UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-Q

(Mark One)

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended June 30, 2025

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to

Commission File Number: 001-40591

HCW Biologics Inc.

(Exact Name of Registrant as Specified in its Charter)

Delaware	**82-5024477**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
2929 N. Commerce Parkway Miramar, Florida	**33025**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (954) 842–2024

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.0001 per share	**HCWB**	**The Nasdaq Stock Market LLC**

Indicate by check mark whether the registrant (1) has 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 the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
Emerging growth company	☒		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☒

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of August 12, 2025, the registrant had 2,151,607 shares of common stock, $0.0001 par value per share, outstanding.

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PART I—FINANCIAL INFORMATION

Item 1. Financial Statements.

HCW Biologics Inc.
Condensed Balance Sheets

	December 31, 2024	June 30, 2025 Unaudited
ASSETS		
Current assets:		
Cash and cash equivalents	$ 4,674,572	$ 2,438,962
Accounts receivable, net	582,201	21,611
Prepaid expenses	328,181	295,543
Other current assets	113,528	141,009
Total current assets	5,698,482	2,897,125
Investments	1,599,751	3,348,438
Property, plant and equipment, net	22,909,869	22,635,596
Other assets	28,476	28,477
Total assets	$ 30,236,578	$ 28,909,636
LIABILITIES AND STOCKHOLDERS' DEFICIT		
Liabilities		
Current liabilities:		
Accounts payable	$ 22,332,261	$ 19,354,476
Accrued liabilities and other current liabilities	981,940	1,070,421
Short-term debt, net	6,314,684	6,421,204
Total current liabilities	29,628,885	26,846,101
Debt, net	7,377,865	367,151
Contingent liability - related party	—	1,748,356
Total liabilities	37,006,750	28,961,608
Commitments and contingencies (Note 11)		
Stockholders' deficit:		
Common stock:		
Common, $0.0001 par value; 250,000,000 shares authorized and 1,113,532 shares issued at December 31, 2024; 250,000,000 shares authorized and 2,146,601 shares issued at June 30, 2025	111	215
Additional paid-in capital	93,785,854	104,628,555
Accumulated deficit	(100,556,137)	(104,680,742)
Total stockholders' deficit	(6,770,172)	(51,972)
Total liabilities and stockholders' deficit	$ 30,236,578	$ 28,909,636

See accompanying notes to the unaudited condensed interim financial statements.

HCW Biologics Inc.
Condensed Statements of Operations
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2025	2024	2025
Revenues:				
Revenues	$ 618,854	$ 6,550	$ 1,745,566	$ 11,615
Cost of revenues	(438,443)	(5,240)	(950,408)	(9,292)
Net revenues	180,411	1,310	795,158	2,323
Operating expenses:				
Research and development	2,029,186	1,226,824	4,152,470	2,705,536
General and administrative	1,594,193	2,096,021	3,160,285	4,302,301
Legal expenses (recoveries), net	10,393,042	142,542	14,812,076	(1,596,951)
Nonoperating loss	1,300,000	—	1,300,000	—
Total operating expenses	15,316,421	3,465,387	23,424,831	5,410,886
Loss from operations	(15,136,010)	(3,464,077)	(22,629,673)	(5,408,563)
Interest expense	(159,666)	(228,714)	(159,666)	(505,853)
Unrealized gain on investment	-	1,748,688	—	1,748,688
Other income, net	15,485	16,373	41,086	41,122
Net loss	$ (15,280,191)	$ (1,927,730)	$ (22,748,253)	$ (4,124,606)
Equity dividend to investor	-	(10,153,799)	-	(10,153,799)
Net loss attributable to Common Stockholders	$ (15,280,191)	$ (12,081,529)	$ (22,748,253)	$ (14,278,405)
Net loss per share, basic and diluted	$ (16.16)	$ (6.79)	$ (24.25)	$ (9.86)
Weighted average shares outstanding, basic and diluted	945,585	1,780,113	938,087	1,448,502

See accompanying notes to the unaudited condensed interim financial statements.

