct. 31, 2023	Aug. 03, 2022

Stock Warrants

Gross proceeds	\$ 18.6				
Common stock, par value (in dollars per share)	\$ 0.001	\$ 0.001			
Warrants exercised	0				
Warrant outstanding			0		
Class A common stock					

Stock Warrants

Number of shares issued	252,000				
Series B Preferred Stock					
Stock Warrants					
Number of warrants to purchase shares	1,367,218				
Preferred stock conversion price per share	\$ 11.50				
Common stock, par value (in dollars per share)	\$ 1,000				

Issue of warrants to purchase common stock Series B	1,367,218	
Stock Warrants		
Conversion of stock, shares converted	15,723	
Warrant		
Stock Warrants		
Exercise price per warrant	\$ 6.90	
Warrant Class A common stock		
Stock Warrants		
Number of warrants to purchase shares	252,000	
Exercise price per warrant	\$ 13.80	\$ 1.22

XML 59 R49.htm IDEA: XBRL DOCUMENT

Stock Warrants - summary of all warrant activity (Details) - \$ / shares	12 Months Ended	
	Dec. 31, 2023	Dec. 31, 2022
Stock Warrants		
Number of Warrants, Beginning balance	634,426	
Number of Warrants, Forfeited	(634,426)	
Number of Warrants, Ending balance		634,426
Weighted Average Exercise Price, Beginning balance	\$ 1.22	
Weighted Average Exercise Price, Forfeited	\$ 1.22	
Weighted Average Exercise Price, Ending balance		\$ 1.22
Weighted Average Remaining Contractual Life (in years)	0 years	9 months 10 days

XML 60 R50.htm IDEA: XBRL DOCUMENT

Net Loss per Share (Details) - USD (\$) \$ in Thousands	3 Months Ended		6 Months Ended	
	Jun. 30, 2024	Jun. 30, 2023	Jun. 30, 2024	Jun. 30, 2023
Net Loss per Share				
Net loss attributable to common stockholders	\$ (8,316)	\$ (5,084)	\$ (13,481)	\$ (9,563)
Equity Option				

Net Loss per Share	
Number of options and warrants for the purchase of common stock that were excluded from the computations of net loss per common share	4,369,284
Warrant	

Net Loss per Share		
Number of options and warrants for the purchase of common stock that were excluded from the computations of net loss per common share		0
Equity Option		
Net Loss per Share		
Number of options and warrants for the purchase of common stock that were excluded from the computations of net loss per common share	2,284,336	
Warrant		
Net Loss per Share		
Number of options and warrants for the purchase of common stock that were excluded from the computations of net loss per common share		634,426

XML 61 R51.htm IDEA: XBRL DOCUMENT

Common and Preferred Stock (Details) - USD (\$)	1 Months Ended		3 Months Ended		6 Months Ended					
	Jul. 29, 2022	May 31, 2024	Jun. 30, 2024	Jun. 30, 2023	Jun. 30, 2024	Jun. 30, 2023				
Common and Preferred Stock										
Offering price	\$ 8.00									
Gross proceeds	\$ 3,000,000.0									
Conversion price	\$ 1.22									
Common stock, shares issued	2,459,016		23,113,391		23,113,391			17,868,282		
Common stock, shares authorized			350,000,000		350,000,000			350,000,000		
Common stock shares increased			\$ 988,000							
Common stock, par value (in dollars per share)			\$ 0.001		\$ 0.001			\$ 0.001		
Amendment 2022										
Common and Preferred Stock										
Common stock, shares authorized									350,000,000	20,000,000
At the market offering										
Common and Preferred Stock										
Common stock, par value (in dollars per share)							\$ 0.001			
Stock issued during period (in shares)			4,400,000	1,900,000	4,400,000	1,900,000				
Net proceeds from issuance of common stock			\$ 1,800,000	\$ 2,200,000	\$ 1,800,000	\$ 2,200,000				
Common Stock										
Common and Preferred Stock										
Common stock upon the conversion		888,072	888,072							
Common stock shares increased		\$ 1,000	\$ 1,000							
Additional Paid-in Capital										
Common and Preferred Stock										
Common stock shares increased		\$ 987,000	\$ 987,000							
Series C convertible preferred stock										
Common and Preferred Stock										
Convertible preferred stock, shares issued	275,000		275,000		275,000			275,000		
Convertible preferred stock, par value (in dollars per share)	\$ 0.001		\$ 0.001		\$ 0.001			\$ 0.001		
Conversion price		\$ 1.22								
Conversion of series C preferred stock					\$ 988,000					
Series D convertible preferred stock										
Common and Preferred Stock										
Convertible preferred stock, shares issued	100,000		100,000		100,000			100,000		
Convertible preferred stock, par value (in dollars per share)	\$ 0.001		\$ 0.001		\$ 0.001			\$ 0.001		
Votes per share	20,000									
Series C preferred stock										
Common and Preferred Stock										
Common stock, conversion holder shares		135,431								
Conversion of series C preferred stock		\$ 988,000								

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Loans Payable - Additional Information (Details) - USD (\$)	Jun. 30, 2024	Jun. 30, 2023
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Loans Payable		
Restricted cash included in other long-term assets	\$ 99,000	\$ 100,000
Minimum		

Loans Payable		
Loans acquired, interest rate		0.00%
Maximum		
Loans Payable		
Loans acquired, interest rate		1.00%

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Loans Payable - Non-current asset on the balance sheet		
	Jun. 30, 2024	Dec. 31, 2023
(Details) - USD (\$)		
\$ in Thousands		

Loans Payable		
Loans payable-current	\$ 62	\$ 63
Loan Payable - non-current	93	162

NEBT Loan		
Loans Payable		
Loans payable-current	8	8
Loan Payable - non-current	16	24

RETOS 2015		
Loans Payable		
Loans payable-current	54	55
Loan Payable - non-current	\$ 77	\$ 138

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Loans Payable - Maturity analysis of the debt (Details)		
	Jun. 30, 2024	
USD (\$)		
\$ in Thousands		

Loans Payable		
2025	\$ 62	
2026	51	
2027	32	
2028	10	
Total	\$ 155	

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Commitments and Contingencies - Maturity analysis of operating leases (Details) - USD (\$)		
	Jun. 30, 2024	Dec. 31, 2023
\$ in Thousands		

Commitments and Contingencies		
2024	\$ 331	
2025	671	
2026	588	
2027	368	
Total	1,958	
Discount factor	(283)	
Operating lease liability	1,675	
Operating lease liability - current	(513)	\$ (487)
Operating lease liability - long term	\$ 1,162	\$ 1,442

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Commitments and Contingencies - Additional Information (Details) - USD (\$)		3 Months Ended		6 Months Ended	
		Jun. 30, 2024	Jun. 30, 2023	Jun. 30, 2024	Jun. 30, 2023
Commitments and Contingencies					
Renewed lease term	63 months			63 months	
Lease rent abatement period				3 months	
Percentage of office leases owned by subsidiary				100.00%	
Termination notice period (in days)				90 days	
Additional lease renewal term				5 years	
Operating lease cost	\$ 158,000	\$ 158,000		\$ 315,000	\$ 303,000
Right of use assets exchanged for operating lease obligation				\$ 937,000	\$ 937,000

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Related Party (Details) - USD (\$)		3 Months Ended		6 Months Ended	
	Dec. 14, 2023	Jun. 30, 2024	Jun. 30, 2024	Jun. 30, 2023	
Related Party					
Options granted (in shares)		0		0	
Ms. Shallcross					
Related Party					
Approved compensation	\$ 152,000				
Related Party Ms. Shallcross					
Related Party					
Approved bonus payable	\$ 70,000				
Options granted (in shares)	75,000				
Value of shares	\$ 30,000				
Compensation paid		\$ 38,000			
Directors Related Party Ms. Shallcross					
Related Party					
Compensation paid			\$ 76,000		

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Subsequent events (Details) - USD (\$)		
\$ / shares in Units, \$ in Millions	Jul. 31, 2024	Jul. 30, 2024
	May 31, 2024	Jul. 29, 2022

Subsequent events		
Conversion price		\$ 1.22
Series C convertible preferred stock		
Subsequent events		
Conversion price		\$ 1.22
Subsequent Event		
Subsequent events		
Number of shares issued	1,800,000	
Net proceeds from issuance of common stock	\$ 0.5	
Subsequent Event Common Stock		
Subsequent events		
Conversion of stock (in shares)	888,072	
Conversion price	\$ 1.22	
Subsequent Event Series C convertible preferred stock		
Subsequent events		

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`word-wrap: break-word; */.report td.pl a a { cursor: pointer; display: block; width: 200px; overflow: hidden; }.report td.pl div a { width: 200px; }.report td.pl a: hover { background-color: #ffc; } /* Header rows... */.report tr.rh { background-color: #acf; color: black; font-weight: bold; } /* Calendars... */.report rc { background-color: #f0f0f0; } /* Even rows... */.report re, .report ru { background-color: #def; }.report ru td { border-bottom: 1px solid black; } /* Odd rows... */.report ro, .report rou { background-color: white; }.report rou td { border-bottom: 1px solid black; }.report rou table td, .report rou table td { border-bottom: 0px solid black; } /* styles for footnote marker */.report .fn { white-space: nowrap; } /* styles for numeric types */.report .num, .report .nump { text-align: right; white-space: nowrap; }.report .nump { padding-left: 2em; }.report .nump { padding: 0px 0.4em 0px 2em; } /* styles for text types */.report .text { text-align: left; white-space: normal; }.report .text .big { margin-bottom: 1em; width: 17em; }.report .text .more { display: none; }.report .text .note { font-style: italic; font-weight: bold; }.report .text .small { width: 10em; }.report sup { font-style: italic; }.report .outerFootnotes { font-size: 1em; }.XML 73 FilingSummary.xml IDEA: XBRL DOCUMENT 3.24.2.u1.html1692521false450false5falsefalseR1.htm995200090 - Document - Document and Entity InformationSheethttp://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformationDocument and Entity InformationCover1falsefalseR2.htm995200100 - Statement - Condensed Consolidated Balance SheetsSheethttp://www.syntheticbiologics.com/role/StatementCondensedConsolidatedBalanceSheetsCondensed Consolidated Balance SheetsStatements2falsefalseR3.htm995200105 - Statement - Condensed Consolidated Balance Sheets (Parenthetical)Sheethttp://www.syntheticbiologics.com/role/StatementCondensedConsolidatedBalanceSheetsParentheticalCondensed Consolidated Balance Sheets (Parenthetical)Statements3falsefalseR4.htm995200200 - Statement - Condensed Consolidated Statements of Operations and Comprehensive LossSheethttp://www.syntheticbiologics.com/role/StatementCondensedConsolidatedStatementsOfOperationsAndComprehensiveLossCondensed Consolidated Statements of Operations and Comprehensive LossStatements4falsefalseR5.htm995200300 - Statement - Condensed Consolidated Statements of Stockholder's EquitySheethttp://www.syntheticbiologics.com/role/StatementCondensedConsolidatedStatementsOfStockholderSEquityCondensed Consolidated Statements of Stockholder's EquityStatements5falsefalseR6.htm995200400 - 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Non-current asset on the balance sheet (Details)Details53falsefalseR54.htm99941203 - Disclosure - Loans Payable - Maturity analysis of the debt (Details)Sheethttp://www.syntheticbiologics.com/role/DisclosureLoansPayableMaturityAnalysisOfDebtDetailsLoans Payable - Maturity analysis of the debt (Details)Details54falsefalseR55.htm99941301 - Disclosure - Commitments and Contingencies - Maturity analysis of operating leases (Details)Sheethttp://www.syntheticbiologics.com/role/DisclosureCommitmentsAndContingenciesMaturityAnalysisOfOperatingLeasesDetailsCommitments and Contingencies - Maturity analysis of operating leases (Details)Details55falsefalseR56.htm99941302 - Disclosure - Commitments and Contingencies - Additional Information (Details)Sheethttp://www.syntheticbiologics.com/role/DisclosureCommitmentsAndContingenciesAdditionalInformationDetailsCommitments and Contingencies - Additional Information (Details)Details56falsefalseR57.htm99941401 - Disclosure - Related Party (Details)Sheethttp://www.syntheticbiologics.com/role/DisclosureRelatedPartyDetailsRelated Party (Details)DetailsSheethttp://www.syntheticbiologics.com/role/DisclosureRelatedParty57falsefalseR58.htm99941501 - Disclosure - Subsequent events`

(Details)Sheethttp://www.syntheticbiologics.com/role/DisclosureSubsequentEventsDetailsSubsequent events (Details)Details58 falsefalseAll ReportsBookAll Reports tmb-20240630.xsd tmb-20240630_cal.xml tmb-20240630_def.xml tmb-20240630_lab.xml tmb-20240630_pre.xml tmb-20240630x10q.htm tmb-20240630x10q001.jpg http://reports.us-gaap.com/2024http://xbrl.sec.gov/dei/2024http://xbrl.sec.gov/ecd/2024true true JSON 76 MetaLinks.json IDEA: XBRL DOCUMENT { "version": "2.2", "instance": { "tmb-20240630x10q.htm": { "nsPrefix": { "toVx": "nsuri": "http://www.syntheticbiologics.com/20240630" "dts": { "schema": { "local": { "tmb-20240630.xsd" } "remote": { "http://www.xbrl.org/2003/xbrl-instance-2003-12-31.xsd", "http://www.xbrl.org/2003/xbrl-linkbase-2003-12-31.xsd", "http://www.xbrl.org/2003/xl-2003-12-31.xsd", "http://www.xbrl.org/2003/xlink-2003-12-31.xsd", "http://www.xbrl.org/2003/xbrldt-2005.xsd", "http://www.xbrl.org/2006/ref-2006-02-27.xsd", "http://www.xbrl.org/irrr/arcrole/esma-arcrole-2018-11-21.xsd", "http://www.xbrl.org/irrr/role/negated-2009-12-16.xsd", "https://www.xbrl.org/2020/extensible-enumerations-2.0.xsd", "https://www.xbrl.org/2023/calculation-1.1.xsd", "https://www.xbrl.org/dtr/type/2020-01-21/types.xsd", "https://www.xbrl.org/dtr/type/2022-03-31/types.xsd", "https://xbrl.fasb.org/srt/2024/elts/srt-2024.xsd", "https://xbrl.fasb.org/srt/2024/elts/srt-roles-2024.xsd", "https://xbrl.fasb.org/srt/2024/elts/srt-types-2024.xsd", "https://xbrl.fasb.org/us-gaap/2024/elts/us-gaap-2024.xsd", "https://xbrl.fasb.org/us-gaap/2024/elts/us-roles-2024.xsd", "https://xbrl.fasb.org/us-gaap/2024/elts/us-types-2024.xsd", "https://xbrl.sec.gov/country/2024/country-2024.xsd", "https://xbrl.sec.gov/dei/2024/dei-2024.xsd", "https://xbrl.sec.gov/ecd/2024/ecd-2024.xsd", "https://xbrl.sec.gov/ecd/2024/ecd-sub-2024.xsd", "https://xbrl.sec.gov/sptr/2024/sptr-2024.xsd" } "calculationLink": { "local": { "tmb-20240630_cal.xml" } "definitionLink": { "local": { "tmb-20240630_def.xml" } "labelLink": { "local": { "tmb-20240630_lab.xml" } "presentationLink": { "local": { "tmb-20240630_pre.xml" } } "inline": { "local": { "tmb-20240630x10q.htm" } } "keyStandard": 208, "keyCustom": 44, "axisStandard": 21, "axisCustom": 0, "memberStandard": 27, "memberCustom": 15, "hidden": { "total": 19, "http://fasb.org/us-gaap/2024": 9, "http://xbrl.sec.gov/dei/2024": 5, "http://www.syntheticbiologics.com/20240630": 5 } "contextCount": 169, "entityCount": 1, "segmentCount": 45, "elementCount": 510, "unitCount": 5, "baseTaxonomies": { "http://fasb.org/us-gaap/2024": 509, "http://xbrl.sec.gov/dei/2024": 29, "http://xbrl.sec.gov/ecd/2024": 4 } "report": { "R1": { "role": "Document and Entity Information", "isDefault": "true", "groupType": "document", "subGroupType": "", "menuCat": "Cover", "order": "1", "firstAnchor": { "contextRef": "Duration_1_1_2024_To_6_30_2024_g66p9eCID0-ECvMpfvNGmw", "name": "dei:DocumentType", "unitRef": null, "xsiNil": "false", "lang": "en-US", "decimals": null, "ancestors": { "p": "div", "div": "body", "html" } "reportCount": 1, "baseRef": "tmb-20240630x10q.htm", "first": true, "unique": true } "uniqueAnchor": { "contextRef": "Duration_1_1_2024_To_6_30_2024_g66p9eCID0-ECvMpfvNGmw", "name": "dei:DocumentType", "unitRef": null, "xsiNil": "false", "lang": "en-US", "decimals": null, "ancestors": { "p": "div", "div": "body", "html" } "reportCount": 1, "baseRef": "tmb-20240630x10q.htm", "first": true, "unique": true } "R2": { "role": "http://www.syntheticbiologics.com/role/StatementCondensedConsolidatedBalanceSheets", "longName": "995200100 - 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Common stock represent the ownership interest in a corporation." } } } , "auth_ref": ["r12", "r59", "r549", "r567", "r886", "r887"] } , "us-gaap_CommonStockValue": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "CommonStockValue", "crdr": "credit", "presentation": ["http://www.synthetibiologics.com/role/StatementCondensedConsolidatedBalanceSheets"] , "lang": { "en-us": { "role": { "label": "Common Stock, Value, Issued", "terseLabel": "Common stock, \$0.001 par value: 350,000 common shares authorized, 23,113,391 issued and 22,393,158 outstanding at June 30, 2024 and 17,868,282 issued and 17,148,049 outstanding at December 31, 2023", "documentation": "Aggregate par or stated value of issued nonredeemable common stock (or common stock redeemable solely at the option of the issuer). This item includes treasury stock repurchased by the entity. Note: elements for number of nonredeemable common shares, par value and other disclosure concepts are in another section within stockholders' equity." } } } , "auth_ref": ["r59", "r487", "r661"] } , "ecd_CompActuallyPaidVsCoSelectedMeasureTextBlock": { "xbrltype": "textBlockItemType", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "CompActuallyPaidVsCoSelectedMeasureTextBlock", "presentation": ["http://xbrl.sec.gov/ecd/role/PvpDisclosure"] , "lang": { "en-us": { "role": { "label": "Compensation Actually Paid vs. Company Selected Measure [Text Block]", "terseLabel": "Compensation Actually Paid vs. Company Selected Measure [Text Block]", "documentation": "Compensation actually paid vs. net income [Text Block]", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "CompActuallyPaidVsNetIncomeTextBlock", "presentation": ["http://xbrl.sec.gov/ecd/role/PvpDisclosure"] , "lang": { "en-us": { "role": { "label": "Compensation Actually Paid vs. Net Income [Text Block]", "terseLabel": "Compensation Actually Paid vs. Net Income" } } } , "auth_ref": ["r727"] } , "ecd_CompActuallyPaidVsOtherMeasureTextBlock": { "xbrltype": "textBlockItemType", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "CompActuallyPaidVsOtherMeasureTextBlock", "presentation": ["http://xbrl.sec.gov/ecd/role/PvpDisclosure"] , "lang": { "en-us": { "role": { "label": "Compensation Actually Paid vs. Other Measure [Text Block]", "terseLabel": "Compensation Actually Paid vs. Other Measure" } } } , "auth_ref": ["r729"] } , "ecd_CompActuallyPaidVsTotalShareholderRtnTextBlock": { "xbrltype": "textBlockItemType", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "CompActuallyPaidVsTotalShareholderRtnTextBlock", "presentation": ["http://xbrl.sec.gov/ecd/role/PvpDisclosure"] , "lang": { "en-us": { "role": { "label": "Compensation Actually Paid vs. Total Shareholder Return [Text Block]", "terseLabel": "Compensation Actually Paid vs. Total Shareholder Return" } } } , "auth_ref": ["r726"] } , "us-gaap_ComprehensiveIncomeNetOfTaxIncludingPortionAttributableToNoncontrollingInterest": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "ComprehensiveIncomeNetOfTaxIncludingPortionAttributableToNoncontrollingInterest", "crdr": "debit", "presentation": ["http://www.synthetibiologics.com/role/StatementCondensedConsolidatedStatementsOfOperationsAndComprehensiveLoss"] , "lang": { "en-us": { "role": { "label": "Comprehensive Income (Loss), Net of Tax, Including Portion Attributable to Noncontrolling Interest", "totalLabel": "Total comprehensive loss", "documentation": "Amount after tax of increase (decrease) in equity from transactions and other events and circumstances from net income and other comprehensive income. Excludes changes in equity resulting from investments by owners and distributions to owners." } } } , "auth_ref": ["r43", "r85", "r115", "r117", "r121", "r478", "r500"] } , "us-gaap_ComputerSoftwareIntangibleAssetMember": { "xbrltype": "domainItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "ComputerSoftwareIntangibleAssetMember", "presentation": ["http://www.synthetibiologics.com/role/DisclosureSelectedBalanceSheetInformationScheduleOfPropertyAndEquipmentNetDetails"] , "lang": { "en-us": { "role": { "label": "Software [Member]", "verboseLabel": "Software", "documentation": "Collection of computer programs and related data that provide instructions to a computer, for example, but not limited to, application program, control module or operating system, that perform one or more particular functions or tasks." } } } , "auth_ref": ["r616", "r617", "r815", "r816", "r817", "r818", "r820", "r822", "r824", "r825"] } , "tovx_ComputersAndOfficeEquipmentMember": { "xbrltype": "domainItemType", "nsuri": "http://www.synthetibiologics.com/20240630", "localname": "ComputersAndOfficeEquipmentMember", "presentation": ["http://www.synthetibiologics.com/role/DisclosureSelectedBalanceSheetInformationScheduleOfPropertyAndEquipmentNetDetails"] , "lang": { "en-us": { "role": { "label": "Computers and office equipment [Member]", "verboseLabel": "Computers and office equipment" } } } , "auth_ref": [] } , "tovx_ConsultantMember": { "xbrltype": "domainItemType", "nsuri": "http://www.synthetibiologics.com/20240630", "localname": "ConsultantMember", "presentation": ["http://www.synthetibiologics.com/role/DisclosureStockBasedCompensationStockIncentivePlanAndOtherInformationDetails"] , "lang": { "en-us": { "role": { "documentation": "n/a.", "label": "Consultant [Member]", "terseLabel": "Consultant" } } } , "auth_ref": [] } , "us-gaap_ConversionOfStockAmountConverted1": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "ConversionOfStockAmountConverted1", "crdr": "debit", "presentation": ["http://www.synthetibiologics.com/role/DisclosureCommonAndPreferredStockDetails", "http://www.synthetibiologics.com/role/StatementCondensedConsolidatedStatementsOfCashFlows"] , "lang": { "en-us": { "role": { "label": "Conversion of Stock, Amount Converted", "terseLabel": "Conversion of Series C Preferred Stock to Common Shares", "verboseLabel": "Conversion of series C preferred stock", "documentation": "The value of the stock converted in a noncash (or part noncash) transaction. Noncash is defined as transactions during a period that do not result in cash receipts or cash payments in the period. [Part noncash] refers to that portion of the transaction not resulting in cash receipts or cash payments in the period." } } } , "auth_ref": ["r20", "r21", "r22"] } , "us-gaap_ConversionOfStockSharesConverted1": { "xbrltype": "sharesItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "ConversionOfStockSharesConverted1", "presentation": ["http://www.synthetibiologics.com/role/DisclosureCommonAndPreferredStockDetails", "http://www.synthetibiologics.com/role/DisclosureStockWarrantsDetails"] , "lang": { "en-us": { "role": { "label": "Conversion of Stock, Shares Converted", "terseLabel": "Conversion of stock, shares converted", "verboseLabel": "Common stock, conversion holder shares", "documentation": "The number of shares converted in a noncash (or part noncash) transaction. Noncash is defined as transactions during a period that do not result in cash receipts or cash payments in the period. [Part noncash] refers to that portion of the transaction not resulting in cash receipts or cash payments in the period." } } } , "auth_ref": ["r20", "r21", "r22"] } , "srt_CounterpartyNameAxis": { "xbrltype": "stringItemType", "nsuri": "http://fasb.org/srt/2024", "localname": "CounterpartyNameAxis", "presentation": ["http://www.synthetibiologics.com/role/DisclosureRelatedPartyDetails"] , "lang": { "en-us": { "role": { "label": "Counterparty Name [Axis]" } } } , "auth_ref": ["r133", "r134", "r266", "r286", "r435", "r456", "r482", "r620", "r622"] } , "dei_CoverAbstract": { "xbrltype": "stringItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "CoverAbstract", "lang": { "en-us": { "role": { "label": "Document and Entity Information", "documentation": "Cover page." } } } , "auth_ref": [] } , "dei_CurrentFiscalYearEndDate": { "xbrltype": "gMonthDayItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "CurrentFiscalYearEndDate", "presentation": ["http://www.synthetibiologics.com/role/DocumentDocumentAndEntityInformation"] , "lang": { "en-us": { "role": { "label": "Current Fiscal Year End Date", "documentation": "End date of current fiscal year in the format --MM-DD." } } } , "auth_ref": [] } , "us-gaap_DebtDisclosureAbstract": { "xbrltype": "stringItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "DebtDisclosureAbstract", "lang": { "en-us": { "role": { "label": "Loans Payable" } } } , "auth_ref": [] } , "us-gaap_DebtDisclosureTextBlock": { "xbrltype": "textBlockItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "DebtDisclosureTextBlock", "presentation": ["http://www.synthetibiologics.com/role/DisclosureLoansPayable"] , "lang": { "en-us": { "role": { "label": "Debt Disclosure [Text Block]", "verboseLabel": "Loans Payable", "documentation": "The entire disclosure for information about short-term and long-term debt arrangements, which includes amounts of borrowings under each line of credit, note payable, commercial paper issue, bonds indenture, debenture issue, own-share lending arrangements and any other contractual agreement to repay funds, and about the underlying arrangements, rationale for a classification as long-term, including repayment terms, interest rates, collateral provided, restrictions on use of assets and activities, whether or not in compliance with debt covenants, and other matters important to users of the financial statements, such as the effects of refinancing and noncompliance with debt covenants." } } } , "auth_ref": ["r78", "r128", "r237", "r238", "r239", "r240", "r241", "r254", "r255", "r265", "r267", "r268", "r269", "r270", "r271", "r272", "r274", "r277", "r278", "r280", "r417"] } , "us-gaap_DebtInstrumentInterestRateEffectivePercentage": { "xbrltype": "percentItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "DebtInstrumentInterestRateEffectivePercentage", "presentation": ["http://www.synthetibiologics.com/role/DisclosureLoansPayableAdditionalInformationDetails"] , "lang": { "en-us": { "role": { "label": "Debt Instrument, Interest Rate, Effective Percentage", "terseLabel": "Loans acquired, interest rate", "documentation": "Effective interest rate for the funds borrowed under the debt agreement considering interest compounding and original issue discount or premium." } } } , "auth_ref": ["r52", "r281", "r417", "r418", "r659"] } , "tovx_DeferredResearchAndDevelopmentTaxCreditCurrent": { "xbrltype": "monetaryItemType", "nsuri": "http://www.synthetibiologics.com/20240630", "localname": "DeferredResearchAndDevelopmentTaxCreditCurrent", "crdr": "credit", "presentation": ["http://www.synthetibiologics.com/role/DisclosureResearchAndDevelopmentTaxCreditsDetails", "http://www.synthetibiologics.com/role/StatementCondensedConsolidatedBalanceSheets"] , "lang": { "en-us": { "role": { "documentation": "Amount of deferred research and development tax credit that has been received or is receivable, classified as current", "label": "Deferred Research and Development Tax Credit, Current", "terseLabel": "Deferred research and development tax credit-current portion" } } } , "auth_ref": [] } , "tovx_DeferredResearchAndDevelopmentTaxCreditGrantReceivable": { "xbrltype": "monetaryItemType", "nsuri": "http://www.synthetibiologics.com/20240630", "localname": "DeferredResearchAndDevelopmentTaxCreditGrantReceivable", "crdr": "credit", "presentation": ["http://www.synthetibiologics.com/role/DisclosureResearchAndDevelopmentTaxCreditsDetails"] , "lang": { "en-us": { "role": { "documentation": "Amount of deferred research and development tax credit grant receivable", "label": "Deferred Research and Development Tax Credit, Grant Receivable", "terseLabel": "Deferred research