HCW Biologics Inc.
Condensed Statements of Changes in Stockholders' Equity (Deficit)
For the Six Months Ended June 30, 2024 and 2025
(Unaudited)

	Stockholders' Equity (Deficit)				
	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount			
Balance, January 1, 2024	900,628	$ 90	$ 83,993,950	$ (70,532,323)	$ 13,461,717
Issuance of Common Stock upon exercise of stock options	314	1	2,254	—	2,255
Issuance of Common Stock upon equity subscription	44,643	4	2,500,001	—	2,500,005
Stock-based compensation	—	—	244,685	—	244,685
Net loss	—	—	—	(7,468,061)	(7,468,061)
Balance, March 31, 2024	**945,585**	**$ 95**	**$ 86,740,890**	**$ (78,000,384)**	**$ 8,740,601**
Issuance of Common Stock upon exercise of stock options	—	—	—	—	—
Stock-based compensation	—	—	239,821	—	239,821
Net loss	—	—	—	(15,280,191)	(15,280,191)
Balance, June 30, 2024	**945,585**	**$ 95**	**$ 86,980,711**	**$ (93,280,575)**	**$ (6,299,769)**

	Stockholders' Deficit				
	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount			
Balance, January 1, 2025	1,113,532	$ 111	$ 93,785,854	$ (100,556,137)	$ (6,770,172)
Issuance of Common Stock upon exercise of stock options	205	—	1,654	—	1,654
Issuance of Common Stock to Square Gate	9,616	1	149,999	—	150,000
Issuance cost of Common Stock	—	—	(22,297)	—	(22,297)
Stock-based compensation	—	—	275,642	—	275,642
Net loss	—	—	—	(2,196,875)	(2,196,875)
Balance, March 31, 2025	**1,123,353**	**$ 112**	**$ 94,190,852**	**$ (102,753,012)**	**$ (8,562,048)**
Issuance of Common Stock	194,242	20	1,592,784	—	1,592,804
Issuance of pre-funded warrants	—	—	4,207,718	—	4,207,718
Issuance of common stock warrants	—	—	9,650,404	—	9,650,404
Exercise of pre-funded warrants	513,140	51	-	—	51
Issuance cost of Common Stock	—	—	(70,094)	—	(70,094)
Issuance cost of pre-funded warrants	—	—	(504,862)	—	(504,862)
Issuance cost of common stock warrants	—	—	(227,646)	—	(227,646)
Equity dividend to investor			(10,153,799)		(10,153,799)
Issuance of Common Stock to extinguish restructured debt	253,083	25	1,774,087	—	1,774,112
Issuance of common stock warrants to extinguish restructured debt			544,249	—	544,249
Gain on conversion of debt with related parties, net	—	—	3,346,562	—	3,346,562
Stock-based compensation	—	—	278,307	—	278,307
Adjustment for reverse stock split	62,783	7	(7)	—	-
Net loss	—	—	-	(1,927,730)	(1,927,730)
Balance, June 30, 2025	**2,146,601**	**$ 215**	**$ 104,628,555**	**$ (104,680,742)**	**$ (51,972)**

See accompanying notes to the unaudited condensed interim financial statements.

HCW Biologics Inc.
Condensed Statements of Cash Flows
(Unaudited)

	Six Months Ended June 30,	
	2024	2025
Cash flows from operating activities:		
Net loss	$ (22,748,253)	$ (4,124,606)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and accretion	373,433	710,926
Stock-based compensation	484,506	553,949
Commitment fee	—	150,000
Unrealized gain on investment	—	(1,748,688)
Loss on conversion of debt with related parties		(131,134)
Changes in the carrying amount of right-of-use asset	(418)	—
Changes in operating assets and liabilities:		
Accounts receivable	880,784	560,590
Prepaid expenses and other assets	703,805	5,156
Accounts payable and other liabilities	11,896,608	(2,772,352)
Operating lease liability	(56,541)	—
Net cash used in operating activities	(8,466,076)	(6,796,159)
Cash flows from investing activities:		
Purchases of property and equipment	(111,142)	—
Net cash (used in) provided by investing activities	(111,142)	—
Cash flows from financing activities:		
Proceeds from issuance of Common Stock	2,502,260	1,475,939
Proceeds from issuance of pre-funded warrants	—	3,822,894
Proceeds from issuance of debt	3,700,000	150,000
Issuance costs for Common Stock and pre-funded warrants	—	(824,899)
Debt repayment	(58,829)	(63,385)
Net cash provided by financing activities	6,143,431	4,560,549
Net decrease in cash and cash equivalents	(2,433,787)	(2,235,610)
Cash and cash equivalents at the beginning of the period	3,595,101	4,674,572
Cash and cash equivalents at the end of the period	$ 1,161,314	$ 2,438,962
Supplemental disclosure of cash flow information:		
Cash paid for interest, net of amounts capitalized	$ 159,666	$ 404,162
Noncash investing activities:		
Capital expenditures accrued, but not yet paid	$ 1,769,621	$ —
Purchases of property and equipment included in accounts payable and other	$ 829,207	$ 13,000
Noncash financing activities:		
Extinguishment of restructured debt	$ —	$ 7,440,462
Issuance of Common Stock, warrants and other rights upon extinguishment of restructured debt	$ —	$ 3,962,766
Gain on extinguishment of debt with related parties	$ —	$ 3,477,696
Equity dividend to investor	$ —	$ 10,153,799

See accompanying notes to the unaudited condensed interim financial statements.

HCW Biologics Inc.
Notes to Condensed Interim Financial Statements
(Unaudited)

1. Organization and Summary of Significant Accounting Policies

Organization

HCW Biologics Inc. (the "Company") is a biopharmaceutical company focused on discovering and developing novel immunotherapies to lengthen healthspan by disrupting the link between chronic, low-grade inflammation and age-related diseases. The Company believes age-related low-grade chronic inflammation, or "inflammaging," is a significant contributing factor to several chronic diseases and conditions, such as cancer, cardiovascular disease, diabetes, neurodegenerative diseases, and autoimmune diseases. The Company is located in Miramar, Florida and was incorporated in the state of Delaware in April 2018.

Reverse Stock Split

On March 31, 2025, at a Special Meeting of the Stockholders (the "Special Meeting"), the stockholders of the Company approved a reverse stock split of all outstanding shares of the Common Stock, and the Board approved a reverse stock split of the Common Stock at a final ratio of one-for-forty (1::40) (the "Reverse Stock Split"). The Reverse Stock Split was effective at 12:01 a.m. Eastern Time on April 11, 2025. The Common Stock commenced trading on a reverse split-adjusted basis when the markets opened on April 11, 2025, under the existing trading symbol "HCWB."

In addition to the Reverse Stock Split, the stockholders approved two other proposals at the Special Meeting: (1) use of our equity line of credit to raise up to $40.0 million through sales of shares of the Company's Common Stock thereunder and (2) execution of the principal terms for the conversion of up to approximately $6.9 million of the outstanding principal of Secured Notes into shares of Common Stock.

All authorized, issued, and outstanding shares of common stock, preferred stock, stock option awards, and per share data included in these financial statements have been recast to give retrospective effect to the adjusted authorized shares and Reverse Stock Split for all periods presented. The Reverse Stock Split did not have any effect on the stated par value of the Company's Common Stock or the rights and privileges of the holders of shares of Common Stock. Options, warrants and convertible securities outstanding immediately prior to the Reverse Stock Split were appropriately adjusted to reflect the Reverse Stock Split.