and development tax credit grant receivable." } } } , "auth_ref": [] } , "tovx_DeferredResearchAndDevelopmentTaxCreditNoncurrent": { "xbrltype": "monetaryItemType", "nsuri": "http://www.syntheticbiologics.com/20240630", "localname": "DeferredResearchAndDevelopmentTaxCreditNoncurrent", "crdr": "credit", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureResearchAndDevelopmentTaxCreditsDetails", "http://www.syntheticbiologics.com/role/StatementCondensedConsolidatedBalanceSheets"] , "lang": { "en-us": { "role": { "documentation": "Amount of deferred research and development tax credit that has been received or is receivable, classified as non current.", "label": "Deferred Research and Development Tax Credit, Noncurrent", "terseLabel": "Non-current deferred research and development tax credit" } } } , "auth_ref": [] } , "tovx_DepositsAndOtherAssetsNoncurrent": { "xbrltype": "monetaryItemType", "nsuri": "http://www.syntheticbiologics.com/20240630", "localname": "DepositsAndOtherAssetsNoncurrent", "crdr": "debit", "presentation": ["http://www.syntheticbiologics.com/role/StatementCondensedConsolidatedBalanceSheets"] , "lang": { "en-us": { "role": { "documentation": "Carrying value of amounts transferred to third parties for security purposes that are expected to be returned or applied towards payment after one year or beyond the operating cycle, if longer and also includes aggregate carrying amount, as of the balance sheet date, of noncurrent assets not separately disclosed in the balance sheet due to materiality considerations. Noncurrent assets are expected to be realized or consumed after one year (or the normal operating cycle, if longer).", "label": "Deposits and Other Assets Noncurrent", "verboseLabel": "Deposits and other assets" } } } , "auth_ref": [] } , "us-gaap_DepreciationDepletionAndAmortization": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "DepreciationDepletionAndAmortization", "crdr": "debit", "presentation": ["http://www.syntheticbiologics.com/role/StatementCondensedConsolidatedStatementsOfCashFlows"] , "lang": { "en-us": { "role": { "label": "Depreciation, Depletion and Amortization", "verboseLabel": "Depreciation", "documentation": "The aggregate expense recognized in the current period that allocates the cost of tangible assets, intangible assets, or depleting assets to periods that benefit from use of the assets." } } } , "auth_ref": ["r8", "r165", "r171", "r174", "r627", "r628"] } , "us-gaap_DerivativeFinancialInstrumentsLiabilitiesMember": { "xbrltype": "domainItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "DerivativeFinancialInstrumentsLiabilitiesMember", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureLoansPayableNonCurrentAssetOnBalanceSheetDetails"] , "lang": { "en-us": { "role": { "label": "Derivative Financial Instruments, Liabilities [Member]", "terseLabel": "NEBT Loan", "documentation": "This item represents derivative instrument obligations meeting the definition of a liability which are reported as of the balance sheet date. Derivative instrument obligations are generally measured at fair value, and adjustments to the carrying amount of hedged items reflect changes in their fair value (that is, losses) that are attributable to the risk being hedged and that arise while the hedge is in effect." } } } , "auth_ref": ["r396"] } , "us-gaap_DerivativeLiabilityMeasurementInput": { "xbrltype": "decimalItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "DerivativeLiabilityMeasurementInput", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureFairValueOfFinancialInstrumentsContingentConsiderationDetails"] , "lang": { "en-us": { "role": { "label": "Derivative Liability, Measurement Input", "verboseLabel": "Contingent consideration, measurement input", "documentation": "Value of input used to measure derivative liability." } } } , "auth_ref": ["r383", "r384", "r385"] } , "srt_DirectorMember": { "xbrltype": "domainItemType", "nsuri": "http://fasb.org/srt/2024", "localname": "DirectorMember", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureRelatedPartyDetails"] , "lang": { "en-us": { "role": { "label": "Board of Directors [Member]", "terseLabel": "Board of Directors", "verboseLabel": "Directors" } } } , "auth_ref": ["r795", "r885"] } , "us-gaap_DisclosureOfCompensationRelatedCostsShareBasedPaymentsTextBlock": { "xbrltype": "textBlockItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "DisclosureOfCompensationRelatedCostsShareBasedPaymentsTextBlock", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureStockBasedCompensation"] , "lang": { "en-us": { "role": { "label": "Disclosure of Compensation Related Costs, Share-based Payments [Text Block]", "terseLabel": "Stock-Based Compensation", "documentation": "The entire disclosure for share-based payment arrangement." } } } , "auth_ref": ["r310", "r313", "r341", "r342", "r343", "r644"] } , "us-gaap_DisclosureOfCompensationRelatedCostsShareBasedPaymentsAbstract": { "xbrltype": "stringItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "DisclosureOfCompensationRelatedCostsShareBasedPaymentsAbstract", "lang": { "en-us": { "role": { "label": "Stock-Based Compensation" } } } , "auth_ref": [] } , "dei_DocumentFiscalPeriodFocus": { "xbrltype": "fiscalPeriodItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "DocumentFiscalPeriodFocus", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"] , "lang": { "en-us": { "role": { "label": "Document Fiscal Period Focus", "documentation": "Fiscal period values are FY, Q1, Q2, and Q3. 1st, 2nd and 3rd quarter 10-Q or 10-QT statements have value Q1, Q2, and Q3 respectively, with 10-K, 10-KT or other fiscal year statements having FY." } } } , "auth_ref": [] } , "dei_DocumentFiscalYearFocus": { "xbrltype": "yearItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "DocumentFiscalYearFocus", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"] , "lang": { "en-us": { "role": { "label": "Document Fiscal Year Focus", "documentation": "This is focus fiscal year of the document report in YYYY format. For a 2006 annual report, which may also provide financial information from prior periods, fiscal 2006 should be given as the fiscal year focus. Example: 2006." } } } , "auth_ref": [] } , "dei_DocumentPeriodEndDate": { "xbrltype": "dateItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "DocumentPeriodEndDate", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"] , "lang": { "en-us": { "role": { "label": "Document Period End Date", "documentation": "For the EDGAR submission types of Form 8-K: the date of the report, the date of the earliest event reported; for the EDGAR submission types of Form N-1A: the filing date; for all other submission types: the end of the reporting or transition period. The format of the date is YYYY-MM-DD." } } } , "auth_ref": [] } , "dei_DocumentQuarterlyReport": { "xbrltype": "booleanItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "DocumentQuarterlyReport", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"] , "lang": { "en-us": { "role": { "label": "Document Quarterly Report", "documentation": "Boolean flag that is true only for a form used as an quarterly report." } } } , "auth_ref": ["r678"] } , "dei_DocumentTransitionReport": { "xbrltype": "booleanItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "DocumentTransitionReport", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"] , "lang": { "en-us": { "role": { "label": "Document Transition Report", "documentation": "Boolean flag that is true only for a form used as a transition report." } } } , "auth_ref": ["r710"] } , "dei_DocumentType": { "xbrltype": "submissionTypeItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "DocumentType", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"] , "lang": { "en-us": { "role": { "label": "Document Type", "documentation": "The type of document being provided (such as 10-K, 10-Q, 485BPOS, etc). The document type is limited to the same value as the supporting SEC submission type, or the word 'Other'." } } } , "auth_ref": [] } , "ecd_DvddsOrOthrErngsPdOnEqtyAwrdNtOthrRwRflctDnTtlCompForCvrdYrMember": { "xbrltype": "domainItemType", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "DvddsOrOthrErngsPdOnEqtyAwrdNtOthrRwRflctDnTtlCompForCvrdYrMember", "presentation": ["http://xbrl.sec.gov/ecd/role/PvpDisclosure"] , "lang": { "en-us": { "role": { "label": "Dividends or Other Earnings Paid on Equity Awards not Otherwise Reflected in Total Compensation for Covered Year [Member]", "terseLabel": "Dividends or Other Earnings Paid on Equity Awards not Otherwise Reflected in Total Compensation for Covered Year" } } } , "auth_ref": ["r721"] } , "us-gaap_EarningsPerShareAbstract": { "xbrltype": "stringItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "EarningsPerShareAbstract", "lang": { "en-us": { "role": { "label": "Net Loss per Share" } } } , "auth_ref": [] } , "us-gaap_EarningsPerShareBasic": { "xbrltype": "perShareItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "EarningsPerShareBasic", "presentation": ["http://www.syntheticbiologics.com/role/StatementCondensedConsolidatedStatementsOfOperationsAndComprehensiveLoss"] , "lang": { "en-us": { "role": { "label": "Earnings Per Share, Basic", "verboseLabel": "Net Loss Per Share - Basic (in dollars per share)", "documentation": "The amount of net income (loss) for the period available to each share of common stock or unit outstanding during the reporting period." } } } , "auth_ref": ["r122", "r141", "r142", "r143", "r144", "r145", "r146", "r151", "r154", "r158", "r159", "r160", "r164", "r356", "r361", "r378", "r379", "r479", "r501", "r623"] } , "us-gaap_EarningsPerShareDiluted": { "xbrltype": "perShareItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "EarningsPerShareDiluted", "presentation": ["http://www.syntheticbiologics.com/role/StatementCondensedConsolidatedStatementsOfOperationsAndComprehensiveLoss"] , "lang": { "en-us": { "role": { "label": "Earnings Per Share, Diluted", "verboseLabel": "Net Loss Per Share - Dilutive (in dollars per share)", "documentation": "The amount of net income (loss) for the period available to each share of common stock or common unit outstanding during the reporting period and to each share or unit that would have been outstanding assuming the issuance of common shares or units for all dilutive potential common shares or units outstanding during the reporting period." } } } , "auth_ref": ["r122", "r141", "r142", "r143", "r144", "r145", "r146", "r154", "r158", "r159", "r160", "r164", "r356", "r361", "r378", "r379", "r479", "r501", "r623"] } , "us-gaap_EarningsPerShareTextBlock": { "xbrltype": "textBlockItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "EarningsPerShareTextBlock", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureNetLossPerShare"] , "lang": { "en-us": { "role": { "label": "Earnings Per Share [Text Block]", "terseLabel": "Net Loss per Share", "documentation": "The entire disclosure for earnings per share." } } } , "auth_ref": ["r150", "r161", "r162", "r163"] } , "us-gaap_EffectOfExchangeRateOnCashCashEquivalentsRestrictedCashAndRestrictedCashEquivalents": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "EffectOfExchangeRateOnCashCashEquivalentsRestrictedCashAndRestrictedCashEquivalents", "crdr": "debit", "presentation": ["http://www.syntheticbiologics.com/role/StatementCondensedConsolidatedStatementsOfCashFlows"] , "lang": { "en-us": { "role": { "label": "Effect of Exchange Rate on Cash and Cash Equivalents", "terseLabel": "Effects of exchange rate changes on cash and cash equivalents", "documentation": "Amount of increase (decrease) from effect of exchange rate changes on cash and cash equivalents, and cash and cash equivalents restricted to withdrawal or usage; held in foreign currencies. Excludes amounts for disposal group and discontinued operations. Cash includes, but is not limited to, currency on hand, demand deposits with banks or financial institutions, and other accounts with general characteristics of demand deposits. Cash equivalents include, but are not limited to, short-term, highly liquid investments that are both readily convertible to known amounts of cash and so near their maturity that they present insignificant risk of changes in value because of changes in interest rates." } } } , "auth_ref": ["r408"] } , "us-gaap_EmployeeRelatedLiabilitiesCurrent": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "EmployeeRelatedLiabilitiesCurrent", "crdr": "credit", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureSelectedBalanceSheetInformationScheduleOfAccruedEmployeeBenefitsDetails", "http://www.syntheticbiologics.com/role/StatementCondensedConsolidatedBalanceSheets"] , "lang": { "en-us": { "role": { "label": "Employee-related Liabilities, Current", "terseLabel": "Accrued employee benefits", "totalLabel": "Total", "documentation": "Total of the carrying values as of the balance sheet date of obligations incurred through that date and payable for obligations related to services received from employees, such as accrued salaries and bonuses, payroll taxes and fringe benefits. Used to reflect the current portion of the liabilities (due within one year or within the normal operating cycle if longer)."} } } , "auth_ref": ["r50"] } , "us-gaap_EmployeeServiceShareBasedCompensationNonvestedAwardsTotalCompensationCostNotYetRecognizedStockOptions": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "EmployeeServiceShareBasedCompensationNonvestedAwardsTotalCompensationCostNotYetRecognizedStockOptions", "crdr": "debit", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureStockBasedCompensationStockIncentivePlanAndOtherInformationDetails"] , "lang": { "en-us": { "role": { "label": "Employee Service Share-based Compensation, Nonvested Awards, Compensation Not yet Recognized, Stock Options", "terseLabel": "Unrecognized stock-based compensation expense", "documentation": "Amount of cost to be recognized for option under share-based payment arrangement." } } } , "auth_ref": ["r859"] } , "us-gaap_EmployeeStockMember": { "xbrltype": "domainItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "EmployeeStockMember", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureStockBasedCompensationStockIncentivePlanAndOtherInformationDetails"] , "lang": { "en-us": { "role": { "label": "Employee Stock [Member]", "terseLabel": "Employees", "documentation": "An Employee Stock Purchase Plan is a tax-efficient means by which employees of a corporation can purchase the corporation's stock." } } } , "auth_ref": [] } , "us-gaap_EmployeeStockOptionMember": { "xbrltype": "domainItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "EmployeeStockOptionMember", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureStockBasedCompensationSummaryOfStockOptionActivityDetails", "http://xbrl.sec.gov/ecd/role/AwardTimingDisclosure"] , "lang": { "en-us": { "role": { "verboseLabel": "Stock Option", "label": "Employee Stock Option [Member]", "terseLabel": "Employee Stock Option", "documentation": "Share-based payment arrangement granting right, subject to vesting and other restrictions, to purchase or sell certain number of shares at predetermined price for specified period of time." } } } , "auth_ref": [] } , "dei_EntityAddressAddressLine1": { "xbrltype": "normalizedStringItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityAddressAddressLine1", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"] , "lang": { "en-us": { "role": { "label": "Entity Address, Address Line One", "documentation": "Address Line 1 such as Attn, Building Name, Street Name", "auth_ref": [] } } , "dei_EntityAddressCityOrTown": { "xbrltype": "normalizedStringItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityAddressCityOrTown", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"] , "lang": { "en-us": { "role": { "label": "Entity Address, City or Town", "documentation": "Name of the City or Town" } } } , "auth_ref": [] } , "dei_EntityAddressCountry": { "xbrltype": "countryCodeItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityAddressCountry", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"] , "lang": { "en-us": { "role": { "label": "Entity Address, Country", "documentation": "ISO 3166-1 alpha-2 country code." } } } , "auth_ref": [] } , "dei_EntityAddressPostalZipCode": { "xbrltype": "normalizedStringItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityAddressPostalZipCode", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"] , "lang": { "en-us": { "role": { "label": "Entity Address, Postal Zip Code", "documentation": "Code for the postal or zip code" } } } , "auth_ref": [] } , "dei_EntityCentralIndexKey": { "xbrltype": "centralIndexKeyItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityCentralIndexKey", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"] , "lang": { "en-us": { "role": { "label": "Entity Central Index Key", "documentation": "A unique 10-digit SEC-issued value to identify entities that have filed disclosures with the SEC. It is commonly abbreviated as CIK." } } } , "auth_ref": ["r676"] } , "dei_EntityCommonStockSharesOutstanding": { "xbrltype": "sharesItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityCommonStockSharesOutstanding", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"] , "lang": { "en-

us"; { "role": { "label": "Entity Common Stock, Shares Outstanding", "documentation": "Indicate number of shares or other units outstanding of each of registrant's classes of capital or common stock or other ownership interests, if and as stated on cover of related periodic report. Where multiple classes or units exist define each class/interest by adding class of stock items such as Common Class A [Member], Common Class B [Member] or Partnership Interest [Member] onto the Instrument [Domain] of the Entity Listings, Instrument." } } }, { "auth_ref": [1], "dei_EntityCurrentReportingStatus": { "xbrltype": "yesNoItem", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityCurrentReportingStatus", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"], "lang": { "en-us": { "role": { "label": "Entity Current Reporting Status", "documentation": "Indicate 'Yes' or 'No' whether registrants (1) have filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that registrants were required to file such reports), and (2) have been subject to such filing requirements for the past 90 days. This information should be based on the registrant's current or most recent filing containing the related disclosure." } } }, { "auth_ref": [1], "dei_EntityEmergingGrowthCompany": { "xbrltype": "booleanItem", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityEmergingGrowthCompany", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"], "lang": { "en-us": { "role": { "label": "Entity Emerging Growth Company", "documentation": "Indicate if registrant meets the emerging growth company criteria." } } }, { "auth_ref": ["r676"], "dei_EntityFileNumber": { "xbrltype": "fileNumberItem", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityFileNumber", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"], "lang": { "en-us": { "role": { "label": "Entity File Number", "documentation": "Commission file number. The field allows up to 17 characters. The prefix may contain 1-3 digits, the sequence number may contain 1-8 digits, the optional suffix may contain 1-4 characters, and the fields are separated with a hyphen." } } }, { "auth_ref": [1], "dei_EntityFilerCategory": { "xbrltype": "filerCategoryItem", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityFilerCategory", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"], "lang": { "en-us": { "role": { "label": "Entity Filer Category", "documentation": "Indicate whether the registrant is one of the following: Large Accelerated Filer, Accelerated Filer, Non-accelerated Filer. Definitions of these categories are stated in Rule 12b-2 of the Exchange Act. This information should be based on the registrant's current or most recent filing containing the related disclosure." } } }, { "auth_ref": ["r676"], "dei_EntityIncorporationStateCountryCode": { "xbrltype": "edgarStateCountryItem", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityIncorporationStateCountryCode", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"], "lang": { "en-us": { "role": { "label": "Entity Incorporation, State or Country Code", "documentation": "Two-character EDGAR code representing the state or country of incorporation." } } }, { "auth_ref": [1], "dei_EntityInteractiveDataCurrent": { "xbrltype": "yesNoItem", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityInteractiveDataCurrent", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"], "lang": { "en-us": { "role": { "label": "Entity Interactive Data Current", "documentation": "Boolean flag that is true when the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files)." } } }, { "auth_ref": ["r760"], "dei_EntityRegistrantName": { "xbrltype": "normalizedStringItem", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityRegistrantName", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"], "lang": { "en-us": { "role": { "label": "Entity Registrant Name", "documentation": "The exact name of the entity filing the report as specified in its charter, which is required by forms filed with the SEC." } } }, { "auth_ref": ["r676"], "dei_EntityShellCompany": { "xbrltype": "booleanItem", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityShellCompany", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"], "lang": { "en-us": { "role": { "label": "Entity Shell Company", "documentation": "Boolean flag that is true when the registrant is a shell company as defined in Rule 12b-2 of the Exchange Act." } } }, { "auth_ref": ["r676"], "dei_EntitySmallBusiness": { "xbrltype": "booleanItem", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntitySmallBusiness", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"], "lang": { "en-us": { "role": { "label": "Entity Small Business", "documentation": "Indicates that the company is a Smaller Reporting Company (SRC)." } } }, { "auth_ref": ["r676"], "dei_EntityTaxIdentificationNumber": { "xbrltype": "employerIdItem", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "EntityTaxIdentificationNumber", "presentation": ["http://www.syntheticbiologics.com/role/DocumentDocumentAndEntityInformation"], "lang": { "en-us": { "role": { "label": "Entity Tax Identification Number", "documentation": "The Tax Identification Number (TIN), also known as an Employer Identification Number (EIN), is a unique 9-digit value assigned by the IRS." } } }, { "auth_ref": ["r676"], "ecd_EqtyAwrdsAdjFnTextBlock": { "xbrltype": "textBlockItem", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "EqtyAwrdsAdjFnTextBlock", "presentation": ["http://xbrl.sec.gov/ecd/role/PvpDisclosure"], "lang": { "en-us": { "role": { "label": "Equity Awards Adjustments, Footnote [Text Block]", "terseLabel": "Equity Awards Adjustments, Footnote" } } }, { "auth_ref": ["r715"], "ecd_EqtyAwrdsAdjExclqValRprtdInSummaryCompstnTblMember": { "xbrltype": "domainItem", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "EqtyAwrdsAdjExclqValRprtdInSummaryCompstnTblMember", "presentation": ["http://xbrl.sec.gov/ecd/role/PvpDisclosure"], "lang": { "en-us": { "role": { "label": "Equity Awards Adjustments, Excluding Value Reported in the Compensation Table [Member]", "terseLabel": "Equity Awards Adjustments, Excluding Value Reported in Compensation 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These concepts are used to disclose reportable information associated with domain members defined in one or many axes to the table." } } }, { "auth_ref": [1], "us-gaap_EquityComponentDomain": { "xbrltype": "domainItem", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "EquityComponentDomain", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureCommonAndPreferredStockDetails", "http://www.syntheticbiologics.com/role/DisclosureStockWarrantsDetails", "http://www.syntheticbiologics.com/role/DisclosureSubsequentEventsDetails", "http://www.syntheticbiologics.com/role/StatementCondensedConsolidatedStatementsOfStockholderEquity"], "lang": { "en-us": { "role": { "label": "Equity Component [Domain]", "documentation": "Components of equity are the parts of the total Equity balance including that which is allocated to common, preferred, treasury stock, retained earnings, etc." } } }, { "auth_ref": ["r12", "r98", "r360", "r361", "r369", "r370", "r371", "r372", "r373", "r374", "r377", "r410", "r411", "r412", "r413", "r414", "r415", "r419", "r421", "r428", "r498", "r507", "r508", "r509", "r527", "r593"], "ecd_EquityValuationAssumptionDifferenceFnTextBlock": { "xbrltype": "textBlockItem", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "EquityValuationAssumptionDifferenceFnTextBlock", "presentation": ["http://xbrl.sec.gov/ecd/role/PvpDisclosure"], "lang": { "en-us": { "role": { "label": "Equity Valuation Assumption Difference, Footnote [Text Block]", "terseLabel": "Equity Valuation Assumption Difference, Footnote" } } }, { "auth_ref": ["r725"], "ecd_ErrCompAnalysisTextBlock": { "xbrltype": "textBlockItem", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "ErrCompAnalysisTextBlock", "presentation": ["http://xbrl.sec.gov/ecd/role/ErrCompDisclosure"], "lang": { "en-us": { "role": { "label": "Erroneous Compensation Analysis [Text Block]", "terseLabel": "Erroneous Compensation Analysis" } } }, { "auth_ref": ["r683", "r693", "r703", "r735"], "ecd_ErrCompRecoveryTable": { "xbrltype": "stringItem", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "ErrCompRecoveryTable", "presentation": ["http://xbrl.sec.gov/ecd/role/ErrCompDisclosure"], "lang": { "en-us": { "role": { "label": "Erroneously Awarded Compensation Recovery [Table]", "terseLabel": "Erroneously Awarded Compensation Recovery" } } }, { "auth_ref": ["r680", "r690", "r700", "r732"], "ecd_ExecutiveCategoryAxis": { "xbrltype": "stringItem", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "ExecutiveCategoryAxis", "presentation": ["http://xbrl.sec.gov/ecd/role/PvpDisclosure"], "lang": { "en-us": { "role": { "label": "Executive Category [Axis]", "terseLabel": "Executive Category" } } }, { "auth_ref": ["r731"], "us-gaap_FairValueAssetsAndLiabilitiesMeasuredOnRecurringAndNonrecurringBasisLineItems": { "xbrltype": "stringItem", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "FairValueAssetsAndLiabilitiesMeasuredOnRecurringAndNonrecurringBasisLineItems", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsContingentConsiderationDetails", "http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsFairValueOffFinancialInstrumentsMeasuredOnRecurringBasisDetails"], "lang": { "en-us": { "role": { "label": "Fair Value, Assets and Liabilities Measured on Recurring and Nonrecurring Basis [Line Items]", "terseLabel": "Fair Value of Financial Instruments", "verboseLabel": "Going Concern", "documentation": "Line items represent financial concepts included in a table. 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These concepts are used to disclose reportable information associated with domain members defined in one or many axes to the table." } } }, { "auth_ref": ["r383", "r384", "r385", "r652"], "us-gaap_FairValueAssetsAndLiabilitiesMeasuredOnRecurringAndNonrecurringBasisValuationTechniquesTable": { "xbrltype": "stringItem", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "FairValueAssetsAndLiabilitiesMeasuredOnRecurringAndNonrecurringBasisValuationTechniquesTable", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsNarrativesDetails"], "lang": { "en-us": { "role": { "label": "Fair Value Measurement Inputs and Valuation Techniques [Table]", "documentation": "Disclosure of information about input and valuation technique used to measure fair value and change in valuation approach and technique for each separate class of asset and liability measured on recurring and nonrecurring basis." } } }, { "auth_ref": ["r383", "r384", "r652"], "us-gaap_FairValueByFairValueHierarchyLevelAxis": { "xbrltype": "stringItem", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "FairValueByFairValueHierarchyLevelAxis", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsContingentConsiderationDetails", "http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsFairValueOffFinancialInstrumentsMeasuredOnRecurringBasisDetails"], "lang": { "en-us": { "role": { "label": "Fair Value Hierarchy and NAV [Axis]", "documentation": "Information by level within fair value hierarchy and fair value measured at net asset value per share as practical expedient." } } }, { "auth_ref": ["r723", "r302", "r303", "r304", "r305", "r306", "r307", "r380", "r382", "r383", "r384", "r385", "r394", "r395", "r397", "r443", "r444", "r445", "r635", "r636", "r638", "r639", "r640", "r648", "r652"], "us-gaap_FairValueByLiabilityClassAxis": { "xbrltype": "stringItem", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "FairValueByLiabilityClassAxis", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsChangeInFairValueOffContingentConsiderationDetails", "http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsContingentConsiderationDetails", "http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsFairValueOffFinancialInstrumentsMeasuredOnRecurringBasisDetails", "http://www.syntheticbiologics.com/role/DisclosureLoansPayableNonCurrentAssetOnBalanceSheetDetails"], "lang": { "en-us": { "role": { "label": "Liability Class [Axis]", "documentation": "Information by class of liability." } } }, { "auth_ref": ["r386", "r387", "r388", "r389", "r390", "r391", "r396"], "us-gaap_FairValueDisclosuresAbstract": { "xbrltype": "stringItem", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "FairValueDisclosuresAbstract", "lang": { "en-us": { "role": { "label": "Fair Value of Financial Instruments" } } }, { "auth_ref": [1], "us-gaap_FairValueDisclosuresTextBlock": { "xbrltype": "textBlockItem", "nsuri": "http://fasb.org/us-gaap/2024",

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Such disclosures about the financial instruments, assets, and liabilities would include: (1) the fair value of the required items together with their carrying amounts (as appropriate); (2) for items for which it is not practicable to estimate fair value, disclosure would include: (a) information pertinent to estimating fair value (including, carrying amount, effective interest rate, and maturity, and (b) the reasons why it is not practicable to estimate fair value; (3) significant concentrations of credit risk including: (a) information about the activity, region, or economic characteristics identifying a concentration, (b) the maximum amount of loss the entity is exposed to based on the gross fair value of the related item, (c) policy for requiring collateral or other security and information as to accessing such collateral or security, and (d) the nature and brief description of such collateral or security; (4) quantitative information about market risks and how such risks are managed; (5) for items measured on both a recurring and nonrecurring basis information regarding the inputs used to develop the fair value measurement; and (6) for items presented in the financial statement for which fair value measurement is elected: (a) information necessary to understand the reasons for the election, (b) discussion of the effect of fair value changes on earnings, (c) a description of [similar groups] items for which the election is made and the relation thereof to the balance sheet, the aggregate carrying value of items included in the balance sheet that are not eligible for the election; (7) all other required (as defined) and desired information." } } }, "auth ref": ["r390", "r392", "r393", "r394", "r397", "r398", "r399", "r400", "r401", "r476", "r648", "r653"] }, "us-gaap_FairValueInputsLevel3Member": { "xbrltype": "domainItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "FairValueInputsLevel3Member", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsContingentConsiderationDetails", "http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsFairValueOffFinancialInstrumentsMeasuredOnRecurringBasisDetails"], "lang": { "en-us": { "role": { "label": "Fair Value, Inputs, Level 3 [Member]", "terseLabel": "Level 3", "documentation": "Unobservable inputs that reflect the entity's own assumption about the assumptions market participants would use in pricing." } } }, "auth ref": ["r273", "r302", "r303", "r304", "r305", "r306", "r307", "r382", "r383", "r384", "r385", "r395", "r445", "r635", "r636", "r638", "r639", "r640", "r648", "r652"] }, "us-gaap_FairValueLiabilitiesMeasuredOnRecurringBasisTextBlock": { "xbrltype": "textBlockItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "FairValueLiabilitiesMeasuredOnRecurringBasisTextBlock", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsTables"], "lang": { "en-us": { "role": { "label": "Fair Value, Liabilities Measured on Recurring Basis [Table Text Block]", "terseLabel": "Schedule of fair value of financial instruments measured on a recurring basis", "documentation": "Tabular disclosure of liabilities, including [financial] instruments measured at fair value that are classified in stockholders' equity, if any, by class that are measured at fair value on a recurring basis. The disclosures contemplated herein include the fair value measurements at the reporting date by the level within the fair value hierarchy in which the fair value measurements in their entirety fall, segregating fair value measurements using quoted prices in active markets for identical assets (Level 1), significant other observable inputs (Level 2), and significant unobservable inputs (Level 3). Where the quoted price in an active market for the identical liability is not available, the Level 1 input is the quoted price of an identical liability when traded as an asset." } } }, "auth ref": ["r862", "r863"] }, "us-gaap_FairValueLiabilitiesMeasuredOnRecurringBasisUnobservableInputReconciliationByLiabilityClassDomain": { "xbrltype": "domainItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "FairValueLiabilitiesMeasuredOnRecurringBasisUnobservableInputReconciliationByLiabilityClassDomain", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsChangeInFairValueOfContingentConsiderationDetails", "http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsContingentConsiderationDetails", "http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsFairValueOffFinancialInstrumentsMeasuredOnRecurringBasisDetails", "http://www.syntheticbiologics.com/role/DisclosureLoansPayableNonCurrentAssetOnBalanceSheetDetails"], "lang": { "en-us": { "role": { "label": "Fair Value by Liability Class [Domain]", "documentation": "Represents classes of liabilities measured and disclosed at fair value." } } }, "auth ref": ["r386", "r387", "r388", "r389", "r390", "r391", "r396"] }, "us-gaap_FairValueLiabilitiesMeasuredOnRecurringBasisUnobservableInputReconciliationCalculationRollForward": { "xbrltype": "stringItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "FairValueLiabilitiesMeasuredOnRecurringBasisUnobservableInputReconciliationCalculationRollForward", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsChangeInFairValueOfContingentConsiderationDetails"], "lang": { "en-us": { "role": { "label": "Fair Value, Liabilities Measured on Recurring Basis, Unobservable Input Reconciliation, Calculation [Roll Forward]", "documentation": "A roll forward is a reconciliation of a concept from the beginning of a period to the end of a period." } } }, "auth ref": [] }, "us-gaap_FairValueLiabilitiesMeasuredOnRecurringBasisUnobservableInputReconciliationLineItems": { "xbrltype": "stringItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "FairValueLiabilitiesMeasuredOnRecurringBasisUnobservableInputReconciliationLineItems", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsChangeInFairValueOfContingentConsiderationDetails"], "lang": { "en-us": { "role": { "label": "Fair Value, Liabilities Measured on Recurring Basis, Unobservable Input Reconciliation [Line Items]", "terseLabel": "Fair Value of Financial Instruments", "documentation": "Line items represent financial concepts included in a table. These concepts are used to disclose reportable information associated with domain members defined in one or many axes to the table." } } }, "auth ref": ["r386", "r387", "r388", "r389", "r390", "r391"] }, "us-gaap_FairValueLiabilitiesMeasuredOnRecurringBasisUnobservableInputReconciliationTable": { "xbrltype": "stringItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "FairValueLiabilitiesMeasuredOnRecurringBasisUnobservableInputReconciliationTable", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsChangeInFairValueOfContingentConsiderationDetails"], "lang": { "en-us": { "role": { "label": "Fair Value, Liabilities Measured on Recurring Basis, Unobservable Input Reconciliation [Table]", "documentation": "Disclosure of information about financial instrument liability measured at fair value on recurring basis using unobservable input." } } }, "auth ref": ["r386", "r387", "r388", "r389", "r390", "r391"] }, 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losses included in earnings (or changes in net assets), and gains or losses recognized in other comprehensive income (loss) and a description of where those gains or losses included in earnings (or changes in net assets) are reported in the statement of income (or activities); (2) purchases, sales, issues, and settlements (each type disclosed separately); and (3) transfers in and transfers out of Level 3 (for example, transfers due to changes in the observability of significant inputs) by class of liability." } } }, "auth ref": ["r386", "r391", "r396"] }, "us-gaap_FairValueMeasurementWithUnobservableInputsReconciliationRecurringBasisLiabilityGainLossIncludedInEarnings": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "FairValueMeasurementWithUnobservableInputsReconciliationRecurringBasisLiabilityGainLossIncludedInEarnings", "crdr": "credit", "presentation": 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excluding financial assets and goodwill, lacking physical substance with a finite life." } } }, "auth ref": ["r474", "r822"] }, "us-gaap_FiniteLivedIntangibleAssetsRollForward": { "xbrltype": "stringItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "FiniteLivedIntangibleAssetsRollForward", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureGoodwillAndIntangiblesInProcessRDDetails"], "lang": { "en-us": { "role": { "label": "Finite-lived Intangible Assets [Roll Forward]", "terseLabel": "Finite-Lived Intangible Assets", "documentation": "A roll forward is a reconciliation of a concept from the beginning of a period to the end of a period." } } }, "auth ref": [] }, "us-gaap_ForeignCurrencyTransactionGainLossBeforeTax": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "ForeignCurrencyTransactionGainLossBeforeTax", "crdr": "credit", "presentation": 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"en-us": { "role": { "label": "Goodwill and Intangible Assets, Goodwill, Policy [Policy Text Block]", "terseLabel": "Goodwill", "documentation": "Disclosure of accounting policy for goodwill. This accounting policy also may address how an entity assesses and measures impairment of goodwill, how reporting units are determined, how goodwill is allocated to such units, and how the fair values of the reporting units are determined." } } }, "auth ref": ["r217", "r224", "r633"] }, "us-gaap_GoodwillFairValueDisclosure": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "GoodwillFairValueDisclosure", "crdr": "debit", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureGoodwillAndIntangiblesNarrativeDetails"], "lang": { "en-us": { "role": { "label": "Goodwill, Fair Value Disclosure", "terseLabel": "Goodwill, fair value", "documentation": "Fair value portion of asset representing future economic benefit arising from other asset acquired in business combination or from joint venture formation or both, that is not individually identified and separately recognized." } } }, "auth ref": ["r648", "r649", "r862", "r863", "r867"] }, "us-gaap_GoodwillForeignCurrencyTranslationGainLoss": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "GoodwillForeignCurrencyTranslationGainLoss", "crdr": "credit", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureGoodwillAndIntangiblesGoodwillDetails"], "lang": { "en-us": { "role": { "label": "Goodwill, Foreign Currency Translation Gain (Loss)", "terseLabel": "Effects of exchange rates", "documentation": "Amount of foreign currency translation gain (loss) which increases (decreases) asset representing future economic benefit from other asset acquired in business combination or from joint venture formation or both, that is not individually identified and separately recognized." } } }, "auth ref": ["r222"] }, "us-gaap_GoodwillGross": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "GoodwillGross", "crdr": "debit", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureFairValueOffFinancialInstrumentsNarrativesDetails"], "lang": { "en-us": { "role": { "label": "Goodwill, Gross", "terseLabel": "Goodwill", "documentation": "Amount, before accumulated impairment loss, of asset representing future economic benefit arising from other asset acquired in business combination or from joint venture formation or both, that is not individually identified and separately recognized." } } }, "auth ref": ["r220", "r223", "r633"] }, "us-gaap_GoodwillImpairmentLoss": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "GoodwillImpairmentLoss", "crdr": "debit", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureGoodwillAndIntangiblesGoodwillDetails"], "lang": { "en-us": { "role": { "label": "Goodwill, Impairment Loss", "terseLabel": "Goodwill impairment", "documentation": "Amount of impairment loss from asset representing future economic benefit arising from other asset acquired in business combination or from joint venture formation or both, that is not individually identified and separately recognized." } } }, "auth ref": ["r8", "r219", "r221", "r224", "r633", "r649"] }, "us-gaap_GoodwillRollForward": { "xbrltype": "stringItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "GoodwillRollForward", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureGoodwillAndIntangiblesGoodwillDetails"], "lang": { "en-us": { "role": { "label": "Goodwill [Roll Forward]", "terseLabel": "Goodwill", "documentation": "A roll forward is a reconciliation of a concept from the beginning of a period to the end of a period." } } }, "auth ref": [] }, "us-gaap_GuaranteeObligationsByNatureAxis": { "xbrltype": "domainItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "GuaranteeObligationsByNatureAxis", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureResearchAndDevelopmentTaxCreditsDetails"], "lang": { "en-us": { "role": { "label": "Guarantor Obligations, Nature [Axis]", "documentation": "Information by nature of guarantee." } } }, "auth ref": ["r250", "r251", "r252", "r253"] }, "us-gaap_GuaranteeObligationsLineItems": { "xbrltype": "stringItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "GuaranteeObligationsLineItems", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureResearchAndDevelopmentTaxCreditsDetails"], "lang": { "en-us": { "role": { "label": "Guarantor Obligations [Line Items]", "verboseLabel": "Research and Development Tax Credits", "documentation": "Line items represent financial concepts included in a table. These concepts are used to disclose reportable information associated with domain members defined in one or many axes to the table." } } }, "auth ref": ["r250", "r251", "r252", "r253"] }, "us-gaap_GuaranteeObligationsNatureDomain": { "xbrltype": "domainItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "GuaranteeObligationsNatureDomain", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureResearchAndDevelopmentTaxCreditsDetails"], "lang": { "en-us": { "role": { "label": "Guarantor Obligations, Nature [Domain]", "documentation": "Represents a description of the nature of the guarantee or each group of similar guarantees." } } }, "auth ref": ["r250", "r251", "r252", "r253"] }, "us-gaap_InProcessResearchAndDevelopmentMember": { "xbrltype": "domainItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "InProcessResearchAndDevelopmentMember", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureGoodwillAndIntangiblesInProcessRDDetails"], "lang": { "en-us": { "role": { "label": "In Process Research and Development [Member]", "terseLabel": "In-process R&D", "documentation": "In process investigation of new knowledge useful in developing new product or service or new process or technique or improvement to existing product or process, and translation of knowledge into plan or design for new product or process or for improvement to existing product or process." } } }, "auth ref": ["r815", "r816", "r817", "r818", "r819", "r820", "r822", "r823", "r824", "r825"] }, "us-gaap_InProcessResearchAndDevelopmentPolicy": { "xbrltype": "textBlockItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "InProcessResearchAndDevelopmentPolicy", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureSummaryOfSignificantAccountingPoliciesPolicies"], "lang": { "en-us": { "role": { "label": "In Process Research and Development, Policy [Policy Text Block]", "terseLabel": "IPR&D", "documentation": "Disclosure of accounting policy for costs assigned to identifiable tangible and intangible assets of an acquired entity to be used in the research and development activities of the combined enterprise. An entity also may disclose the appraisal method or significant assumptions used to value acquired research and development assets." } } }, "auth ref": [] }, "us-gaap_IncomeLossFromContinuingOperationsBeforeIncomeTaxesExtraordinaryItemsNoncontrollingInterest": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "IncomeLossFromContinuingOperationsBeforeIncomeTaxesExtraordinaryItemsNoncontrollingInterest", "crdr": "credit", "presentation": ["http://www.syntheticbiologics.com/role/StatementCondensedConsolidatedStatementsOfOperationsAndComprehensiveLoss"], "lang": { "en-us": { "role": { "label": "Income (Loss) from Continuing Operations before Income Taxes, Noncontrolling Interest", "totalLabel": "Net Loss", "documentation": "Amount of income (loss) from continuing operations, including income (loss) from equity method investments, before deduction of income tax expense (benefit), and income (loss) attributable to noncontrolling interest." } } }, "auth ref": ["r66", "r90", "r92", "r480", "r495", "r625", "r627", "r789", "r791", "r792", "r793", "r794"] }, "us-gaap_IncomeStatementAbstract": { "xbrltype": "stringItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "IncomeStatementAbstract", "lang": { "en-us": { "role": { "label": "Condensed Consolidated Statements