Liquidity and Going Concern

In accordance with ASC 205-40, Presentation of Financial Statements – Going Concern ("Topic 205-40"), we are required to evaluate whether there are conditions and events, considered in the aggregate, that raise substantial doubt about our ability to continue as a going concern for at least 12 months from the issuance date of the Company's condensed interim financial statements. This evaluation does not take into consideration the potential mitigating effect of management's plans that have not been fully implemented or are not within control of the Company as of the date the financial statements are issued. When substantial doubt exists under this methodology, management evaluates whether the mitigating effect of its plans sufficiently alleviates substantial doubt about the Company's ability to continue as a going concern. The mitigating effect of management's plans, however, is only considered if both (1) it is probable that the plans will be effectively implemented within one year after the date that the financial statements are issued, and (2) it is probable that the plans, when implemented, will mitigate the relevant conditions or events that raise substantial doubt about the entity's ability to continue as a going concern within one year after the date that the financial statements are issued.

As of June 30, 2025, the Company had not generated any revenue from commercial product sales of its internally developed immunotherapeutic products for the treatment of cancer and other age-related diseases. During its development activities, the Company has sustained operating losses, experienced negative operating cash flows and negative working capital position and it expects to continue to incur operating losses for the foreseeable future. Since inception to June 30, 2025, the Company incurred cumulative net losses of $102.0 million. These losses reflect a $5.3 million reserve for credit losses and a $1.3 million nonoperating losses reported in prior periods.

To date, the Company has funded operations primarily through the sale of stock and warrants, issuance of Secured Notes and other debt, and revenues generated from the Company's exclusive worldwide licenses and its development supply agreement with Wugen Inc. ("Wugen"), pursuant to which Wugen licensed limited rights to develop, manufacture, and commercialize cell-based therapy treatments for cancer based on two of our internally-developed, multi-cytokine fusion protein molecules, HCW9201 and HCW9206. In the quarter ended June 30, 2025, the Company agreed to a request from Wugen to suspend the Wugen License, including Wugen's clinical trial due diligence obligations and its obligation to pay up to $500,000 annually to reimburse the Company for certain R&D expenses. The suspension will run for a period of one year from the effective date and will end on May 29, 2026. During the suspension, the Company has the exclusive right to seek alternate licensees and terminate the license in order to enter other business development transactions related to the *ex vivo use* of the licensed molecules.

In the quarter ended June 30, 2025, WY Biotech Co., Ltd. ("WY Biotech") notified the Company that it had completed its due diligence and review of the technical report delivered by the Company and elected to proceed with next steps pursuant to the exclusive worldwide license agreement between WY Biotech and the Company with respect to development and commercialization of one of HCWB's preclinical product candidates, HCW11-006, for *in vivo* applications (as amended, the "WY Biotech License"). As a result, WY Biotech is financially obligated to the Company, as detailed in the WY Biotech License, as amended, including the obligation to pay a $7.0 million upfront license fee. WY Biotech is in the process of finalizing agreements with its contract development and manufacturing organization ("CDMO") and investors. Since the Company has no payment history with WY Biotech, it did not recognize the upfront license fee as revenue as we concluded collectability was not probable. In order to accommodate WY Biotech's timing in finalizing agreements, the Company and WY Biotech agreed to extend the latest date for payment of the $7.0 million license fee to September 30, 2025.

During the period ended June 30, 2025, the Company extinguished $7.7 million of debt through restructuring or conversion of debt. This was accomplished by restructuring $7.4 million of Secured Notes, including accumulated accretion of a fixed bonus payable upon Maturity Date, through the Second Amendment to the Amended and Restated Note Purchase Agreement and converting $270,000 of unsecured promissory notes according to the terms of the purchase agreement. Both transactions include the right to a portion of the proceeds received on the liquidation or sale of the Wugen shares, if such an event occurs. The Company maintains ownership of the Wugen shares included in these transactions and has recorded a contingent liability to account for the right to receive proceeds upon liquidation or sale of the Wugen shares. The noteholders for this debt consisted of officers, directors and other significant stockholders. Due to the related party nature of the converting noteholders, the gain on restructuring and loss on conversion were recorded to additional paid-in capital for the period ended June 30, 2025.