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Excludes interim and annual periods when interim periods are reported from current statement of financial position date (rolling approach)." } } }, "auth_ref": ["r10", "r135", "r276"] }, "us-gaap_LongTermDebtMaturitiesRepaymentsOfPrincipalInYearFour": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "LongTermDebtMaturitiesRepaymentsOfPrincipalInYearFour", "crdr": "credit", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureLoansPayableMaturityAnalysisOfDebtDetails"], "lang": { "en-us": { "role": { "label": "Long-Term Debt, Maturity, Year Four", "terseLabel": "2028", "documentation": "Amount of long-term debt payable, sinking fund requirement, and other securities issued that are redeemable by holder at fixed or determinable price and date, maturing in fourth fiscal year following current fiscal year. 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company and its subsidiary; (b) subsidiaries of a common parent; (c) and entity and its principal owners; and (d) affiliates. } } } , "auth_ref": ["r429", "r430", "r431", "r433", "r436", "r522", "r523", "r524", "r575", "r576", "r577", "r597", "r599"]], "us-gaap_RepaymentsOfLongTermDebt": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "RepaymentsOfLongTermDebt", "crdr": "credit", "presentation": []
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Includes, but is not limited to, cost for computer software product to be sold, leased, or otherwise marketed and writeoff of research and development assets acquired in transaction other than business combination or joint venture formation or both. Excludes write-down of intangible asset acquired in business combination or from joint venture formation or both, used in research and development activity." } } } , "auth_ref": ["r347", "r616", "r627", "r882"] }, "tovx_ResearchAndDevelopmentTaxCreditPolicyTextBlock": { "xbrltype": "textBlockItemType", "nsuri": "http://www.syntheticbiologics.com/20240630", "localname": "ResearchAndDevelopmentTaxCreditPolicyTextBlock", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureSummaryOfSignificantAccountingPolicies"], "lang": { "en-us": { "role": { "documentation": "Disclosure of accounting policy for research and development tax credit.", "label": "Research And Development Tax Credit Policy [Policy Text Block]", "terseLabel": "Research and Development Tax Credits" } } } , "auth_ref": [] }, "tovx_ResearchAndDevelopmentTaxCreditsAbstract": { "xbrltype": "stringItemType", "nsuri": "http://www.syntheticbiologics.com/20240630", "localname": "ResearchAndDevelopmentTaxCreditsAbstract", "lang": { "en-us": { "role": { "documentation": "n/a", "label": "Research and Development Tax Credits" } } } , "auth_ref": [] }, "tovx_ResearchAndDevelopmentTaxCreditsTextBlock": { "xbrltype": "textBlockItemType", "nsuri": "http://www.syntheticbiologics.com/20240630", "localname": "ResearchAndDevelopmentTaxCreditsTextBlock", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureResearchAndDevelopmentTaxCredits"], "lang": { "en-us": { "role": { "documentation": "The federal research and development (R&D) tax credit results in a dollar for dollar reduction in a company's tax liability for certain domestic.", "label": "Research and Development Tax Credits [Text Block]", "terseLabel": "Research and Development Tax Credits" } } } , "auth_ref": [] }, "ecd_RestatementDateAxis": { "xbrltype": "stringItemType", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "RestatementDeterminationDate", "presentation": ["http://xbrl.sec.gov/ecd/role/ErrCompDisclosure"], "lang": { "en-us": { "role": { "label": "Restatement Determination Date [Axis]", "terseLabel": "Restatement Determination Date" } } } , "auth_ref": ["r681", "r691", "r701", "r733"] }, "ecd_RestatementDeterminationDate": { "xbrltype": "dateItemType", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "RestatementDeterminationDate", "presentation": ["http://xbrl.sec.gov/ecd/role/ErrCompDisclosure"], "lang": { "en-us": { "role": { "label": "Restatement Determination Date", "terseLabel": "Restatement Determination Date" } } } , "auth_ref": ["r682", "r692", "r702", "r734"] }, "ecd_RestatementDoesNotRequireRecoveryTextBlock": { "xbrltype": "textBlockItemType", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "RestatementDoesNotRequireRecoveryTextBlock", "presentation": ["http://xbrl.sec.gov/ecd/role/ErrCompDisclosure"], "lang": { "en-us": { "role": { "label": "Restatement Does Not Require Recovery [Text Block]", "terseLabel": "Restatement does not require Recovery" } } } , "auth_ref": ["r689", "r699", "r709", "r741"] }, "us-gaap_RestrictedCashAndCashEquivalents": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "RestrictedCashAndCashEquivalents", "crdr": "debit", "presentation": ["http://www.syntheticbiologics.com/role/DisclosureLoansPayableAdditionalInformationDetails", "http://www.syntheticbiologics.com/role/StatementCondensedConsolidatedStatementsOfCashFlows"], "lang": { "en-us": { "role": { "label": "Restricted Cash and Cash Equivalents", "verboseLabel": "Restricted cash included in other long-term assets", "documentation": "Amount of cash and cash equivalents restricted as to withdrawal or usage. Cash includes, but is not limited to, currency on hand, demand deposits with banks or financial institutions, and other accounts with general characteristics of demand deposits. Cash equivalents include, but are not limited to, short-term, highly liquid investments that are both readily convertible to known amounts of cash and so near their maturity that they present insignificant risk of changes in value because of changes in interest rates." } } } , "auth_ref": ["r19", "r86", "r103", "r126", "r486"] }, "us-gaap_RestrictedCashNoncurrent": { "xbrltype": "monetaryItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "RestrictedCashNoncurrent", "crdr": "debit", "presentation": ["http://www.syntheticbiologics.com/role/StatementCondensedConsolidatedBalanceSheets"], "lang": { "en-us": { "role": { "label": "Restricted Cash, Noncurrent", "terseLabel": "Restricted cash", "documentation": "Amount of cash restricted as to withdrawal or usage, classified as noncurrent. 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Examples include: the sale of a capital stock issue, purchase of a business, settlement of litigation, catastrophic loss, significant foreign exchange rate changes, loans to insiders or affiliates, and transactions not in the ordinary course of business." } } }, "auth_ref": ["r437", "r439"] }, "us-gaap_SubsidarySaleOfStockAxis": { "xbrltype": "stringItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "SubsidarySaleOfStockAxis", "presentation": ["http://www.synthetichbiologics.com/role/DisclosureCommonAndPreferredStockDetails"] }, "http://www.synthetichbiologics.com/role/DisclosureStockBasedCompensationStockIncentivePlanAndOtherInformationDetails"] }, "lang": { "en-us": { "role": { "label": "Sale of Stock [Axis]", "documentation": "Information by type of sale of the entity's stock." } } }, "auth_ref": [] }, "us-gaap_SubstantialDoubtAboutGoingConcernTextBlock": { "xbrltype": "textBlockItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "SubstantialDoubtAboutGoingConcernTextBlock", "presentation": ["http://www.synthetichbiologics.com/role/DisclosureGoingConcern"] }, "lang": { "en-us": { "role": { "label": "Substantial Doubt about Going Concern [Text Block]", "terseLabel": "Going Concern", "documentation": "The entire disclosure when substantial doubt is raised about the ability to continue as a going concern. 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Temporary equity is a security with redemption features that are outside the control of the issuer, is not classified as an asset or liability in conformity with GAAP, and is not mandatorily redeemable. Includes any type of security that is redeemable at a fixed or determinable price or on a fixed or determinable date or dates, is redeemable at the option of the holder, or has conditions for redemption which are not solely within the control of the issuer. Includes stock with a put option held by an ESOP and stock redeemable by a holder only in the event of a change in control of the issuer." } } }, "auth_ref": ["r256", "r258", "r259", "r260", "r263", "r264", "r344", "r488"] }, "us-gaap_TemporaryEquityParOrStatedValuePerShare": { "xbrltype": "perShareItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "TemporaryEquityParOrStatedValuePerShare", "presentation": ["http://www.synthetichbiologics.com/role/DisclosureCommonAndPreferredStockDetails"] }, "http://www.synthetichbiologics.com/role/StatementCondensedConsolidatedBalanceSheetsParenthetical"] }, "lang": { "en-us": { "role": { "label": "Temporary Equity, Par or Stated Value Per Share", "terseLabel": "Convertible preferred stock, par value (in dollars per share)", "documentation": "Per share amount of par value or stated value of stock classified as temporary equity. Temporary equity is a security with redemption features that are outside the control of the issuer, is not classified as an asset or liability in conformity with GAAP, and is not mandatorily redeemable." } } }, "auth_ref": ["r16", "r26"] }, "us-gaap_TemporaryEquitySharesAuthorized": { "xbrltype": "sharesItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "TemporaryEquitySharesAuthorized", "presentation": ["http://www.synthetichbiologics.com/role/StatementCondensedConsolidatedBalanceSheetsParenthetical"] }, "lang": { "en-us": { "role": { "label": "Temporary Equity, Shares Authorized", "terseLabel": "Convertible preferred stock, shares authorized", "documentation": "The maximum number of securities classified as temporary equity that are permitted to be issued by an entity's charter and bylaws. Temporary equity is a security with redemption features that are outside the control of the issuer, is not classified as an asset or liability in conformity with GAAP, and is not mandatorily redeemable. Includes any type of security that is redeemable at a fixed or determinable price or on a fixed or determinable date or dates, is redeemable at the option of the holder, or has conditions for redemption which are not solely within the control of the issuer. If convertible, the issuer does not control the actions or events necessary to issue the maximum number of shares that could be required to be delivered under the conversion option if the holder exercises the option to convert the stock to another class of equity. If the security is a warrant or a rights issue, the warrant or rights issue is considered to be temporary equity if the issuer cannot demonstrate that it would be able to deliver upon the exercise of the option by the holder in all cases. Includes stock with put option held by ESOP and stock redeemable by holder only in the event of a change in control of the issuer." } } }, "auth_ref": ["r57"] }, "us-gaap_TemporaryEquitySharesIssued": { "xbrltype": "sharesItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "TemporaryEquitySharesIssued", "presentation": ["http://www.synthetichbiologics.com/role/DisclosureCommonAndPreferredStockDetails"] }, "http://www.synthetichbiologics.com/role/StatementCondensedConsolidatedBalanceSheetsParenthetical"] }, "lang": { "en-us": { "role": { "label": "Temporary Equity, Shares Issued", "terseLabel": "Convertible preferred stock, shares issued", "documentation": "The number of securities classified as temporary equity that have been sold (or granted) to the entity's shareholders. Securities issued include securities outstanding and securities held in treasury. Temporary equity is a security with redemption features that are outside the control of the issuer, is not classified as an asset or liability in conformity with GAAP, and is not mandatorily redeemable. Includes any type of security that is redeemable at a fixed or determinable price or on a fixed or determinable date or dates, is redeemable at the option of the holder, or has conditions for redemption which are not solely within the control of the issuer. If convertible, the issuer does not control the actions or events necessary to issue the maximum number of shares that could be required to be delivered under the conversion option if the holder exercises the option to convert the stock to another class of equity. If the security is a warrant or a rights issue, the warrant or rights issue is considered to be temporary equity if the issuer cannot demonstrate that it would be able to deliver upon the exercise of the option by the holder in all cases. Includes stock with put option held by ESOP and stock redeemable by holder only in the event of a change in control of the issuer." } } }, "auth_ref": ["r57"] }, "us-gaap_TemporaryEquitySharesOutstanding": { "xbrltype": "sharesItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "TemporaryEquitySharesOutstanding", "presentation": ["http://www.synthetichbiologics.com/role/StatementCondensedConsolidatedBalanceSheetsParenthetical"] }, "lang": { "en-us": { "role": { "label": "Temporary Equity, Shares Outstanding", "terseLabel": "Convertible preferred stock, shares outstanding", "documentation": "The number of securities classified as temporary equity that have been issued and are held by the entity's shareholders. Securities outstanding equals securities issued minus securities held in treasury. Temporary equity is a security with redemption features that are outside the control of the issuer, is not classified as an asset or liability in conformity with GAAP, and is not mandatorily redeemable. Includes any type of security that is redeemable at a fixed or determinable price or on a fixed or determinable date or dates, is redeemable at the option of the holder, or has conditions for redemption which are not solely within the control of the issuer. If convertible, the issuer does not control the actions or events necessary to issue the maximum number of shares that could be required to be delivered under the conversion option if the holder exercises the option to convert the stock to another class of equity. If the security is a warrant or a rights issue, the warrant or rights issue is considered to be temporary equity if the issuer cannot demonstrate that it would be able to deliver upon the exercise of the option by the holder in all cases. Includes stock with put option held by ESOP and stock redeemable by holder only in the event of a change in control of the issuer." } } }, "auth_ref": ["r57"] }, "srt_TitleOfIndividualAxis": { "xbrltype": "stringItemType", "nsuri": "http://fasb.org/srt/2024", "localname": "TitleOfIndividualAxis", "presentation": ["http://www.synthetichbiologics.com/role/DisclosureRelatedPartyDetails"] }, "lang": { "en-us": { "role": { "label": "Title of Individual [Axis]" } } }, "auth_ref": ["r795", "r872"] }, "srt_TitleOfIndividualWithRelationshipToEntityDomain": { "xbrltype": "domainItemType", "nsuri": "http://fasb.org/srt/2024", "localname": "TitleOfIndividualWithRelationshipToEntityDomain", "presentation": ["http://www.synthetichbiologics.com/role/DisclosureRelatedPartyDetails"] }, "lang": { "en-us": { "role": { "label": "Relationship to Entity [Domain]" } } }, "auth_ref": [] }, "ecd_TotalShareholderRtnAmt": { "xbrltype": "monetaryItemType", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "TotalShareholderRtnAmt", "presentation": ["http://xbrl.sec.gov/ecd/role/PvpDisclosure"] }, "lang": { "en-us": { "role": { "label": "Total Shareholder Return Amount", "terseLabel": "Total Shareholder Return Amount" } } }, "auth_ref": ["r722"] }, "ecd_TotalShareholderRtnVsPeerGroupTextBlock": { "xbrltype": "textBlockItemType", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "TotalShareholderRtnVsPeerGroupTextBlock", "presentation": ["http://xbrl.sec.gov/ecd/role/PvpDisclosure"] }, "lang": { "en-us": { "role": { "label": "Total Shareholder Return Vs Peer Group [Text Block]", "terseLabel": "Total Shareholder Return Vs Peer Group" } } }, "auth_ref": ["r729"] }, "ecd_TradingArrAxis": { "xbrltype": "stringItemType", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "TradingArrAxis", "presentation": ["http://xbrl.sec.gov/ecd/role/InsiderTradingArrangements"] }, "lang": { "en-us": { "role": { "label": "Trading Arrangement [Axis]", "terseLabel": "Trading Arrangement", "documentation": "Trading Arrangement" } } }, "auth_ref": ["r749"] }, "ecd_TradingArrByIndTable": { "xbrltype": "stringItemType", "nsuri": "http://xbrl.sec.gov/ecd/2024", "localname": "TradingArrByIndTable", "presentation": ["http://xbrl.sec.gov/ecd/role/InsiderTradingArrangements"] }, "lang": { "en-us": { "role": { "label": "Trading Arrangements, by Individual [Table]", "terseLabel": "Trading Arrangements, by Individual" } } }, "auth_ref": ["r751"] }, "dei_TradingSymbol": { "xbrltype": "tradingSymbolItemType", "nsuri": "http://xbrl.sec.gov/dei/2024", "localname": "TradingSymbol", "presentation": ["http://www.synthetichbiologics.com/role/DocumentDocumentAndEntityInformation"] }, "lang": { "en-us": { "role": { "label": "Trading Symbol", "documentation": "Trading symbol of an instrument as listed on an exchange." } } }, "auth_ref": [] }, "us-gaap_TransfersAndServicingOffFinancialInstrumentsTypesOffFinancialInstrumentsDomain": { "xbrltype": "domainItemType", "nsuri": "http://fasb.org/us-gaap/2024", "localname": "TransfersAndServicingOffFinancialInstrumentsTypesOffFinancialInstrumentsDomain", "presentation": ["http://www.synthetichbiologics.com/role/DisclosureNetLossPerShareDetails"] }, "lang": { "en-us": { "role": { "label": "Financial Instruments [Domain]", "documentation": "Instrument or contract that imposes a contractual obligation to deliver cash or another financial instrument or to exchange other financial instruments on potentially unfavorable terms and conveys a contractual right to receive cash or another financial instrument or to exchange other financial instruments on potentially favorable terms." } } }, "auth_ref": ["r176", "r177", "r178", "r179", "r180", "r181", "r182", "r183", "r184", "r185", "r186", "r187", "r188", "r189", "r190", "r191", "r192", "r193", "r194", "r195", "r196", "r197", "r198", "r199", "r200", "r201", "r202", "r203", "r204", "r205", "r279", "r296", "r375", "r402", "r440", "r441", "r442", "r443", "r444", "r445", "r446", "r447", "r448", "r449", "r450", "r451", "r452", "r453", "r454", "r457", "r458", "r459", "r460", "r461", "r462", "r463", "r464", "r465", "r466", "r467", "r468", "r469", "r470", "r471", "r499", "r448", "r648", "r650", "r652", "r653", "r654", "r655", "r656", "r657", "r658", "r662", "r763", "r764", "r765", "r766", "r767", "r768", "r769", "r796", "r797",

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MLK0L?>=I=U ML RRR^9A^O^C;D&R<J8VYQ)MSBF(O3,F,TZ&C&^CO'W 8K%BB^V8S]#~JNJ MJ+Y5SUS6? 5T0.8YUNDSDYXD6L/TB19\$SVMXR&,	N1^TZZ^&O?YJ136] MX?>GGCJ^R_L_J_Q,WGHG,OUW&S=3\$8J;WMG^YF(C_8'FTV?_)_>:OR4 M5L1VR8_58]>?JWJW? 72# [1^A=GO(^(^1Z4>BF\$@>:3O:VFG[AJ]%UG=7/M1%'0 MV40[XF9IF%%_ ,WQ%=1F%SVSNP&RQ7(M_L_XJH ^4*>GOO(9)Z\$T<0(DHUBL M>J%F \$&4#V.6N/OI=B,V)12B%> 2.)04HYK!SE6I8U5^VRVM&UNUT^74F]J0VJ5]J0G)6M2LMBF(OCW?)L7_ H+&E[HIIT M^>#&R3XNR O^M>4R1YAGPR-R@W9KLN6#YUdL 7#~EK@[PJ14]^B6MIKK/E2Y M^C&QI53?>H+&5&8I7JCO9LVE2&,OVBUPPS+^C)A^+IN+I[VW(J^LMEI[VY M]=+~IR#ZFENA^NZGK@AOA=(15U+8Y:8)7J2D&GK22? 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(&P3_ B=DM-&+27 M6)HDJGWV^~M^*~9JH<6?>99_ (=1>_9G_ @>P-GL59J@V&K JVF5IEMD5)P+UT5^>+ M1^GTPSLZB]17R>?FQZ(P88?/LN,~+WVVC-M@M G139:P>47% JXP^46U#U_ MW1^~#5/CBC3[K~K6]7H09'RR_ WCS>KIQ^&[S]@VJ8@O2DAGZ@,UZOW5F8Q MEWG&V4QJ?PC^~#44AJ?7^?L^@NR<Z_1^>5-/ PQ-TH_ MKI?<# (@~^*O21^0>7ML=K)DS^PWA;&O9&[GJ,F]G_ M D&D%(D[&PU>J_ G^#~1;4<1<5QVBUL4J]J0RQ7E-5JZHYS^~W\$P&~8V_ 6B3 M7_W>?>?708&4? ^H_ BT04+V2(&C2^VTY^COHIDH6G^<2/=(NYL^5B^FN N MICO^WJ^W8R_8_K%KRE-55+KJV736)S0U%NMBH&5%T^?T)73KL,S129+SS730 M7R^M?7^?U=">?>DI?R:Q3IJ&~.B)M#7^~ /,Q\$ 30GK@O+I>1+.'T;7G;VY@ MHM^!&3>..LT)(E2BCXP&.1N2!4\$SUQA_ T+17:VB]N(YWC~@+.[J^A^D3 M[(TDYA;T]29H\$GYU_SF!@ (86(X~IS!P^D+%&BPH1F^*= AMI.^AG3M8BYG;@ILK M+~N@2%JOCMSTGJN ^~B^ MR&Z!^N56B0!N1.ANBWXM^6_B0@!=#~YCDG007HM0)F#IADF^6Y^2/8I(F_ M1)DFB9U+;R8T2!M0(T&~#&10F1V(C_@R\$9@4K~P+7Y^TG7XSG\$XSK^V_8 M_>0+^D_K;W8J,PK O=PQ1=ST^,9GC^AL^6GOC@I3NMI^!I+I+W7@#I MH4/O<[B_7%L33 C_>@>X?P6_ &RN8&GIG^>D39CX&UB81&NRRJAP&U^%#9#~ M00;~#7J(Z&Z^Q M^>010P>~G]I7A1M>B0!N@_ NC5V M0K8L&SP1006_6WJ_ =J50P>#RRU>S>3FFOGF03+M~N:897+P)P(>+>Q MGLUOE[ST?P^?>P_ .9N16VKZ+I0J@_ GH5?I]@128T%I_&G&GFZM^V4 M!&SP@MF4R08<2<3#>VY5 3\$@A)=/+A+(?_0VJ)96L)K \$24>0LLUX,UG.S MR)+,BFYN1?X/JK2B\$U\$QF\$ MS4J %Y!MV6(SO?B!)SAT7%+L<"O1V":N MP18#&OOFT(8MXJ]Q2IV445KJL(4+ZJ5W^M^IQ^@KLEYEN19_L(21=WH# M3C0F^C^F5^&XW18GUEO4NE^RB;Z&~J^9J4U!> AQ^7MMZ_~"05ORD_~B M_8K^VJ9L15\$@QJ^2F@1JLIG'6+&+SG^8_ W_12Y1KSL^%M^R)CNH0B5.1D9F^O MEP^MKIR ^P^C5^&XJTMJ^?F%~OQ_!#3>I2>I=3M]JH,7E+0E[QBI]AB8CZ0 M<~7+I.XX^V^R9&[L]^+QP5%VIF]J6\$6PPZ,&@NPH&G@A\$5\$101<~^V.3?T^OPG:P]^+& G,M)Q]>@>LL~N+&^VJWJ!~=F(ENM]2L>5)M.\$24;5QESCE8<I4<@<48<=5M^EYZMHGQJ]MLTB.A^&7S] M2&L^J]8J]7H3FS14L^*K%&E\$A^TOV^M^K&~JLD84^<337<NID MCIUWQJ]KJL]JUOCC64^FO^J]KQ^>N_>A^?I=UF(D)(CR&E&~)~D4YM MT#JZ3DAS050T^IO=*,P1+L9<I]0&1086-ZK=6!R6L0(9CQP_L4)JK14M&UUV-(% M-QSHZ"L^?U-[O^&N)75?I]P7BA%.O^K7V+;UA6F: X\$M3MB/R8L+;: XX.C9X<&E,L9J3GC! (KPGBI&C)FQ@>4-JYTJ MSSAD?>CUG^K3C#490A M-/IJS 2B6^=V3/V_ 7JMQKO_>04=29G+NUP^M+ M=UGLT+(9?:(?P6!\$ _LW>R^K^>Y4EIO(\$>7~>@/VX22^1Y%#YY&D&?; M>F]A_IK-@/IG^U0L>3>Y>A>49#U0M1_\$.!B:/IJKSH+&N@PT91Q(XHWJ^@K15/KJ|>Y^JBE+&UOV!> M6EALB@HT:4 J M=F^F9_~&B9^Z&B>?&E%LJF],(IX46) M4[IZM3W4]43~Taj2SSD36J2%#>H@~P8G,5L1-K6Z'EYLXVM^K4C>?CJ_-I M:4X9K2DG2F1_36=MDCBKJ@JQJ:AHSC1L@CL%:G2MA56B^M^7HY^1+Y5! ML^~(MV7J8I6P)] [I]LJR;5H7\$SQSL(C1139T3?6j2B\$D9J(2C.A3_4KZ3C3PAY.Z)T-C\$9WA!_ M: SJ/2(KB^#XYL7I8UXW^4-U<1<3KTU^ M/CY(K%#%;7\$QJ9_@W<4=FYI^197KVN^XU:) MAQ1+&H2)H(S!1W4J@ZO:S|M+6^M^US>?CY^_6J[XCVCETT&E;41E3?A7IRY M^GJ+I3SZJNJMQIU^~^UDX6D^~7JR/>^XF7E(GOPE)QH:H^B\$L1(W7_DU M^U_ ; (6_G=9L1D455SSGQJ^OTM_W_?V1?;95NK6?>O^>5IBG6NB#Y^I^CP MP^R^0J)QLJ^L'T^99:1>~%X9S0(6NS^PDO5B>JE3W^)'QMO (U_SRLMV<^<(I5Z+&@~6.R^KQDI^!6RSACI ME%GU_1_&=6Q_H5P (DN0@75%I4]4IT P^#.(RH,M-H045M^#!=^L_4\$R;IR@6 M_V1\$XIV-TP/D9?+Y+QL&CJ/3C1&C7')QY)KIC,9;2IOYL^*%IE..&~3 MJRP @>7,GW2W0?>8>);M,X@&6AN'(9;1 MKP12,2POYMJ@J2:4H05I8+JL1HRK9.XVEBGW^:*A~Y~W>KCP;OKVJ3]>^OE4<=^RS1S-JL MF>=>=NO3HVF^&3VP T8&M16TCC4S^@~(IIO 8>);M,MHPVR1.ZGYIA-M4UNJ;E-27Q5L1D=J2.T,VJTQV1WR5>#Q01;_KQ MW/T27.L7WJXU^;S]QPH;LR8I2-XIM5Y1P^XZD.1>Q8J4O7X\$Y4DVJG^% MBLD?K^;WR?> *8,+&FJ99,~JE M6QI9.L+%(U7YL G2I+&R.IN&T^IWFMX4,|1RN73^~2K6I(Al2%*5<@EE6\$SE/GJ]KMAJ^K1^4^XXHYH7V,KB;T/JM M3_66MJ9XSQ0!37R!6L2>~\$&A^@QJ/?^N M2,3E3+BSQE0F2_#@_iVJ?^EUH(QBOSD)0EL.EJ^T+GKGOQJ?6<@TSC@~W7 M&6;OZNA:YGB8VMD2>QZLG>^@UDI9/4G/A^4TID,0+/BKPRFXPYK<89~9&3MPU(M1E26>@>CXTXZ,MM=\$ITHO: A72LRRXY_6E_1EJZGZI28Z^9H)>@~N.BE^~^ M^CMLT PCC0/Q_5>_K_ =7~M25W8BZ]8Y\$Z>5JF75^M@QJ^,NX+D0,W4%Z^>@_L-Y^NW7B 1^8>~_UXNR(D)S;[SG6B0M2L5\$M.G8 M752>J]~>~8-KQ R^5M7+<=<M670%I=~;2B]BD_Z2U.2Y3J PJ52WVJ0BH-S2^%TN>~1/_3+67BY6M)AIPX M>GLP_2CAAIA!U!&110<90.R1)G>180XS4PIN1+;MLS/BQRW+&^G+JIU:8 MB0H1B7V/G4HA^~V^QML089H^L3\$Q6&K&J^&SY:~T4^5>U0L%I2+W+MO! M^?/LN<C^<^JV^K,84+4,SJ1>5>A>4JW49P^FG&9VV^>02H6M>Z^~UMC3] \$ M&V0>[K@E-1Q!JFR<:FLS3=XU8!GWTH;~#DF7=P@>+HEQJY?Q(GCA9CQ51SC MYF9Y0Q,RHIA&6V0+&A^TFBZB]J4-ZJ)M.MCP>F?KCJ3BXX^=P06~UQW^IVJ_ M\$!~ MEXI^!7@/F1GP,O@U_14^FO?Y\$+J&2+UQ?>=+ 1Z(8S M^+KJ72D KJ4/J? M^?EOTI8,H3A^19\$~^@_@I]VBVJ]JVC^6^1S+06LEGHBJ1]> 6JSQ0VT12&T^~^VJT]6D^V M+LVN>=V JP^C(X/L2^~F9VUG06+7\$71T^QLS6!~M^324D32/3A2JBXP&I^M^& L1("U+&L1;2D<~XR-F0?>+G9JAP_IG^ZW^C\$Q6UMYY2<~^C^GHJR_?> M&E^&S:K^>ZHND^147E(1MC)322CJ)M+24J^@ATOF.^XYL2XHJ\$?>778I~5 M9J3UT_ E6;N3? <COK75813P2U9D1WGA>@&IN@D8~R_ CY@>3XX6V2^4;K MNA^81SSJVZ(N3M^XX_>#CH>?H^R9B1GIN1V!>@1JX Q^I_!R&R!&I^#(J7I- M75&7E;YD,X?3FIGC:~^I7^<^T(X_~%[K:HJZ0;7ESHU<8EY2Z^C^SD_FI M-L^%X;S/GU^&3A)TI^GT(T^I^@i88U^3J9^>=I^PATD~)W@E_S7&Q.A.#D" M^<G&ZQ26N2+LVU.F>A>9;1TF05S8B1(S^J&E49J(K653B1)MA:S^<X">^ MZP?7&2B<+R BU1060'03O =Q1DCND(0=5>58D5_M,N3)D!Q_ W M:B2J;LBI- <5=ZAWT5\$+&S%FV12_ JIHM3IU;HWI,Q889B&QDPKF1CYZO M6N^VLPMSK^_~8B3;V>LXSZ,<15LK@/5%Q_53K^K^\$4 (@_L_K OM+NU1?9 M^QKNDLV:CTC>@S5+Q\$6T:7\$2? DCZ32< M>J\$S;[J0.G]<5?7^#T ^>2D_5Y]YV3C1GBW;J\$C~\$9PES4AH^>07F^M^ESI~^~ MKA=[3>~>D)S^D^2N^HN[OUQ^N^?CO/41^C]PJO;YFJ]8XG51^O^ (BKJ(= M^HNW;5+&W<+<C9+0>=~DI1~^#A^RCF^C2_1JCH3+H6MCC1Z>3#&P^>V?0^M^L MPEOI^70^!LAUJ@9;5>,&S^AT&?%2U]J@H3W^~^J;I:EGS+3GW M^Z_>(+&+1ENG-19K\$S=~/39JYBN;K4(QGZ)D&H4G59+,<1<J^KY_&0C% M-<<~8S8@B%Z5YSBK/C,VPS[XLHBDAV3 UX4<_@J7Q>ZIG)DOX?22BGY0WN^ M@&9GWC,R? +&EF1=D%)4A:7KX^9L^5X^:VRP@RDRK5M)VV(Y9JX0FY2^FY^~M^C^W^NBH&D^DY^5AHPOKSR-US^V5J5N9^J KEZ^>@~XVM/T^RWBZ-G MIJ;6SA;C3\$~Y #.CN0#D9RCM(Q5G8RV61 VH^33;45K34;M:YCA-97&E81TEI^J^@OS-M.AA;D5)VNB<4>BAOP+&T6Z_~KUSARQ_ M9H&I(XWG_NDQ041316 M^J^<+&+&EJ8Z6D8PU7I(J_9B^OZCNV_ MB8A>~KXX%#86N&QI^C1_0K1)XIJX^LP@~I1V^&M0)I0D]=B^I DCBW57+W1 M_-91-443EJ]MG.H. (GESU\$5):5@~R@A\$62T?1 MNMSZ?;26-YR;IVN^0 MJ9D<2>~J^Y6M3?~JF2HMVRVCU.HIK70/>+!^%8W6W=<5K@~#4K3C3J^WLXH M\$W<~&;M,V M034Z\$V_/F8^+^4XOG<#~BRHY&D4X^#>J]WO!M^L^4G0M^UZIK+ M^&SY1^1<+>X+D;G/54M0^Z(GBF(73&OESIXW73)IE^@N/<0C>R&@&(^#*)N@/@ MMP59]>[504>I:JBL^S[V>?%I0=2T3]M52Q6A]U=4IYP&88.=XM9I:H?=-~\$P3 M^'NIOXS^W45%A^%?_?8(K%Y!%B\$&I&(\\$X:R06_KXP[KXF@>M8D92>5,I12 MB%I]ZP=AL9 ^P569)L^~83C3]5K31^~>[]SP2^V4&W&DFC9\$A0A>+M^*W^ MEFs]!>U)@/E/P^>1<~BWDI]X2/C8?+53UFXXQJ;6M=>_3Y;R10~>QX@Q_\$. M>;> M>5+4B IIBJ.M4T;YU->~;GL^14QD[KUO/QV1/F0RG,MSH2.M84;IGI) M^>M>\$.>2^OCS^Q9K7N33Y VFHJO~@^GH ZG APL3MA^JH_ H2V1.S^W9J_4?J MDU+O^JLMDHYH^J]B=(9H=UT+&K9M/9H 7LJ&L_XHDM/GT0G5I)](SIDX@C7Q M89JBLAVF8L2^H+&98SMJWZ:~A#~1+<~3^B^6H^GZ7KBC?&K^K^*P^ M_->+&@6F=>J- J_2Z3(VUDEW6681)YJ@B/QKH M^J^>W8J]YHNIS JSI=T4=I^WU+R.I.LQIR<~NJA3%N(24(9A^:E\$64V;/6(KC9 M4+X^~^2-6_ BZ2;J]D;0AUW4U:O^7XBN^>4Q^GTFX3^ZJRIXQJ\$S_NH1O_ MS1;~16IXP:U6 T^OR@>S=GWJQ>OK;)JZCV+OL.GY3J.VJ>_HK<=T^I?Q^>M1/O_ M2%5>=>8N]JTM/039#_ WM?JOHN/?I1K2^YU5^Q.E+J2+VG@>@:G&G4 M_1855DMS5]SJC@J2COIHD^>6\$E4U(KBXYT\$8M1,84Z-DY&VKCL/_9%8330?3Q8I) OSYHP;U3^R^3JUP M5Y^MOK[TA_J_8I32A<9> W&X&33K!3^KT7DAES^U_!%? @:RB_QHSFCG3J]3 M6#~@N%&H;I]J:=G_7#~.~\$.Y1^LSYQ_6#&4+&S^J^M^?7QCB8U7B8 B>6 M1.25G N^P^@I1BL):Y^&9JB9^F^+=^I^E03AW4K^W29EVTQC_~0XWXT^ M^9J=1+JVG3/51ZN180!>0? #8U1P9JG^G1?^*MLCA44?R3XB8<2<5<53CB M8_H7?CJ&6JLH>[208ZX,C)^?U_B2EMIM(E^M_ WHSL3P4_~6PRCSB=2 Q#R#KHU^OW8S]%^L-/JTK/9JA]3QGGF5(JBB MXF82E<~V),EDI?Q,&BD^BIQG.E2I31VWPJ(C)1WJ MG@5%Y25)E+5Z@U7+92A^#^;QLE;B\$4_Y Y^A+NY1]G\$ V^P!HG,Q2]]C.9 MG7149N^928=AIQ(X)Q^YBCCE^P8J4J>J>_HK<=T^I?Q^>M1/O_ M2%5>=>8N]JTM/039#_ WM?JOHN/?I1K2^YU5^Q.E+J2+VG@>@:G&G4 M_1855DMS5]SJC@J2COIHD^>6\$E4U(KBXYT\$8M1,84Z-DY&VKCL/_9%8330?3Q8I) OSYHP;U3^R^3JUP M5Y^MOK[TA_J_8I32A<9> W&X&33K!3^KT7DAES^U_!%? @:RB_QHSFCG3J]3 M6#~@N%&H;I]J:=G_7#~.~\$.Y1^LSYQ_6#&4+&S^J^M^?7QCB8U7B8 B>6 M1.25G N^P^@I1BL):Y^&9JB9^F^+=^I^E03AW4K^W29EVTQC_~0XWXT^ M^9J=1+JVG3/51ZN180!>0? #8U1P9JG^G1?^*MLCA44?R3XB8<2<5<53CB M8_H7?CJ&6JLH>[208ZX,C)^?U_B2EMIM(E^M_ WHSL3P4_~6PRCSB=2 Q#R#KHU^OW8S]%^L-/JTK/9JA]3QGGF5(JBB MXF82E<~V),EDI?Q,&BD^BIQG.E2I31VWPJ(C)1WJ MG@5%Y25)E+5Z@U7+92A^#^;QLE;B\$4_Y Y^A+NY1]G\$ V^P!HG,Q2]]C.9 MG7149N^928=AIQ(X)Q^YBCCE^P8J4J>J>_HK<=T^I?Q^>M1/O_ M2%5>=>8N]JTM/039#_ WM?JOHN/?I1K2^YU5^Q.E+J2+VG@>@:G&G4 M_1855DMS5]SJC@J2COIHD^>6\$E4U(KBXYT\$8M1,84Z-DY&VKCL/_9%8330?3Q8I) OSYHP;U3^R^3JUP M5Y^MOK[TA_J_8I32A<9> W&X&33K!3^KT7DAES^U_!%? @:RB_QHSFCG3J]3 M6#~@N%&H;I]J:=G_7#~.~\$.Y1^LSYQ_6#&4+&S^J^M^?7QCB8U7B8 B>6 M1.25G N^P^@I1BL):Y^&9JB9^F^+=^I^E03AW4K^W29EVTQC_~0XWXT^ M^9J=1+JVG3/51ZN180!>0? #8U1P9JG^G1?^*MLCA44?R3XB8<2<5<53CB M8_H7?CJ&6JLH>[208ZX,C)^?U_B2EMIM(E^M_ WHSL3P4_~6PRCSB=2 Q#R#KHU^OW8S]%^L-/JTK/9JA]3QGGF5(JBB MXF82E<~V),EDI?Q,&BD^BIQG.E2I31VWPJ(C)1WJ MG@5%Y25)E+5Z@U7+92A^#^;QLE;B\$4_Y Y^A+NY1]G\$ V^P!HG,Q2]]C.9 MG7149N^928=AIQ(X)Q^YBCCE^P8J4J>J>_HK<=T^I?Q^>M1/O_ M2%5>=>8N]JTM/039#_ WM?JOHN/?I1K2^YU5^Q.E+J2+VG@>@:G&G4 M_1855DMS5]SJC@J2COIHD^>6\$E4U(KBXYT\$8M1,84Z-DY&VKCL/_9%8330?3Q8I) OSYHP;U3^R^3JUP M5Y^MOK[TA_J_8I32A<9> W&X&33K!3^KT7DAES^U_!%? 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[illegible]

[illegible]

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MH2~0/7$1~L~0N39I<=>=I=ZB/7YK<+&+IX\ISUF7UN%3N(2F7W)+2~MT1BB(B)T8N6D~HXC3Z746CN3N GO/3+X.DWGG- MDV%V7X+R1~02:2W1~6NA MJ27?
K96A0VAF~:IFF0C ~8ZNNRP40A, 4-B X&-C2C@DWIKAPD5#? MOZ(GG<=># 9MGH?W8~0:JA:~(H3Q 6LWYU8"XY #+/-: MA06A65R1& MP+/-FX-K1~12XN RYI+RR9#-
MX #.MG8 H+WA1~L>Y8QU:U~.HBUJ~1R MR715:~&VDR.22W@3YS+E M>17M+P R+.SLW6ZG0:F*MLJ20M8HF&L@~QZ1>WZ2@60TL?<O EWK8CCK7<V~M>+3)PDVG4~&@2
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1%EY>JMJZ~JUIJGCF^~.2. D9DD7^2?<N?B1W1==>71)YHXHDBX1~+1N ME151 CSE^=>DE:~EOC@1~1~>~*N8>1> M&8I. E~?KW>1~. P.& 0E+1 0K(1~3T(7VM&2@)
5>12Y1+FC:~1=UO3811 YG@U4~!@HXRX1<8BV?H~)YDZ?O6:4E1@P8#>=<1~>O@A~W.O~Q~6~M.VOXLB@Z? MAQ1Y~SOI~Y~N1~5G7D)~TILP~L~1~@~GD>F7:9~(12.RXK> T ZI)~.WSP6"
M~21~(TY&B3111)F$T~1LID:9F$04.HAJ~4~"LGS5XMIJDAW1~7H /KJS:Y VMR<=>GB 6~VPM~1~N1@B7I EAH0HCX~+1BI.=R~D~1~1~1~:HIL01~
MCD1BG#4EPX~9X~A1~H1+5V M1UE=YD2Y:P=C+@~R2Y:1E15F5C~+~82D:~M.FB.AVX~1Z~44UN5:1VX&SHY X(Z,S9~<2480T1DQ~7HQA034:-4S7%9H<~P8 M1FEWGPX V=:/
IIF+M-9851(OE8V~11 MJ1~:~* @~P)PBV5>3+:3:3KK~ND:2Y(=>71~16C&F)~HMR15~E~P27~$S M/VVC *6X0)OLYVU~5/CB~N~D~OK~XIE~T~IJBVOB KB1~+&R~P5P71P2H
M1RTO&>NZ.YLTCIV~3BBDD)~CIY<=>=5KJUE219X~"A83.ZR<58H=>+FA4:IOG.U M(12Z~. OCT@E:2GT1X~TVGK8)~<#&19.12~HT5ABII0.U.SI/V~X~I$~.%WKN
MBE6+~8YGIU~1~%P~11+3U>+~<~H19?~#.5=&1J~?XL M@AI>+>TAT.)~:~EALX+IGI0M+IHKDN~Y89~9~M:4S8.URT4T4V+188FF~8 MC (~<1/ZY3RPX)~J-M~D&=YTX0?
@O3>~MJS~1WH.7~#4+8.1% ~4~1>15T MJ=A:1ER6~071SGV~AS5)EDDN CO<=>9IIGN8TG/I1~G@IULPCO M.D/25N-VBMVIR I4:~%C~H~
D9>U>W62(ETVUJ6W6X8R&0R4A~BOJ~<+0.92P2BFD@HE~N1~24)AE~P8: 6UT~17H:HO.SDWV~2PKD/R4 M.AKIV.E:IX~J&1~ 26PU+1 L~J6@Y54Y0~*V
M1C~4Q Y~7+>417A5&C&89/77~12151G~U M321 TLH9~>1~J~M8KSOX.P/8(Z~3I ~+~7~Z~10~>+>VXD9~ HD<=>E~F~S~03(FQ8).21S0I
M~.~.4@YE112.K4G)=NR~+CVT~O4T1N~2FH~11A1P?)~H~:~$3T&~ITG51~3 MTU9EJ1.5313XW@R/C3D?1ILVSZ~U9ZXS3~&B~UTHB2E~0~TTL333YI
ML~17KRN2VDWV~K$>ZM+>Z~313)~LV+@GZIE6~7724/KIK+80X1~5HNSQ1E9 M~70WRHK.IU@TG1DDRMWRL~$B>BJ~9X$3~1~FLI/U9JD~A.M11283NAK&55U)~?
CW2+VA~4VM1 8-RTD1VT92D D02=6B2P281=+7~%5F5~?~ @Y@~ @B&S:3.5IWBE~VN101~? VRLN3YGS2X74~. M99>52IJS~SB 4T>~TZV1~D(C+1IT&~WU:
1C<=>+8&~5C~5ZETR~1K@<O:RVKU MV1 U 1QZ~1F:931~&214ESJ~+~1.9/9@E~TITFIM.DJM~AB2Y.K%Q6:B~M~K~M~N6T~L~IGM~%O08J521~Z~Y~.~HJMJK9KD(4V31>
<->D&@UVW~1LE/OVY&~$~S~MK=1.0~? Y~="AJL~="IXH2Y1L3~5~VYG9V~1~1~JBD~G~0.7QD1C.WG61=8 MEFFBBH<~V13%.WQ~:~1~>CX 242D~?T1&2~.C>1~(PPTF=
TAOW&C15F1 M~W6~IF@DU~<9<7CL2AP:9~>R1P~(T~?M1W~Q2 QU~.~5LUL9(P.K<~>9 M~Z01 HZV:LE#&~&AQ>1M7~24SGRCH<~H~&NPLW~3~1EB?7~N94LE.L7.1
M&BCE4NK.<98L2UX/Y X~76)S2PCY&1Q.OEOV<~(3156~?W1H0~M~T:H1~NS MH3V.W~3:1Z0O.&TUOC&A<OLL~1~>~+~$45+>T~LJK~>23CB8~S71UOH2S~D~I
MTADFF1XIE149M5X~Y@XK1~>7(GT19~1~+YE58S@10I0S:M2:~HOJPED/H~1~NS M$>~>RLUOV~HPL B1XH~JO~G2UI YI.C6D<AVG H6~>~.~90FW#6 W~5K5FF
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D4F4F~=>~32S~$~G~V1Y1XNH3~ MGGVF~(E:5.917~T~G~&~&K5X9~1~.~&+>:~8L13Y~>Q~3~>WA~N~P~V~U~M1P&R0~ IJ5$~&2C~?E=I~J~+K~>~W~0~D~1~W1(LK1Q~
17.17DUU~1~U~.H~KMKTH3&1~H<~>H~7LW6/G1S~Y1&~>8~R~D~K=74~1=BI<~<M~+~>~$6C3~J216UOFE$1.9G1~.ASB=Q3S~PFHF76:6Z&B~&M1 YW M~(C~>WMPCC0~)
=6&G1V@1Y~X1="1?NO1~?YVK~>G&S~6F6Q~Y.UG&S~+~T1 KFI~1~ MV.5169C~<O D271A7CC0~.Q~ MO1~Y~1VAGU&P~H1E(6G9AMRWHQOE1&X~9~>56~?1ISX1~1GY@1DC~7=1X~J~
M@O=<~&~+~.LWN0>PY&~^WRH~>OJTXS~+~OJG5W1Y~YB7EN&GX~O~8:8I GD~.9 M~"~&B~HC~X~:~(1B=-9BZ~"P6ACLF~T~#~E8#~UX= O 41~WP9+KAU~1~LOE1&
MLTVX~O~?Y~)S~U~VMVX8C~(RK ~<~1~OHIJ~="81=5~ESED1~>8>~<1~<M~7 MS2)S~ SF1FOB1+10P6J1C4I~O1~ M66<~(UFSI~D~H~.09VIN~1IV~%~.~?N1~)
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VLSL~>~$1E76CR51~<~ M3:1A7&1~M1~E~.H1KPL7~U~ 086610.SIL+AY7~2U3OI1 F~O4X~"XAFHNH~ MO~<1~1WX2~D~2XON2E~.96YES~1304YB1W~H M1(9M3>~$V~ "#3 MV~
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~8G@6EUXB ^X6 +OPORIT~N&~V3OUI5~+~H18!4@~(BT/A0<~$)OJ M~TIMG~$X~C1?2~(9&5=82NO M~XW1~M5NS~>~@~G~ 9.0K~FT~ MF /#~H)LD?
QW==R~ S1IIOU@~N~N~T~34+~F&B~8RUT~JP.661NA&1.8M2UEH MAC~$~C~J~1~#E2~>1ZT~+~5: M3~>~Y~>~E~D~F2G5~>1I6J29GT~7~1HSMH7C~1~LX14Y=9~3%SEU&=HCL~O
MEOJ~XOF~$3W7~>KZK3HFZ~MM~R47~M~ZM&H&C~$~Q~A~7~UO~415U~1~O~K~+~$YT~
```

HV"Z(9)I,G0%5*+9&J26.G+!B6*5ED1.AR)@Q-1419P4H16K%:.!/:A ML2P%4J+1J8H5>KU=U!>F.G1R\$D?I4AXJ!>9:~2*4KPF&X4=A8Z.V U4U#RC MX53BD6E*+~KZF-
W"=RG65F=ZW5.KPF!8#S*G!M~A!3&R.HL!<4830G5O9RH13 MOD-3E"/6!2!MVL=##B9!O8A!D!)(ADJ!\$2BTCZ-RFBWR5"U>5GBH894<1&9%* M4XKC!G4!H.KEX67H2?0~051B-
3\$2C~"FSAZWRMRJ+X X7A9"Te~:#+ MZC<+&F&BUC+&GK3:EYD>Z<G< !D13X>K>P>HJM!3>@K49,9WR1-6PF0U!J MU9RXLW5%N?2~2BWTJD9I,B/X "LW>9BLH.M~: BP*
NOR2&T.6 AC0G+>+!UE"Te>&B* *BF&A"=F#6% MMKHO- IE1=O-DZ?>F~!EQ0%2*?> K3NF&V1A89B0/1T#0#+~OKUN=40~7"
M":0X\$8.Y<#A)INF@53UZP+3DR"!T!JAXP2KS8A@XEL *1KTI8'3<FX6)#N7"OL?P#&<"#HLS9:L/Y9#1VA1?39A!11LJ6@?5=N>>V MEPW3!8+2P.&@:PIJ:ZNF/ 64V9,? 8+>~!N2GSRJ/C9A1PVIYXWE~:~WVE=0*2SD2P7?B4L1&A:&SQ15~64Z1+GV&ZE=S,R9,NJ MR6?37/B5~&1YD)@L H'R~PRKP7+ 7-3FJ!0#3=ZRX&ATIHJF 6!UZU&>W9@0.1 MW2#2011Y58ZMEF. O="('LK'OU!AONFAV>:W~:M\$O31NKPCH9R+4GBU6W/MP!D5:F4+O~O:C6!0^SPL~3!-4D~T:U5A+K%YL31FM2:~V!_2!JY: M0'6N"Y20~4)69HVB&B4S2~.0&K0F6%KNG<166~6!&KR>WHN62!A./9"K MJC~AVK69A.I07"!1I?0^ULFC5:"0A6+PFKJ!&S%N!62S2 M(P2FQ&2R:1!U1UGL!61!DQ4MFW#71~2@&IAZ'S3.K~2"/G#>MWC?/@ MH3:CQ4-3!0#7K.K.W23@Y:K5~3.3U"N.N.AJO&GNXI&T#7.5%8RPW?>ZF&K M- Y.A:6S>#LOKIN/W%K JHN-UH3G)IYK9-/8W\$2"D&F0U *\$=FZU!\$F3KA!N MOZ:PV1&=JLA:2QUNER8>S'IZMRLO%)@6^! S%W@&67/3F^S% ?) ;T M0FIOI+ZOE2U"? &L!URX&7_ BA7CS?B9XY.YWPV1@_ AN~Y?1IGV#842G-IUY M3P9V1N+GH=+5~4~0~N?2PLWGFBA+Y?1E7#1 LGU_8@GWX+Y07Y@S!\$OVI@?ZY M0M%@7!X~A~PCBEPSN2X!C- &B7L.T+>~SNB _@V_@ME!2!+ O&=R"?; 19) M24& O&E7P"?97-2(YE=5~05_9P+Y<12 MGI1P6P?9752D?K8X!U>H8 MV!> 8IG7%Y16V9G?>Z(==>?>77!Z< <\$6%R?_10\$BGI/XZ?4~^~!>JC0E ^M_X 2!)I/R%SO^<:GWW64H4@<J,Y!Y?>K:G6J9Q1.8F2~>T-0MA?GVN>(MU?3V?7>N<@R!6) M"KXK&&AGEB8R3EZTIL@!R'@!@6: <\$6WTL92&1"/G6NA!0%W2!)(KTR2O)&W2!0!1RCH\$ M7!X4+<OLW?>Y?2I2-60 MSEV.LB5~>P?>F"WVO.5.THGL6G!0.(%>Q?3!3 *1RWUL%5!<K6B!1U!V M-7- /49WILGY\$++>@3+J!2#<60FOOTI DW8C?/0@%Q2TS0=U7)!JSMOFX!8(9/ MV&WPPS!K!LW:AJ3-V.YYX"5006<4.NR&@4Q/DID-&@AW/*Q;7\$. "T"?=< MW#=@F=G<JB 70"XN">QCG6S! /7~J+P/Q>F2?SD3TW=EOD MF0) "H#2#>#~1+>CU?7>6WM=IY!>X3V72K7FRLIYFIW8" /3#G?R"A@< MNATMSO!&L ZM\$S.ZOF2+>LYR<1555FUUIJ:PY#" JCV%\$&G&DN8H1BI=&S !SVDTKOD2G) "JHKUYR!G1GD070 MO!NIVN! M.<~%US11\$S"IXAY"=4@HA2!0/SI3!IM1HF 1+W?IKXT- =6"TW+L>JBN8YKID&IL~N> OVGL.XIA7B2U!<+~.7U ME#(R\$HTR/NZ&4!&E(YRB3H)0~0!MXXYPW&7<3<2~:T9G&Z4~>N#X4MFH A!L~ M016TJL~ A+89UG>@EJ?2FQ26&80!>4.6) D&URPBI"~E(OM-LU\$4&4!2~P.MXC&T"7\$2?UO=+ @K\$H&4KD LH68G5\$7!M5>S\$DZHYCU!&3?3>~> M!<ML3T&85!E)E6R %71#D20/H!9M58= T:JTDH@YMH6LVC/YH4@&6C! MI"~V0.GZ&Z#6>5&+O%/ANLBZ;U?+^E%I(BD_~5/M@6J2%? \$8_ZH0>YH?5% MB5K.E AJ7*OAVN5A!%? TJA.G:DO:QYNIR=&8G0>=<8:UP?1?>U7+>?> M~S~J@!@M"WC=M(SMDH")M2UA-2K4_~!<:U59H_K8P?J?R?KY9?JMP?J MK3<<<IPLN#~DE3!E: ZCIEJ2Q1N.B!R@&E~V+@QBP\$; "6AG3MKKU<K~B3"1Q!\$S=BCFYBHD@.0L>19GR54\$IASI!K!8N(D>(B)B>.#!<SP E~GKE85SFH2FIR7P/L JAKXB(6+LZU)5_GOP^7. MN0+3!&QVSNH.D.6SA7?0L1(ZG63!<O~<CK!MOV0H.AX-10QCYI>1B!GE!04*XR0!"W+^E<~; J.M"3!3OU<7M?DZ92W\$P08 0: Z>7!6X=<G?K?~<*&H!>B!>J=<JMKMZLB!&2W7 MYG:~*+>2UEE_ZAOFT@!W!X!6!#W9K.R3R=IW)@:TXQOCE>00,2% 5Y5- MR?/T6?0EAD.RJ!G0H8N16M-EJ5XVY:A1~10DN\$S~9JMV!%<AB8TG.\$ M79F2RG1A#C? BYZNR=UQGIONOE?M:O6)H80!LO"IK.\$LWX+7\$SU<+B!<L.D0 MD7!\$B/P)?>D L-Z7P Z^~) #AG&*Z J9"4! @C6:6D?0*+ CIUJHEVC9%U< MQSIRM=#[U./>2") IHC61#47?>PY#?7.03/UJKZ!M~ZDR1~3F M?QK'40KE OH12; GPVYVK~3RIB<50 M~K~2K~1&S~V-6 MGSF~P?@C3F&~@&4!&IT3M2!2#2_#J!6Y+BI!7#5KOKPLWV!>YUJF) &N~E) MW1?2~"PKPMW>A03VNO+H+ 35:B!&5~>2B80W+&BWM~G~P\$&S~9!#~M!L Y>_ M81C0Q&*8GU7\$S W2-8!O=K~\$86!UM)2=PN?&7D). WOK0?J5+4.6HC.#.FR M.QO @40%Q&6.N!\$N16TAY.WESJ!M~X5M!(U>@&E2UW5KYBNF6T6R.OH\$3L M4~<4~&WIS= #9/D+BEG:X!FU6?6%U:UNI< W~P~T~>M\$CQOCUE@L*9^! MC~0_06ROT~V%~C^ E@&LJ~N.N.J\$N37BSJ\$21"X#L0!B_0_ 0&7D J0.O4. M~R 60(?2*H6AD(SHKF137G~6"6.A.S&=PM/B?> :!<=AP^<0OKF4B@&!)KM)15F MGBA7D? >\$>IK<7#1+YFER%\$!OI!~_U14%71!U40.7CXR2T0Q9GKKMCD!~BW M<SAV~.6#T!~%OSH>?UG=>^!4D+L1~% M"YITIL?8R NAUUA6!7L01=5= MZI+&B7: 4:J!J!A!V!H0~67>GVEZU?>1!8R6P!% 3T(1P>1!X0ESD. MP!AN!8P!T2Y!A@	=10+!\$B1T38!)(%SR?>@~0~!4~<1_9@~% W(AGGM0EK M"K);Y<+A~NOYO4^VH~F">_S?2 N9!>MOZJ!<~YH8-5CAA264(K78CHM~ PR%>M!W~Y!YW4G Y8!)0!J!U7>1L)W7EBGQXZD:=. J2!<1 7E_=:!> M?>Y~9&K~:IQOHD~"HS? 3(2@< <3!>3@<J#0'SB!N.B.7%T+>=:L.LJG62A0P M(OEX!AS~B.0!&A M!BX(R@&=1^=<0E)UJ>7T4(N~<U~L3 J=5;7F4\$2R7+U(=:>=)NNWE_C!<S~U.IOX F M~0%0?Q"~#3!& !R#0!F28 D&FR~&U~8%8X.O!R0!&2.9CL@<43"80!"BT=K M!QO~&A0=Z&M2"1%\$!\$A&~D"~#FBX3~YNDTRU!3 T MB!Q~KRG!<K- 5^!+F@*E/@+98.VX~T~BW(X68)*XT1\$2!&~\$H#9/O@2 M2! !/>@&0*~ MGQ~DG%OI>#(Z2D9/SIR6P1%.RI(4@LY~F5VKJXAL/X!Y= M#LO?2WD)DOD;D5!TV.B~* !C!CJ.UVALEM!KB>@H6!7JZ?OY!8AOR!8%J2N MW~33JRD~>5!+7KTFVBI=^E~X3V? 9U?Z>FVE!E?>@2?<4~<14?K+I5~9P046 MJ6ZUOBZ+!&0G0!<~"T5!C_!T2! :!&0S0~R6~*0S? &N~20". EA<~<B~: M~Y!67>10@ZV6!<1>@F6%>D(RT&9+~B~!<0!754!EK~>=<C P0\$>IEB~\$5~M~&O\$!>A!EN6~P<@ OSU!H6ZD3!>@&0!Q4HYC \$ATR~G!Y89S7@!@!Y07@~< MP8&~Y@<~CN.R>Y3J4754UH NOR~\$3Q035W+&J/ 90M80!&1.99@+&L@DF2? M~Y-DIE-R~X~RD&~8G@/N5!& D?7NL\$!@6Y M~DOF!~F2K5P.ER3<6S!M!&R:85!L V! J!OW\$FENAL.D>9T2VZ>~VAYM MZI/WAE4.D!A~6!UA9_>H>H&4>O&E&~\$&*~#(S7CAD2 8R3!3ZY4YE&*~& MO!5!UIL@6+>E#0#) CIVIHEVC9U<1WIR~W/TFH<~"1/W2) % (B!Y).1)(M. ME2#+X=0!E8P~\$#7>IK JY L~P3YZ?> MI~GO_T+(>#~ FGU!XRIQY:G.(S4U~PAUZO:T57J=H H3XXGMV!\$+HW2I M@CP9T=L6S~!"V+8@WBE~"=EEY~EM /? BQ<7?>CCR8CS.FJZ~>QX475E.X@WJ.X22E~WWU?>+!>T7.VY99C MOZFS=,AE2C=49BYA~X!XR.XM!D254.O!&@W!9HH/MIC!&C~GOZYIEUA M>~6!6R%1"UIN~90!PUNK3E!6YVW4D!1MH!1#~"OU3_!>X@~P&R~FNE2E.UJ ME\$&~4JZNC~P!>9).08OZ~<A!>J~(IGA+&J!EL R~&B!@2N~2ZU!V!~C~L R MWZ3.A!52.C~H"U~.6A#&@!8!>VRX8~<_<0>U@<~PDX;J!9GC!6-9&K!>45 MS>?T!OQ~TDZW?>U!XIGY0~N4!LR9A.A.WM.EJ!&B~>J+>+6VKR/DD2& M9+X~&RNNDI<_5)6^@!P~!7!<1>~<0ZD0CQZ!UBI3_1\$8WEA~V0@_YUOZ@&L M!2+7D=BR5!U@Z4#L!5P4~MWX>~6~BLZ/ P?>M#V5!CMT2R!\$0~M~P!M!~_%# MD=2B/SV<~&4>Q9 LK5- A.6YI!&G~X8CNGWYS5JZ#+<&D08%#IABK@6C43@ M7X74KA@1#Q~0~L~R&DA0~>TXUNSEDW.PG#!1R/O7T=6 M~#)~67.1,2!O\$ZJ!H:)4X~AD.OFUS!3:F~NH8~RT@M+J~K" B6B~X~U!>BYR MY45-HKE 66~<1~"0!0JL9R.32V YJ~T~F#AEESOXN-IN6M6EKH6#R5~>8HV65~ MV\$~>N~9~R~L~EL=Q5~4TK~CWL<~< 10S=VKY9!OX&V8B+82DYZU6!)IQJ M~& PJI=V.W/Q>+&U+&J!8H9Y.UT~E~&~M.RK~<D\$H6!&J871B~3E~K!&L!&K.SQ M!(HO:CO!J!>@&3!3E/J!M92!)(0P5ZAFIA=3!W~!~AHBE~A! MGVS6@NAL&IHBRE(Z~>7M1!> \$5!Q>EAK<~&G!>335/JY\$H1?<~<O!Q~<4~> MMC+&2!M&J!QY3E6F@&FPA\$8UXN~R0 L~>~>1~>2~>JXQ_/49D0VZFZK~94 M~D&29~93W~B.#T~&L&L~& W.ESCU!0.07U!G!&L.CY~H!B.W3D~>E~H58&=LFPO<=&4~& M!YB!&J!<E<2Z~1A4G&Y!>ODE>FB+ H\$6 M~:~&U.%@C.%0!V#~"9~9U(Z+AZ.AHKX\$&L@YCIK&<.) :&=U~J~Y+~%IOAYI>+> UO'6 MD"C"9D<~&UC>BY>)I@.VD2Z@~>+SEV.X~:QLSIDY?T!0=K%JGM&FRMC<0V(9 MFA6&\$LX2=(B>0&=<CWQ M.M~(76E"~&S.7:0~DR MR=C4+=+5) <~<3Y<4 E0\$2S!>T0@!J~>FBXRQ#"M= V!K~#~JNZTK4Z;VZ2! M:FTZ.X?Q4K~E!>+&X~KK~R=7=DW8OUU2RL&OF!H\$9!0+1~L4_06CPT MM6\$~>+~2.C!~ MKSD:XMU915H~"JW~>~>E\$212RQ\$ ZRRN~>+>49M(Y~44# MG9!UPRHE3N~X!F>+&S!>1!>6K~<?>+GHARI/ZNX 76;D!16)9W6F\$~>+~X4& M8K!FRIM!T~>Y600C0#3&?>J~>=1=0Y.U.E~!Q~>L5+W~0^E!QJTDTPV/Q7F=AR M.9%&S~9S.KF9?5H5FR2\$#W!>=94MB.O."!HAE0912.%#I!&0U~NJR~TM M9MA>< <1.BOX~6U9WR= TV&U#&SN@>J~>E.OX2X2~DMT3?F6C(V!7:CFJTJY_O#36B/@ F~ M.T.O!Q~0%\$~:~ NH=BP6G>I.Q.M E/8~>O&GMPX/Q_L97HN!>3>WHALK<>CUIW1="7!Y!OI_~5#B.Z/3?>I.E\$35?737N&U6?WGFD!6:O!AYJ~3U~#PU5!6>K&~ MI!~0#21!1TK!>J!<I~V!2+K.Q:16H ?MR*7EYO5_V)=+ !76!>N.E8_SUV&VP+>0#>7B19W)?2B N/8%XC!8X!C!XV=7? MURN:>67VY!(ZL!+~ MCGX!C MDMH!H!U?>2&A~+~&54<8~"4&NLF\$O>X3XCDD/REF~AGUO!Z"ZW!IAA~UBI!> (Y.DF C+&#))>+>U>R0\$>QBT~RB5?>7L!<C+J!3~P~"M~B@&LD @URU?>+>G~R!" 18&FW!WA @G/5;VC!>127CFQZUL_>@A!<~>SNR4N~PGL/UKR5.C~ M~!2LG1~WPP2L~ 123R!>OQN~RRP7H+>7!49WILGY\$+&@3+HA~>~>#?>7K2>!PP MP4@A+&@&E!GCNJR~ROV~FMCD!9K8T2(\$S~V!3~>)+C% MV=>DL~&6EV~*XJ_!J4~J!LW>A.B~V!E6Y%<1? 22L~*QV 4:75XM~3F6W!>J!U!<Y3J.D!&C M!T=S2G!<(&D)B~HB"~%BS!&X&S!>~"WCA.F?&G @XICH!WI.ACIGHW0=1 M~T~LROUE~V~M&S;KK:2?U10!>L? 8A<~>!">7!WCS&C/HO~POTY7 M.GGHRZ!657&YV?4LN~VW!H+0M~5~>GQ<@>J7WXAN0?~!Q.A GD2_ YF7K?CAIW M!Z3O/5^3~>VOX \$~GN_ SW CM KBC+&3@>0OWVL~>KTY=>3AN.MM(MC M#H1!>1">G09Y~U93.(=ZCCN~&G~&I!W6G@2U~3!3LMOXZ7YSF&OV!OQJ5 MZOG?>O&KICE~M!&6!&@PIPL50O8XDYSY:(Q3~0BGB- @!&1.WGGA!1?B_.0Z!<3X&J!3U\$~>Q6V!7E~APPC8R~8M!M9=J!&9G.8L "G" MPW:~\$<EOEB~F BJ!<=O&X!IDGGXA~&M~EWNDX 8&4~L~Y&8B=QV24~LKN!+ MNJ!TQ.3~<6>J!>D!>JPX~!J3.S.9H94~@!V!Y!&W7F.E 5!4~!TZ@.8!U!EN2&P! M~<CRGBX8882?U3NO>H4@&#J!08&GZD~3H!&6G!&V!&H!&O!YWBEB76?2M@M+AY) MGU M~>1A## H.2.LCCQ3V~J9G+>2.KB!\$544#UOR.XIE!X+DR2Sf64Z/L#M~&A~& M!K&X&S~5S.AK!<J!9N!JN~H\$S8&M~&U+<187%8MLJ!>42S.FV!&I+!>J9 M~&P6 "Q #K4K80~2&APXEBB6L&E~&KLY:J!4FQF.H.H!O!RMRH"3 TN>1/U:~4!>~Y!9R!OO.; M~ROA~!KAHMR(LXH!>Z.UU6!S_.4!7E1W~3YX!&IA MM- R19~>9+0C&6;1L!<1~M~NA2.49.@AZ?0O!D~>~C~R?2~\$N0X4_<KQ#B0C M~!D6F2~>~!A.QO&@2HN!~MF7A!>?>IPBLQ_0_>1O!2~" M~#&X36!OB~X~>=7!UUEFW4Q7889DZAG:KG0&L3!J!C!>=UPKUS!>J~>W~H!&5! M!<=5!JR@>N!JMKG~3~4!1!A>6&X U G%~3HQ6!PVKQ60&+2!IOU.R9!DOU~2 M~>XV4R4~&8TOZ!&C!>P!>C!>G!>O6!Y19~LXX~.F4&S&OVH_~07.ODS~!8U" MB&X!J JO7!7L!JL!U!B!&V\$~<~"MEXX~!>=7/F=>@&C5.P2R3QZ4754UH_NO MR~\$3!QO35W+ @!_90MZ0~#~ 90+1~!>@DF2?>Q.IE!R~>J.U_~"8GHDN M5!&D?7N>?>L@6:~L%~H!&B%>=W/KSTN<1 M0!W7F>E~>+~N~9H~ZJW956Q~9EQ9GT! !P:96EWU&L~>D~K?~B).BPL~P~#IK M3@&S K!&G~08KX FD!6U) ZBD!&C_.8!5Y IP>1 V9!MYOC6? A0~56V5!&0).5E*. ">1UGR M.H& 7_L.VOL7%~1F~G~B!Q7A!LO- Z!83DNH85Y4~>1~>U? JFS&OTW?>C5>46?&S~B.TBWIT M("6~0~M.C\$5!0L~F!YQIQG&P4CP20?K!760\$C3+7T~>?>P>C!<~<80~C!J1 M DO4J+3~8U!7~94!~ BSQ? ~#E\$!<2&C7<+U5AW!<3(F.137.H.SM!4~OW) ME4~<36~Y~4E& OH5\$~<6L~ZK2E!&A_.V?N76D+EFF%O\$N&KVS!8!G!<=QVQ M.M!AFL!&10~M4<?2 QOV&RZM~<?>Y90Q2LU>J~R\$B!H@X.F.M~&S~&L~&O~&F75~ M~*M~M~&MS<~AN!2&M~<1\$A.VWJY&~8 OSY3~!&M8GSXP99~HA&@&0/8~>SOET M~&E!Y!_5!1_P#8\$~1#U~S~D0(84R) <S5~!&T&S~&@&K!<~<P7B 40~Y!A M!3~D 1!<4@&0PH<~&D L@ YU!Y!O!>U!\$M!X~T~G~>2~0~PWY~KK~&@!DYE!2 M!4 DK!G!A82~>M!7\$S(\$2_~Z_>P#8\$~5.YV!<5Z?>M9? Q1Z~<K!&I@OR M(H!HJ>Y:E!5!S_.TE5E!L3)QX!@&@L Y!UJ?D6Q5!L!K&=#~<~<7L1/\$Y4 M0?1#22!7&<~<4>8F!1&J3YHER'3&B!5?IK_!LE@_D50# NXF!1%~!F" MH\$S=B&24+\$=5?>50V!92Z). (B7%#G=P!5B4(A=T\$>E~XOY!<7.5BGYL!R M~?+?&G~.12.P~1~>70WY4~>#E@&A.CNJO~E~N~ABCL~F~8=RO2&EL~O~185X M~&=M.G>K>J9!DFA!L~YA~? 9~!<4E05!LT~25%8&K!>B!>JHO.S~"T4! MD#MF@&38+2Q0A!H U!>J!>S9!F~>@.QRN8R~>=XV!H!&BESY!\$S!08NXZ) MH.DV/9.(2W=>~ S~H~H~CT F99HNZK7!ZM;2\$7M)XENW5 EX!BH.VEDIRMF/ M4;D!E!H!N(P~T.O69) MD0!V~ZSN~9+&43GQ~0>~<FRB+?>?>XRFN!&P_&R4BE?>? W@S~>C!>3!UD\$E!125!4!FF~2XYNA2ABC!%\$5 MR6?)(URZZ+V~H8GL~T~&U!&S~B~O!Z ML=3C~R\$N\$!T004B!4.5E\$32 M!&2_1!J3!0N!&J8M~WDX.S!D~C~C~*3~>SY4Z9~*1J!> TOUB~<(&5+OM!C~ M!\$4D#L M_HN'D!MY~\$H!M7YX&YD!Y3Q.W7SRD)!&S B.OG8!&~NOMF&K~#G>XW58K!H.MS+EBQ=PGQ!U!7D> IFAMF<9\$!<~>>VKDY) O!B!A\$5~9L\$S~R\$S~6A~K~CV~ M9_<L 05G3NM=GD!<F7!IBHW!>IO=>J>27!4!R~0V"!A!P~%RY!%!>4A& M!&1&JBN!K!Q6~1W.NY>J!Z+>+&V.IP2!JP5!T!VJVV9~!D!T~E!Q!L.W.N="~%ZX>~"~(MTG.OF!KA!Y:BHF>HIJ~2ZU?>U!>ICT+&~B!&+BOO~B/BOY19PXR~C~+Z~FBIZ@! MX!~7943D!~D!P!RHO8.131\$~!~1NA2!1 N.C!>X\$S/G @_VL98 GN@>HJHB~>+!>1 MKPL2Q=O4G~>+5~"H~B#~>= C%~3W~F\$+WX!>WKWB~N~5CAJ64Y!<~<C1 M!>E= F!LY!O/U!> <OVS!UGF~R!\$F3A5M!>MOV!)! OBR5!E.M."J!S88TSGLN@>C!S!<+E\$~!8E<+>J!>2~8~&O!>KZ4?X&O!&=~. 9Y8 "M~C!>14W!T~3(BJZH~N!>IP02W~6!>M!>F!H?> ETZ7VCG~AP~E.OU7!D@>HZIY) M~>DA&0~>H!Q.OFEVU?Z.N3<3U!&T:~>@_~(T84~Y!#~C~+2/20~!ORZ!&X(B.M.O~>2!0^<Q7!>K!>L!URIQO&CM+>J39B7!>2C1=U~M3!W4- FE!B7~*R M!>0QGT7Z?>1?EOOU~&C!>1608!>1778DA?>Z.N3~>~>2YR@>S9~>X~O!XUC M(Z4V~K=U~D+&2=9M~>MV!>IOER!LTH!1!<C~NE" V&8U~!\$ M.SYPMU~>J~XD.XMTK~&R~LXY!99C:C!\$3XHKZ(9P7~>E9.L!>4G.E.U2H! M>~>N!T~Y5~2~>K~5!>UNTUXVUW!)~>P7!8OELG~C~""~B~4R!9I~IB3C QU~&_UH30+1HTNF~>UFH080~D9; M!&N~ZK94~>H!Y.W.CA!>~>@~Y!A!P!&I~B!F3!~!>SPG27X.V2!7X9>+>YR0B MOGM! M~?&K2100~<490?>+H? 2~1!J!W580~&0~&H2!&=>~&B~>FF!OW !~*~C2 M!U\$3!>5U0!>T!M05VLUO?>!2P!E3~<1C~>J!R!A!OQ~*K.BLOKU~7.2!SM!E7@3 M~6.7TZ!>=>DK~6CZ3!2BG- X8F4)PA!<~>~>K_<S_!>O> SB&~"~H!K&F&X!A.M!PXU!>7P+Q>E!F!C!<G~8_P\$O27!>MOUP@~>_O29H!>J2F.G! MD2_YG~S#_!&1~35!SORKURR&D@K!<=&HXOC! ~FX~W!W!U.62AD3!@B~>N~9V MCX!&FMZHO!<~>13=,17!>405MF6!7N~>?> M~X! U!T1~7M!>Z&N0!6V!R3L~>J!K!6~2Y0!7X~3R~>ED20~\$5!\$S=C.M!H! 2~>1Z!B?>6~0OE!>1%~>N~B~<S!>J.709!O!>Z>8W7!5!T4~&A!>6+>+>T MSDP5!W=5+&~!NUE~H!5VY~B="60!&E!J3<=<14.6!<SZCMAANM3!>~>=> M.DL!>S.O!A- G~.QV7&J!4J_59!V96!QJOWJ\$98N3~2WD+1~2K\$>!>ITY5.MN~>FZ3!3!0E!&I!AKG~KWA@PHK3_!96!BG!<1~!MN+>2~6K~Y6.P!>2Q06DR MD!XQ!>1V M!H!MUL5!&F_>~>~>M&8W~>~>Y~?~2S!>0!&A~>KR92TMZ>B!3.PRA!6!9E!D?>MMQ~&GRWK&L!G~RDVP?Y8R2!&P/M~#~%55VKY&FZ!>14~>Z&ZE!O5\$2!1!TN7 M~>1PM+UO~<8)EEFEJ~K~*49!<~>+>NW+U3!~9P~5N:(44U9~9!2.%~!>JZ MROB&X_.JZ=>#L7~GRG~>?>?>TRL!>3D5!>RTV98~F!S!9~>O6TH~>Z3XOKZU5!&S! M!9&9M~>1~>DRW>U9T~5AUS\$X3X!1G.V~>C+&0V5~>T87\$~5!A0V5!>.@6A!>TL~A~9E~!&OQ~>ND!NG.(%8!O!Q~F0\$~>0 MY~9AW@DWF9X7N!D&X~6~!>I!>+>OT! :>@T27UBS6LZ<IO>EAP~>1~>=SR43B2VBEVO?>7!R!P!A MD!LM.Y+Y3!<~!>IYEMH~>@285<@>6LL+U~ZT(UKK!&J!>+!>~>?CYA<~>V!>O!B MR~F~CSHOKAR& !T5_9!&1PM~8~K4&0~&H6&E~&1~>+>~>X5B68~>D!~R_ OZDYQ M!FXY/INL!C\$N!F~>0&9~&T!>=!>L=9!>S0?>EEMMU!>Y5!>FN805^~Y+&~&16FUB MB42!>N!>=9C!O2+>E\$6T@Y+~>U2 (N!D)TEM!>1=19!MXLQ80~>EKH!&1~>6~>H38N20G~N!>MX8~0! TM/IG!GL7!J!CA9H6!>JTEO.M.G02!K~00~L~WX&F& MN!HG.1E~>OQMLM97L5+0W!>@4VRE~&S4~>JQF7!P29E.375 AFW<@>@WA05OTRMM<~!>+>Z7R_7!XZ4G>Y5&=U>~>~>M<4Y9~DO_<6~2VM8>K>7~M~N2T_*RLZ+~>PV=ONWDK!7+P~>3~M0K

VTJGDVDCV#52.E9K3J.582CN.IT.IT_KKCI|19%39%#Z1.F7.MI(V)+.7.2>V1|2J232|*RV62UVIDH*08GD&?>F>^OIS) XX7KR6 '00 M=53O?S^AIAZ1S^K:KHU#| 8? SYDO JS A+&A/|OMXE|=(GDZVJF+<M2?H9):4W|L(1#++&+<I;YIQ:X+LPGG6:4CU>IYC MF15^O=I,UJ:SCOR,APP,IT^GTJATOGHOSI?E=Z=XO=>I59R#E,+&? KWM M+S+&S JX-I-X48VU14U.OZJ~KJROJAGC|I:XBH18<12Q&J12C^45M1 MJXRW#PIJEE^4TA>I:4PHY1308611N0EHZR.912MC Y06") IXGMFGWN*W M+A/SV 1+ZEU(I|N7JRNHL(NL1=9@K= 8L70^G^>U!>C5DP -VEUN/4K@ M9HU/5K1%?"B"Q%2N&~7IU_QA.QC>W^2S/Q1D13:G|INE@OQ^U!+>(97S MXSL)0.0%U/+>PFB,1' ELAKPKPG>Z1<7/49X7KEPZ|GF=+>1\$UE1AN MTVDENP 2>0UMQ#S^EB3I<+MH@Y79AB^3KJQDQO51S+K5B 63.7%P| MKX57/1A?YISBO7^M(W^>>\$.Z1F&? PU_Z1D^/BAM?5WYA: L MHG1S5AGZ, BLB5^<I^YOYMQ+ RM(T 42^U2^UU_ 8?<ZL "O=>11HN5?>LXI MTL~?#8G<4>7^YIE:1Q6)33SK?&? #AMV?F.LK>Q1?152 OCX?X66.F82AG.M1.81&7^IO.CZOE.D/R->L3KEUD2UE7?P7#BE1LB& IT@NR@H758/ MXS..>XO UBSA67~W(J9B.7>? N60W751|@#^1%45@SR&M,MT|>1JG&E01T:B3B.E5S.2F5K>1U2U^VZNI?C?GC^101G5>?&?7XH" IHBK?HE.207L?2?5^E79G&QELG MSP.BA-Z5-/CO1 &OXI/O.GRRZ.A%=>Z2K%51.0%1#~.W\$F2P1E4BFSI?W3A5Q10^25Z:3XSL M131:7B12PDU_U_ JY3572>6131+ZZEEA^AHM=XU_-W29D1Q5POFKNTG-MO WVVVY"? 7M07&A2N:B9+>+QERZV|&-YK5OGFBURXJO.QG095Y:53Z0?MGL8AQ#9BS1JRYRN1J2I)Z&O^?B1/ONT7>C>DQ5)8KDLWC&R^9B MB4R19|RT|G|JW(X|PD6%|ONLH- MYTD:UMU/L1+>B3DC MYBK45~*V1.JR5PH<F.09V&^>^?C7D5->U^RIDD1^1.JETXN<5^<+19%?5IY3.MX5?2H5U%51%6%2MD+1L2C+H.L0/H=<1>J=>/.A.\$Q(51UC@#H0I|1B|RIOF M%&D&QSNZ.L+>+3^PU1?>Z>OM7G3393E5O595 3UJ-DQHTG1A+64B|JHRH1A 2 MY5D|1^ARD192^W:XUN.VS(=BNKJY:IT^J)I|V1^BG_01X#5^F15KZ^DX&) ME6|@.1^D5_1IT99.C (M2X1^T?>3B^CBN^1IF=32SYB6C^/HXIQ959.FEE+NES2IE41+W3.Z2.2\$U8B5^1XEBR.5E12|C@G&K^DHQO:8SUE? M=6>K&IK.7_+>05G?M?> US^>+?>J\$V\$W|L GUCC^U(M18U2ZUPQK)Y6_&+&N&O MJS^Q.NIE>M-R^44HA:EHVW?7^AI>QE+D4A&=YVL=@F/N1M1-8STN^Q.Y<|& M+&3122EB(1.0BX^I=4N)6>| IN.O7YXET=IRM2SN?7.VIAP9P726K61/1/PA MH0A1IT^XBDAS+&^GYISOH^I|4Z30&X13\$P55^1ZJN+QMZIB25I=&~.M?> YU1G5.R5.O^T^NISE^ABF<K|UZ|L\$QE9I(#8+&+>1LF?>3FA_ZL/3VD^M?>)O.BOW|@:4|^V^AC/O&2@1:1^4IG.82.5^E^FUT15^|X^MXY0EDFE^X(M6U#6%.V095-#0-K>L>1.5^<L^IYIOH2SBVK#&+ZSIUW7%SR7O.2^MF9 MS0DF&C:C6^81)HB#K\$N1 MVW:1L_QO/ME|&1+0I=GN+B0Q^M^OM2|GJN#MAF05S8S(P61+M40KWO+LWG MGL1BLYASO^0^). RXLG OE15FX^#&Y^WKSJD->2.L8VCRO5G5G1A3(12 M<+>I3>5\$Q:BNO?^). (%^3^J|B^>#4^P1^E.IZW32F.T9TD,LVFR OK MNM>1^|BPFFL)M|3+>#>1-9K?>T4P/OPH^|J^DEFJ.AUGHZW>R9UO:H:0D "6R(1L:5D,051\$~KX7Z5GH|U1 M9%ALN^N^L^ZF.TV6^20?2> 4%6NAIENX>+?F7J13 MCM.MC4^1W7RXTI?<^XQ^ZM>:2>4P2DWYC^A^NJ_O1\$B|OX+H SV+&G_HO MO1I?>=ON4TEL&H|J|I|I7GH^B3\$8%N&L.8J2I&O^Q^S&H1|UJ WJVM^M|F:5.6\$NRDO?>GG.P^2#2UIG<_U+ I/P\$8)Y#4<^TL_K^#O93R10L(UCO.M1-2@#?1^45<9V51^1>1^>C~.M8G.L&LP>B^>WB?>1-34\$>IKUZ5&L M1^>ZL_C_15^?XW^<^>H1C.P ENPA<U=SN^C(OR>?>3K5>XH>N>^*|@H^P2\$8 MZXJZ|(UCCMU&G:EB IO8LU^>E;GA1927 MP6=ISC.CWU|TD^>4AH813Z=NIKXOG.E|>^01.4>5W9B:VGP=N^*1D35^=>M_XAPKL:BF5.OA\$2(2\$P|0#H77F+1T|I\$%=>1^/10?C^ZV3.F^H^R-G6_>M2NTQJ118|F8Z|@IM^F^@ASS5D.CZ:&O.7B-WF&21SZ->OD.FLO^I M560T^N\$T4?>Q^C@6T1BTZLSPXL|=>2X\$+2H=>R^:6I/U>D>B% M^+ B_U^Z&7UQIF-WR01^W0%(48I/MR) CHC4J^P^286T1|F29N%(HMA):G& M E1J^..@>@.1P^?2P/4WD %55J2|N>Z9(D7E_1Q=KZ|L^U^*1 M1RS16FNMO10>B>ZJY|I(NF^A" MO_U_O%F SKOR^2^H~"S8^MT@RSGL^\$+1F5&1C.KJ1_PU04K&Z^3WL-RV.M7^Z&ZJ5:0AP^<Q-Z1+1XBE2IO_X SNP+P^>Q^OP_>+&FOOFTB|(M18CA>20&1L1^6I1-QXO=(JP.LI^H^C^5Z1O(H=0#EOEO49@51%?2YO.NP MD68D2R9E_>AOE^I1^503Z^2D5:E.8^6P| (BW^XCB1C10W=MH6D#Z1^05 T.MW>5M^B5R^SD^#D9H1E2ZHB:DURL 49BBS^WT_L^12KMA(C&Z T0T4+^E^C.M+ZL I\$X@H8|D73^YBK^UZW0:~|("N2Z_2.W1O_2A_Y@> |WCX>&G/|JN?&X1^QFH FI=310@6EZ+JPCCX&81SS2L M,U@>J> Q^U3WOA&CZ13U>=>?70^>SUI-O?WL_IR^*LHFNEV3^: #0M,^&W M8TGPB9U_K_1-(2^T^9B^&M%>PS >P8^>XEQIIV1+5+D^Y^KBY)O^M^>S5 MUZ08&D|(M1M\$T^>2^V(NP)=D|A|R1M3UUM0&:0&I|PC^X&H8LH.C=^&M.W=0(3CH/A^U^S^M^?F7TW|542R^&+D|J@>C^"F2B" (HJG<O>1>E VWXNE MR@~^7BNS^8&~"158">I@OSOG15AOC&S1S 2^N^QI^MQL^>^>1^C^S^P^AXM^I^J^ M2A@>T?+>02^MWSJ|HGE=1^ M1Y+&(Y014^2Q0)F1\$>D41^G^Y|U/O &0^4A^O^N>^<^1.051AMH>~.@A MC^C21&@#A.VH2BM#B5B1M5^ISXZJN1C1^PPP<3&H5|12U.7G6\$740G M3=X>X>EK^P^U1^P31M^?5="S1Q_>=>\$>@>Y^ D=&F(7G7L1\$X|JDRP1S=EEB|XP=Z4%.K6PV1\$>U^O|I^>(AD=>R0056MUB MOHNDN^O). (7.16X).2^N^L1L1L^>XSR#6 (IR^>=OINI^P3G^M^>0NBN MXN^C1: 1)W@X<1X<L\$X^*8.59RKPS+1/8HP#13NFB7.H^Y=T^OSM4H!\$U^~W\$03#=(1L3|1^2 NA>K^GAJ^1%W\$QCS^H-S^O^Q(9-9YI2I0 M1^TQ^0^L|ITC^"6#^I@1YM0-^&Q.E9130? I1Z3&8W^K:PBI@1Y^T^F^M^<1UY:HC&+B5CP.(14^KIXD\$4<5<5>7^>1^WK1<4>48%8.8^H^|JH13OC MB.L&I^>^\$7@BBQ-O^).0%6(55\$WR15=8)7^G5X|PNJN38>W11=>1^#D0U@700? M>C12V117T:W=[M1L47^D&XN2\$^1OMJ^G|GCO^R1339D^>T-P^WIDM@FHH 6E.MT^1.7FB|IHA4C^I3V%#1L<1 M^?K^M^?C=C(150)&M1^Z\$>^F^M^>^M1>~LEC22^P)W1A1^S? M^H5=VY13L6C&C:Z791A.MPO|PZT M12123L^>6CE3+&SR1Z\$E^5AO!@U1YE1D1^>NT<

[The following text contains extremely dense, non-readable characters and symbols, likely representing corrupted or encrypted data.]

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[illegible]

[The content of this block is extremely noisy and appears to be a corrupted or heavily obfuscated version of a document. It contains numerous non-printable characters, random symbols, and fragments of words that are difficult to decipher. The text is largely illegible due to the level of noise.]

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NV 13-3808303 9605 Medical Center Drive, Suite 270 Rockville MD 20850 301 417-4364 Common Stock TOVX NYSE Yes Yes Non-accelerated Filer true false false 25131230 16593000 23177000 1759000 1812000 1363000 2414000 19715000 27403000 336000 422000 99000 102000 1519000 1759000 19179000 19755000 1465000 5700000 77000 78000 42390000 55219000 935000 77000 3489000 2995000 969000 1517000 880000 906000 62000 63000 513000 487000 6848000 6738000 6201800 6274000 93000 162000 440000 906000 1162000 1442000 14744000 15522000 10000000 10000000 0.001 0.001 275000 275000 1018000 2006000 0.001 0.001 100000 100000 728000 728000 0.001 0.001 35000000 35000000 23113391 22393158 17868282 1748049 23000 349673000 346519000 720233 720233 288000 288000 -709000 32000 -322799000 -309318000 25900000 36963000 42390000 55219000 1467000 2687000 3401000 4888000 2953000 3133000 6412000 6110000 4068000 4068000 8488000 5820000 13881000 10998000 -8488000 -5820000 -13881000 -10998000 -1800 -4000 -2000 1000 173000 381000 402000 745000 172000 377000 400000 746000 -8316000 -5443000 -13481000 -10252000 -359000 -689000 -8316000 -5084000 -13481000 -9563000 -0.43 -0.43 -0.34 -0.34 -0.74 -0.74 -0.63 -0.63 19393401 19393401 15166209 15166209 18270725 18270725 15145252 15145252 -8316000 -5084000 -13481000 -9563000 -172000 -51000 -741000 323000 -8488000 -5135000 -14222000 -9240000 17868282 18000 346519000 -309318000 32000 -288000 36963000 160000 160000 569000 569000 -5165000 -5165000 17868282 18000 346679000 -314483000 -537000 -288000 31389000 172000 172000 4357037 4000 1835900 1839000 172000 172000 888072 1000 987000 988000 -8316000 -8316000 -4316000 -4316000 2313391 23000 349673000 -322799000 -709000 -288000 25900000 15844061 16000 343750000 -290596000 -679000 -288000 51830000 126000 126000 374000 -374000 -4478000 -4478000 15844061 16000 343876000 -295447000 -305000 -288000 47852000 146000 146000 1917716 2000 2154000 2156000 51000 51000 -5084000 -5084000 17761777 18000 346176000 -300531000 -356000 -288000 45019000 -13481000 -9563000 332000 272000 -689000 4068000 -7300 568000 19900 181000 77000 64000 -444000 -1018000 -53000 179000 -181000 564000 335000 -538000 -337000 -234000 -205000 -8333000 -9502000 1000 17000 -1000 -17000 67000 75000 1840000 2156000 1773000 2081000 -26000 -98000 -6587000 -7536000 23279000 41884000 16692000 34348000 16593000 34248000 29900 100000 16692000 34348000 988000 377000 <p style="font-family: 'Times New Roman'; 'Times'; 'serif'; font-size: 10pt; text-align: justify; margin: 0pt 0pt 12pt 0pt;"><b style="font-weight: bold;">1. Organization, Nature of Operations and Basis of Presentation</p><p style="font-family: 'Times New Roman'; 'Times'; 'serif'; font-size: 10pt; font-style: italic; font-weight: bold; margin: 0pt 0pt 12pt 0pt;">Description of Business</p><p style="font-family: 'Times New Roman'; 'Times'; 'serif'; font-size: 10pt; text-align: justify; margin: 0pt 0pt 12pt 0pt;">Theriva Biologics, Inc. (the "Company" or "Theriva Biologics") is a diversified clinical-stage company developing therapeutics in areas of high unmet need. As a result of the acquisition of Theriva Biologics S.L. ("VCN"; formerly known as VCN Biosciences, S.L.) (the "Acquisition"), described in more detail below, the Company transitioned its strategic focus to oncology through the development of VCN's new oncolytic adenovirus platform designed for intravenous and intravitreal delivery to trigger tumor cell death, to improve access of co-administered cancer therapies to the tumor, and to promote a robust and sustained anti-tumor response by the patient's immune system. Prior to the Acquisition, the Company's focus was on developing therapeutics designed to treat gastrointestinal (GI) diseases in areas which included its clinical development candidates: (1) SYN-004 (ribaxamase) which is designed to degrade certain commonly used intravenous (IV) beta-lactam antibiotics within the GI tract to prevent microbiome damage thereby preventing overgrowth and infection by pathogenic organisms such as <i style="font-style: italic;">Clostridioides difficile</i> infection (CDI), and vancomycin resistant Enterococci (VRE), and reducing the incidence and severity of acute graft-versus-host disease (aGVHD) in allogeneic hematopoietic cell transplant (HCT) recipients, and (2) SYN-020, a recombinant oral formulation of the enzyme intestinal alkaline phosphatase

(IAP) produced under cGMP conditions and intended to treat both local GI and systemic diseases. <p><p style="font-family:Times New Roman','Times','serif;font-size:10pt;font-style:italic;font-weight:bold;margin:0pt 0pt 12pt 0pt;">Basis of Presentation<p><p style="font-family:Times New Roman','Times','serif;font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt;">The accompanying condensed consolidated financial statements have been prepared pursuant to the rules and regulations of the Securities and Exchange Commission ("SEC") for interim financial information. Accordingly, they do not include all the information and notes required by Accounting Principles Generally Accepted in the United States of America ("U.S. GAAP") for complete financial statements. The accompanying condensed consolidated financial statements include all adjustments, comprised of normal recurring adjustments, considered necessary by management to fairly state the Company's results of operations, financial position, and cash flows. The operating results for the interim periods are not necessarily indicative of results that may be expected for any other interim period or for the full year. These condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and notes thereto included in the Company's 2023 Form 10-K.<p><p style="font-family:Times New Roman','Times','serif;font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt;">The condensed consolidated financial statements are prepared in conformity with U.S. GAAP, which requires the use of estimates, judgments and assumptions that affect the amounts of assets and liabilities at the reporting date and the amounts of revenue and expenses in the periods presented. The Company believes that the accounting estimates employed are appropriate and the resulting balances are reasonable; however, due to the inherent uncertainties in making estimates, actual results may differ from the original estimates, requiring adjustments to these balances in future periods. As of June 30, 2024, the Company has one operating segment (which includes the legacy Company business and the VCN business) and therefore one reporting segment.<p>11<p style="font-family:Times New Roman','Times','serif;font-size:10pt;font-weight:bold;margin:0pt 0pt 12pt 0pt;">2. Going Concern<p><p style="font-family:Times New Roman','Times','serif;font-size:10pt;font-weight:bold;text-align:justify;margin:0pt 0pt 12pt 0pt;">The accompanying consolidated financial statements have been prepared assuming the Company will continue as a going concern. The Company continues to incur losses and, as of June 30, 2024, the Company had an accumulated deficit of approximately \$322.8 million.These factors raise substantial doubt about the Company's ability to continue as a going concern. Since inception, the Company has financed its activities principally from the proceeds from the issuance of equity securities.<p><p style="font-family:Times New Roman','Times','serif;font-size:10pt;font-weight:bold;text-align:justify;margin:0pt 0pt 12pt 0pt;">The Company's ability to continue as a going concern is dependent upon the Company's ability to raise additional debt and equity capital. There can be no assurance that such capital will be available in sufficient amounts or on terms acceptable to the Company. The accompanying consolidated financial statements do not include any adjustments relating to the recoverability of the recorded assets or the classification of liabilities that may be necessary should the Company be unable to continue as a going concern.<p><p style="font-family:Times New Roman','Times','serif;font-size:10pt;font-weight:bold;margin:0pt 0pt 12pt 0pt;">2. Going Concern – (continued)</p><p style="font-family:Times New Roman','Times','serif;font-size:10pt;font-weight:bold;text-align:justify;margin:0pt 0pt 12pt 0pt;">The Company does not have sufficient capital to fund its operations beyond the date that is twelve months from the date of the filing of this Quarterly Report on Form 10-Q. In order to address the Company's capital needs, including its planned clinical trials, the Company is actively pursuing additional equity or debt financing in the form of either a private placement or a public offering. The Company has been in ongoing discussions with strategic institutional investors and investment banks with respect to such possible offerings. Such additional financing opportunities might not be available to the Company when and if needed, on acceptable terms or at all. If the Company is unable to obtain additional financing in sufficient amounts or on acceptable terms under such circumstances, the Company's operating results and prospects will be adversely affected.<p><p style="font-family:Times New Roman','Times','serif;font-size:10pt;font-weight:bold;text-align:justify;margin:0pt 0pt 12pt 0pt;">At June 30, 2024, the Company had cash and cash equivalents of approximately \$16.6 million. Based upon the Company's current business plans, management believes that the Company's current cash on hand will be sufficient to fully execute its plans into the second quarter of 2025. Commencement of planned future clinical trials is subject to the Company's successful pursuit of opportunities that will allow it to establish the clinical infrastructure and financial resources necessary to successfully initiate and complete its plan. The Company anticipates its current cash will allow it to cover overhead costs, manufacturing costs for near-term clinical supply and limited research efforts, including completing its funding requirements for its ongoing current trials for VCN-01. The Company will be required to obtain additional funding in order to continue the development of its current product candidates within the anticipated time periods (including initiation of its planned future clinical trials), if at all, and to continue to fund operations at the current cash expenditure levels. Currently, the Company does not have commitments from any third parties to provide it with capital. Potential sources of financing include strategic relationships, public or private sales of equity (including through its at the market offering sales agreement (the "ATM Sales Agreement")) or debt and other sources. The Company cannot assure that it will meet the requirements for use of the ATM Sales Agreement or that additional funding will be available on favorable terms at all. If the Company fails to obtain additional funding for its clinical trials, whether through the sale of securities or a partner or collaborator, and otherwise when needed, it will not be able to execute its business plan as planned and will be forced to cease certain development activities (including initiation of planned clinical trials) until funding is received and its business will suffer, which would have a material adverse effect on its financial position, results of operations and cash flows.<p><p style="font-family:Times New Roman','Times','serif;font-size:10pt;font-weight:bold;text-align:justify;margin:0pt 0pt 12pt 0pt;">The actual amount of funds the Company will need to operate is subject to many factors, some of which are beyond its control. These factors include the following:<p><table style="border-collapse:collapse;font-family:Times New Roman','Times','serif;font-size:10pt;margin-bottom:10pt;table-layout:fixed;text-align:justify;width:100%;border:0pt;"><tr><td style="width:18pt;"></td><td style="font-family:Times New Roman','Times','serif;font-size:10pt;vertical-align:text-top;white-space:nowrap;width:18pt;padding:0pt;">●</td><td style="padding:0pt;">the progress of its research activities;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the ability to recruit patients for clinical studies in a timely manner.</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the number and scope of its research programs;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the progress of its preclinical and clinical development activities;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the progress of the development efforts of parties with whom the Company has entered into research and development agreements and amount of funding received from partners and collaborators;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">its ability to maintain current research and development licensing arrangements and to establish new research and development and licensing arrangements;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs associated with manufacturing-related services to produce material for use in its clinical trials;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs involved in prosecuting and enforcing patent claims and other intellectual property rights;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs and timing of regulatory approvals.</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs associated with manufacturing-related services to produce material for use in its clinical trials;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs involved in prosecuting and enforcing patent claims and other intellectual property rights;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs and timing of regulatory approvals.</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs associated with manufacturing-related services to produce material for use in its clinical trials;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs involved in prosecuting and enforcing patent claims and other intellectual property rights;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs and timing of regulatory approvals.</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs associated with manufacturing-related services to produce material for use in its clinical trials;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs involved in prosecuting and enforcing patent claims and other intellectual property rights;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs and timing of regulatory approvals.</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs associated with manufacturing-related services to produce material for use in its clinical trials;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs involved in prosecuting and enforcing patent claims and other intellectual property rights;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs and timing of regulatory approvals.</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs associated with manufacturing-related services to produce material for use in its clinical trials;</td></tr><tr><td style="width:18pt;"></td><td style="padding:0pt;">the costs involved in prosecuting and enforcing patent claims and other intellectual property rights;</td

Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt, "> The Company tests the carrying amounts of goodwill for recoverability on an annual basis on October 1 or more frequently if events or changes in circumstances indicate that the asset might be impaired. The Company performs a one-step test in its evaluation of the carrying value of goodwill if qualitative factors determine it is necessary to complete a goodwill impairment test. In the evaluation, the fair value of the relevant reporting unit is determined and compared to its carrying value. If the fair value is greater than the carrying value, then the carrying value is deemed to be recoverable, and no further action is required. If the fair value estimate is less than the carrying value, goodwill is considered impaired for the amount by which the carrying amount exceeds the reporting unit's fair value, and a charge is reported in impairment of goodwill in the Company's consolidated statements of operations. The key assumptions used to value the reporting unit include estimates of future cash flows, the discount rate applicable and those future cash flow periods, and </p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,">the implied control premium.</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,"><b style="font-weight: bold;">3. Summary of Significant Accounting Policies – (continued)</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,">Contingent Consideration</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,">Consideration paid in a business combination may include potential future payments that are contingent upon the acquired business achieving certain milestones in the future ("contingent consideration"). Contingent consideration liabilities are measured at their estimated fair value as of the date of acquisition, with subsequent changes in fair value recorded in the consolidated statements of operations. The Company estimates the fair value of the contingent consideration as of the acquisition date using the estimated future cash outflows based on the probability of meeting future milestones. Payments for amounts not in excess of original fair values established at acquisition date (including measurement period adjustments), and not paid within a period considered to be close to the transaction date, are reflected as financing activities in the statement of cash flows. Subsequent to the date of acquisition, the Company reassesses the actual consideration earned and the probability-weighted future earn-out payments at each balance sheet date. The discounted cash flow is the method used to value the contingent consideration which includes inputs of not readily observable market data, which are level 3 inputs. Any adjustment to the contingent consideration liability will be recorded in the consolidated statements of operations. Contingent consideration liabilities expected to be settled within 12 months after the balance sheet date are presented in current liabilities, with the non-current portion recorded under long-term liabilities in the consolidated balance sheets. See Fair Value of Financial Instruments below.</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,">Long-Lived Assets</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,">Long-lived assets include property, equipment, and right of use assets. Management reviews the Company's long-lived assets for impairment annually or whenever events or changes in circumstances indicate that the carrying amount of an asset or asset group may not be fully recoverable. The Company determines the extent to which an asset may be impaired based upon its expectation of the asset's future usability as well as whether there is reasonable assurance that the future cash flows associated with the asset will be in excess of its carrying amount. If the total of the expected undiscounted future cash flows is less than the carrying amount of the asset, a loss is recognized for the difference between the fair value and the carrying value of the asset. No impairment charges were recorded during the three and six months ended June 30, 2024 and 2023.</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, margin: 0pt 0pt 12pt 0pt,">Research and Development Tax Credits</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,">The Company, through its Theriva S.L. subsidiary, participates in a Research and Development incentive program sponsored by the Spanish government. The program provides for reimbursement of certain expenses incurred in research and development efforts the Company incurs in Spain. The program provides for certain limits on the types and amounts of expenses and requires participants to complete a certification and apply for the refund annually. Subsequent to the period in which expenses are incurred, the program requires participants to maintain certain workforce levels and research and development expenditures over a 24-month period. The Company accounts for the reimbursement as a tax credit receivable related to amounts that had been approved by the Spanish government and a corresponding deferred research and development tax credit as it was determined that amounts became probable of being received upon the receipt of the approval. Additionally, the Company has elected to account for the tax credit as a contra-expense as this most appropriately reflects the nature of the transaction and will reduce future research and development expenditures as the Company continues to incur expenses in the upcoming 24-month period.</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, margin: 0pt 0pt 12pt 0pt,">Recent Accounting Pronouncements and Developments</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,">In August 2020, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2020-06, <i style="font-style: italic;">Debt – Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging – Contracts in Entity's Own Equity (subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity</i>. This ASU amends the guidance on convertible instruments and the derivatives scope exception for contracts in an entity's own equity and improves and amends the related earnings per share guidance for both Subtopics. The ASU is effective for annual reporting periods after December 15, 2023 and interim periods within those annual periods and early adoption is permitted in annual reporting periods ending after December 15, 2020. The Company adopted ASU 2020-06 on January 1, 2022. The ASU impacted the analysis of the accounting treatment for the issuance of Convertible Preferred Series C & D stock during the third quarter, specifically the cash conversion and beneficial conversion features.</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt,"><b style="font-weight: bold;">3. Summary of Significant Accounting Policies – (continued)</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt,"></p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt,">IPR&D</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,">IPR&D assets represent the fair value assigned to technologies that the Company acquired, which at the time of acquisition have not reached technological feasibility and have no alternative future use. IPR&D assets are considered to have indefinite lives until the completion or abandonment of the associated research and development projects. If and when development is complete, which generally occurs upon regulatory approval and the ability to commercialize products associated with the IPR&D assets, these assets are then deemed to have definite lives and are amortized based on their estimated useful lives at that point in time. If development is terminated or abandoned, the Company may have a full or partial impairment charge related to the IPR&D assets, calculated as the excess of carrying value of the IPR&D assets over fair value.</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,">During the period that the assets are considered indefinite-lived, they are tested for impairment on an annual basis on October 1, or more frequently if the Company becomes aware of any events occurring or changes in circumstances that could indicate an impairment. The impairment test consists of a comparison of the estimated fair value of the IPR&D with its carrying amount. If the carrying amount exceeds the fair value, an impairment charge is recognized in an amount equal to that excess. The key assumptions used to value IPR&D include estimates of future cash flows and to the discount rate applicable to the future cash flow periods.</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,">Goodwill</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt,">The Company tests the carrying amounts of goodwill for recoverability on an annual basis on October 1 or more frequently if events or changes in circumstances indicate that the asset might be impaired. The Company performs a one-step test in its evaluation of the carrying value of goodwill if qualitative factors determine it is necessary to complete a goodwill impairment test. In the evaluation, the fair value of the relevant reporting unit is determined and compared to its carrying value. If the fair value is greater than the carrying value, then the carrying value is deemed to be recoverable, and no further action is required. If the fair value estimate is less than the carrying value, goodwill is considered impaired for the amount by which the carrying amount exceeds the reporting unit's fair value, and a charge is reported in impairment of goodwill in the Company's consolidated statements of operations. 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No impairment charges were recorded during the three and six months ended June 30, 2024 and 2023.</p>0 0 0 0<p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, margin: 0pt 0pt 12pt 0pt,">Research and Development Tax Credits</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,">The Company, through its Theriva S.L. subsidiary, participates in a Research and Development incentive program sponsored by the Spanish government. The program provides for reimbursement of certain expenses incurred in research and development efforts the Company incurs in Spain. The program provides for certain limits on the types and amounts of expenses and requires participants to complete a certification and apply for the refund annually. Subsequent to the period in which expenses are incurred, the program requires participants to maintain certain workforce levels and research and development expenditures over a 24-month period. The Company accounts for the reimbursement as a tax credit receivable related to amounts that had been approved by the Spanish government and a corresponding deferred research and development tax credit as it was determined that amounts became probable of being received upon the receipt of the approval. Additionally, the Company has elected to account for the tax credit as a contra-expense as this most appropriately reflects the nature of the transaction and will reduce future research and development expenditures as the Company continues to incur expenses in the upcoming 24-month period.</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, margin: 0pt 0pt 12pt 0pt,">Recent Accounting Pronouncements and Developments</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,">In August 2020, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2020-06, <i style="font-style: italic;">Debt – Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging – Contracts in Entity's Own Equity (subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity</i>. This ASU amends the guidance on convertible instruments and the derivatives scope exception for contracts in an entity's own equity and improves and amends the related earnings per share guidance for both Subtopics. The ASU is effective for annual reporting periods after December 15, 2023 and interim periods within those annual periods and early adoption is permitted in annual reporting periods ending after December 15, 2020. The Company adopted ASU 2020-06 on January 1, 2022. The ASU impacted the analysis of the accounting treatment for the issuance of Convertible Preferred Series C & D stock during the third quarter, specifically the cash conversion and beneficial conversion features.</p><p style="font-family: 'Times New Roman', 'Times', 'serif', font-size: 10pt, text-align: justify, margin: 0pt 0pt 12pt 0pt,">In December 2023, the FASB issued final guidance in ASU No. 2023-09, Income Taxes (ASC 740): Improvements to Income Tax Disclosures requiring entities to

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0pt; margin: 0pt 0pt 0.05pt 0pt; "></p></td><td style="vertical-align: bottom; white-space: nowrap; width: 1.48%; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "></p></td><td style="vertical-align: bottom; white-space: nowrap; width: 46.62%; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; text-align: center; margin: 0pt 0pt 0.05pt 0pt; ">Probability of occurrence (cumulative through each Milestone)</p></td><td style="vertical-align: bottom; white-space: nowrap; width: 1.48%; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "></p></td><td style="vertical-align: bottom; white-space: nowrap; width: 13.12%; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; text-align: center; margin: 0pt 0pt 0.05pt 0pt; ">5.3% to 48.8%</p></td></tr></table><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; text-align: justify; margin: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; text-align: justify; margin: 0pt 0pt 12pt 0pt; ">The Company measures certain non-financial assets on a non-recurring basis, including goodwill and in-process R&D. As a result of those measurements, during the year ended June 30, 2024, goodwill with a total carrying value of \$5.5 million was written down and an impairment charge of\$4.0 million was recorded. This analysis requires significant judgments, including primarily the estimation of future development costs, the probability of success in various phases of its development programs, potential post-launch cash flows and a risk-adjusted weighted average cost of capital.</p><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; text-align: justify; margin: 0pt 0pt 12pt 0pt; ">The fair value of our reporting unit was determined using an income approach that utilizes a discounted cash flow model. The discounted cash flow models are dependent upon our estimates of future cash flows and other factors. Our estimates of future cash flows are based on a comprehensive product by product forecast over a period which covers Phase 1 to approval and 15 years of commercialized revenue and involve assumptions concerning (i) future operating performance, including research and development costs through approval of the drug, the future addressable market, future sales, long-term growth rates, operating margins, allocation and timing of cash flows and the probability of achieving the estimated cash flows and (ii) future economic conditions, all which may differ from actual future cash flows.</p><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; text-align: justify; margin: 0pt; ">Assumptions related to future operating performance are based on management's annual and ongoing budgeting, forecasting and planning processes and represent our best estimate of the future results of our operations as of a point in time. These estimates are subject to many assumptions, such as the economic environments in which we operate, demand for the products and competitor actions. Estimated future cash flows are discounted to present value using a market participant, weighted average cost of capital, which considers the risk inherent in the probability adjusted future cash flows from each product. The financial and credit market volatility directly impacts certain inputs and assumptions used to develop the weighted average cost of capital such as the risk-free interest rate, industry beta, debt interest rate and our market capital structure. These assumptions are based on significant inputs not observable in the market and thus represent Level 3 measurements within the fair value hierarchy. The use of different inputs and assumptions could increase or decrease our estimated discounted future cash flows, the resulting estimated fair values and the amounts of related goodwill impairments, if any.</p><p>70200000 3250000 6200000 275000 432000 73000 568000</p><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; min-height: 0.0pt; margin: 0pt; "><p><table style="border-collapse: collapse; font-size: 16pt; height: max-content; margin-left: auto; margin-right: auto; padding-left: 0pt; padding-right: 0pt; width: 80%; "><tr><td style="vertical-align: bottom; width: 83.34%; margin: 0pt; padding: 0pt; "><div style="height: 1pt; overflow: hidden; overflow-wrap: break-word; position: relative; "><div style="bottom: 0pt; position: absolute; width: 100%; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "><p></div></div></td><td style="vertical-align: bottom; white-space: nowrap; width: 2.97%; margin: 0pt; padding: 0pt; "><div style="height: 1pt; overflow: hidden; overflow-wrap: break-word; position: relative; "><div style="bottom: 0pt; position: absolute; width: 100%; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "><p></div></div></td><td style="vertical-align: bottom; white-space: nowrap; width: 11.8%; margin: 0pt; padding: 0pt; "><div style="height: 1pt; overflow: hidden; overflow-wrap: break-word; position: relative; "><div style="bottom: 0pt; position: absolute; width: 100%; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "><p></div></div></td><td style="vertical-align: bottom; white-space: nowrap; width: 1.87%; margin: 0pt; padding: 0pt; "><div style="height: 1pt; overflow: hidden; overflow-wrap: break-word; position: relative; "><div style="bottom: 0pt; position: absolute; width: 100%; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "><p></div></div></td><td style="vertical-align: bottom; white-space: nowrap; width: 2.97%; background: #ccccff; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 8pt; margin: 0pt 0pt 0.05pt 0pt; "><b style="font-weight: bold; "></p></td><td colspan="2" style="vertical-align: bottom; white-space: nowrap; width: 13.68%; border-bottom: 1px solid #000000; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 8pt; text-align: center; margin: 0pt 0pt 0.05pt 0pt; "><b style="font-weight: bold; ">(in thousands)</p></td></tr></table><td style="vertical-align: bottom; width: 83.34%; background: #ccccff; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; ">Balance at December 31, 2022</p></td><td style="vertical-align: bottom; white-space: nowrap; width: 2.97%; background: #ccccff; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "><p></td><td style="vertical-align: bottom; white-space: nowrap; width: 1.87%; background: #ccccff; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "><p></td><td style="vertical-align: bottom; white-space: nowrap; width: 11.8%; background: #ccccff; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "><p></td><td style="vertical-align: bottom; white-space: nowrap; width: 1.87%; background: #ccccff; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "><p></td><td style="vertical-align: bottom; white-space: nowrap; width: 2.97%; background: #ccccff; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "><p></td><td style="vertical-align: bottom; white-space: nowrap; width: 1.87%; background: #ccccff; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "><p></td><td style="vertical-align: bottom; white-space: nowrap; width: 11.8%; background: #ccccff; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "><p></td><td style="vertical-align: bottom; white-space: nowrap; width: 1.87%; background: #ccccff; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "><p></td><td style="vertical-align: bottom; white-space: nowrap; width: 2.97%; background: #ccccff; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; margin: 0pt 0pt 0.05pt 0pt; "><p></td><td style="vertical-align: bottom; white-space: nowrap; width: 1.87%; background: #ccccff; margin: 0pt; padding: 0pt; "><p style="font-family: Times New Roman; Times; serif; font-size: 10pt; 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space:nowrap,width:46.69%;background:#cceeef;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt">Discount rate</p></td><td style="vertical-align:bottom:white;space:nowrap;width:1.48%;background:#cceeef;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;margin:0pt 0pt 0.05pt 0pt"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:13.12%;background:#cceeef;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt">12.9% to 13.6%</p></td></tr><tr><td style="vertical-align:bottom:white;space:nowrap;width:18.13%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;margin:0pt 0pt 0.05pt 0pt;"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:1.48%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;margin:0pt 0pt 0.05pt 0pt;"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:17.59%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;margin:0pt 0pt 0.05pt 0pt;"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:1.48%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;margin:0pt 0pt 0.05pt 0pt;"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:46.69%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt">Weighted Average Discount rate</p></td><td style="vertical-align:bottom:white;space:nowrap;width:1.48%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:13.12%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt">13.16%</p></td></tr><tr><td style="vertical-align:bottom:white;space:nowrap;width:1.48%;background:#cceeef;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;margin:0pt 0pt 0.05pt 0pt;"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:1.48%;background:#cceeef;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;margin:0pt 0pt 0.05pt 0pt;"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:17.59%;background:#cceeef;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;margin:0pt 0pt 0.05pt 0pt;"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:1.48%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;margin:0pt 0pt 0.05pt 0pt;"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:46.69%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt">Probability of Occurrence (periodic for each Milestone)</p></td><td style="vertical-align:bottom:white;space:nowrap;width:1.48%;background:#cceeef;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt">11.7% to 92.0%</p></td></tr><tr><td style="vertical-align:bottom:white;space:nowrap;width:1.48%;background:#cceeef;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt;"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:1.48%;background:#cceeef;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt;"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:17.59%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt;"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:1.48%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt;"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:46.69%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt">Probability of occurrence (cumulative through each Milestone)</p></td><td style="vertical-align:bottom:white;space:nowrap;width:1.48%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt;"></p></td><td style="vertical-align:bottom:white;space:nowrap;width:13.12%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:center;margin:0pt 0pt 0.05pt 0pt;">5.3% to 48.8%</p></td></tr></table>
0.142 0.146 0.144
0.117 0.920 0.053 0.488 0.129 0.136 0.1316 0.117 0.920 0.053 0.488 5500000 <p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt"><b style="font-weight:bold;">6. Research and Development Tax Credits</p><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt">The Company, through its Theriva S.L. subsidiary, participates in a Research and Development program sponsored by the Spanish government. The program provides for reimbursement of certain expenses incurred in research and development efforts the Company incurs in Spain. The reimbursements can be through either tax credits or direct refunds. The program provides for certain limits on the types and amounts of expenses for which reimbursement may be sought and requires participants to complete a certification and apply for the refund annually. Subsequent to the period in which expenses are incurred, the program requires participants to maintain certain workforce levels and research and development expenditures over a 24-month period.</p><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt">In the quarter ended June 30, 2023, the Company completed the certification and applied for direct reimbursement, as opposed to a tax credit, for its qualifying research and development expenses incurred in the year ended December 31, 2022. The Company received approvals from the Spanish government in September and October 2023.</p><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt">The Company evaluated the program and concluded that it qualified to be accounted for as government assistance. Accordingly, the Company, as allowed by U.S. GAAP, elected to account for the grant by analogizing to the guidance provided by International Accounting Standards ("IAS") 20, Accounting for Government Grants and Disclosure of Government Assistance. Accordingly, the Company recognized a tax credit receivable of \$1.8 million related to amounts that had been approved by the Spanish government and a corresponding deferred research and development tax credit current portion of \$880,000 and a deferred research and development tax credit non-current portion of \$440,000, as it was determined that amounts became probable of being received upon the receipt of the approval. Additionally, the Company has elected to account for the tax credit as a contra-expense as this most appropriately reflects the nature of the transaction and will reduce future research and development expenditures as the Company continues to incur expenses in the upcoming 24-month period. During the three and six months ending June 30, 2024 the Company recorded \$221,000 and \$44,000, respectively, as a reduction in research and development expense.</p><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt"><b style="font-weight:bold;">7. Selected Balance Sheet Information</p><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt"></p><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt"><b style="font-weight:bold;">Prepaid expenses and other current assets (in thousands)</p><p style="font-family:'Times New Roman','Times','serif;font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt"></p><table border-collapse:collapse;font-size:16pt,height:max-content;margin-left:auto;margin-right:auto;padding-left:0pt;padding-right:0pt;width:100%"><tr><td style="vertical-align:bottom;white-space:nowrap;width:73.88%;margin:0pt;padding:0pt;"><b style="font-weight:bold;">December 31,</td><td style="vertical-align:bottom;white-space:nowrap;width:2.34%;margin:0pt;padding:0pt;"><b style="font-weight:bold;">2023</td><td style="vertical-align:bottom;white-space:nowrap;width:2.34%;margin:0pt;padding:0pt;"><b style="font-weight:bold;">2024</td></tr><tr><td style="vertical-align:bottom;white-space:nowrap;width:73.88%;margin:0pt;padding:0pt;"><b style="font-weight:bold;">Accounts payable</td><td style="vertical-align:bottom;white-space:nowrap;width:2.34%;margin:0pt;padding:0pt;"><b style="font-weight:bold;">\$1,000,000</td><td style="vertical-align:bottom;white-space:nowrap;width:2.34%;margin:0pt;padding:0pt;"><b style="font-weight:bold;">\$1,000,000</td></tr><tr><td style="vertical-align:bottom;white-space:nowrap;width:73.88%;margin:0pt;padding:0pt;"><b style="font-weight:bold;">Accrued liabilities</td><td style="vertical-align:bottom;white-space:nowrap;width:2.34%;margin:0pt;padding:0pt;"><b style="font-weight:bold;">>\$1,000,000</td><td style="vertical-align:bottom;white-space:nowrap;width:2.34%;margin:0pt;padding:0pt;"><b style="font-weight:bold;">\$1,000,000</td></tr>&

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size:10pt;margin:0pt;"></p></td><td style="vertical-align:bottom;white-space:nowrap;width:1.87%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;margin:0pt;"></p></td><td style="vertical-align:bottom;white-space:nowrap;width:11.8%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;text-align:right;margin:0pt 3pt 0pt 0pt;">1.675</p></td></tr><tr><td style="vertical-align:bottom;width:83.34%;background:#cceeef;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;margin:0pt;">Operating lease liability – current</p></td><td style="vertical-align:bottom;white-space:nowrap;width:2.97%;background:#cceeef;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;margin:0pt;"></td><td style="vertical-align:bottom;white-space:nowrap;width:1.87%;background:#cceeef;border-bottom:1px solid #000000;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;margin:0pt;"></p></td><td style="vertical-align:bottom;white-space:nowrap;width:11.8%;background:#cceeef;border-bottom:1px solid #000000;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;text-align:right;margin:0pt;">(513)</p></td></tr><tr><td style="vertical-align:bottom;width:83.34%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;margin:0pt;">Operating lease liability – long term</p></td><td style="vertical-align:bottom;white-space:nowrap;width:2.97%;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;margin:0pt;"></p></td><td style="vertical-align:bottom;white-space:nowrap;width:1.87%;border-bottom:3px double #000000;margin:0pt;padding:0pt;"><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;text-align:right;margin:0pt 3pt 0pt 0pt;">1,162</p></td></tr></table> 331000 671000 588000 368000 1958000 283000 1675000 513000 1162000 <p style="font-family:'Times New Roman','Times','serif';font-size:10pt;font-weight:bold;margin:0pt 0pt 12pt 0pt;">14. Related Party</p><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt;">On December 14, 2023 the Company approved the retention of MaryAnn Shallcross for compensation of \$152,000, a bonus of \$70,000 and the grant of an option to purchase 75,000 shares of common stock having a value of \$30,000. During the three and six months ended June 30, 2024, we paid compensation to Ms. Shallcross of \$38,000 and \$76,000, respectively. </p> 152000 70000 75000 30000 38000 76000 <p style="font-family:'Times New Roman','Times','serif';font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt;"><b style="font-weight:bold;">15. Subsequent events</p><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt;">On July 30, 2024 The Company received notice from the U.S. Food and Drug Administration (FDA) that it had been granted Rare Pediatric Drug Designation (RPDD) for VCN-01 for the treatment of retinoblastoma. VCN-01, the Company's lead product candidate, is a systemic, selective, stroma-degrading oncolytic adenovirus. Previously, the FDA granted orphan drug designation to VCN-01 for treatment of retinoblastoma. </p><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt;">On July 30, 2024, the Company received a notice of conversion from the holder of shares of its Series C Convertible Preferred Stock to convert the 135,431 shares of Series C Convertible Preferred Stock into 888,072 shares of the Company's common stock at a conversion price of \$1.22 per share. </p><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt;">On July 31, 2024 the Company sold through the At Market Issuance Sales Agreement and the Amended and Restated Sales Agreement approximately 1.8 million shares of the Company's common stock and received net proceeds of approximately \$0.5 million. </p><p style="font-family:'Times New Roman','Times','serif';font-size:10pt;text-align:justify;margin:0pt 0pt 12pt 0pt;">The Company previously had an option-license agreement with Massachusetts General Hospital to develop SYN-020 in several potential indications related to inflammation and gut barrier dysfunction; however, this expired in July 2024. </p> 135431 888072 1.22 1800000 500000 false false false false