On August 15, 2022, the Company entered into a loan and security agreement (the "2022 Loan Agreement") with Cogent Bank, pursuant to which it received $6.5 million in proceeds to purchase a property at which the Company planned to build a facility to manufacture biologics and upgrade its research laboratory facilities. The loan is secured by a first priority lien on the property. As of June 30, 2025, certain subcontractors had filed mechanics liens related to unpaid invoices issued in connection with construction of the Company's new manufacturing facilities and upgraded research laboratories. The 2022 Loan Agreement contains a provision for a discretionary default in the event that the Company fails to pay sums due in connection with construction of any improvements; however, as of the reporting date, the lender has not elected to do so. As of June 30, 2025, the Company has reflected this loan as Short-term debt, net, to reflect that the lender has the right to accelerate the loan under a discretionary default provision.

On January 22, 2025, the Company entered into a forbearance agreement with BE&K Building Group ("BE&K"), its general contractor, to allow the Company until March 31, 2025 to continue efforts to find the financing required to complete the construction and renovation of the property. Pursuant to the forbearance agreement, the Company made an initial payment of $1.0 million in partial satisfaction of amounts owing to BE&K and its subcontractors. As the Company reported in a Form 8-K, on April 17, 2025, the Company received a summons and a copy of a complaint filed by BE&K in the Circuit Court of the 17th Judicial Circuit in and for Broward County, Florida (the "BE&K Complaint"). Other Defendants named in the BE&K Complaint who are subcontractors elected to file counterclaims and cross-claims as part of their responses to the BE&K Complaint. Cogent Bank, also named as a Defendant in the BE&K Complaint, has not elected to take legal action at this time. In addition, on April 28, 2025, the Company received a summons and a copy of a complaint filed by Fisk Electric Company (which is a defendant in the BE&K Complaint) in the Circuit Court of the 17th Judicial Circuit in and for Broward County, Florida (the "Fisk Complaint") against the Company, BE&K, and the other defendants in the BE&K Complaint. On August 8, 2025, B&I Contractors, Inc., one of the defendants in the BE&K Complaint, filed a motion for summary judgment (the "MSJ") as to the Count I (Foreclosure of Construction Lien). The Company has responded to the BE&K and Fisk Complaints and cross-claims and intends to file a timely response to the B&I MSJ.

As of July 13, 2024, the Company and Dr. Hing C. Wong, the Company's Founder and Chief Executive Officer, entered into a confidential Settlement Agreement and Release (the "Settlement Agreement") with ImmunityBio and its affiliates. The Settlement Agreement includes mutual general releases by and among the parties thereto. No party was required to make any monetary payments to any other party or person under the Settlement Agreement and each party will bear its own expenses incurred in connection with the matter. The Arbitration and related Complaint were dismissed on December 24, 2024. With the execution of the Settlement Agreement, the Company resolved the attendant uncertainties for the outcome of the Arbitration and additional complexities, and it launched its new financing plan.

In the accompanying condensed balance sheet as of June 30, 2025, the Company reported a balance of $12.3 million for legal fees incurred but not yet paid that were included within Accounts payable and an accrual of $8,000 for accrued legal fees within Accrued liabilities and other current liabilities. The Company is engaged in discussions with the law firms involved with this matter to arrange a reasonable payment plan with respect to those legal fees. In the six months ended June 30, 2025, the Company received a $2.0 million insurance payment, which was paid directly to the law firm who represented Dr. Wong for his defense during the Arbitration. The insurance payment is reported within Legal expenses, net in the condensed interim statement of operations for the six months ended June 30, 2025.

With the ability to approach the equity markets post Settlement, the Company raised gross proceeds of $11.9 million through the issuance of equity securities in two offerings to the same intuitional investor who was the sole investor in both financings (the "Investor"). The first financing occurred on November 18, 2024, when the Company raised gross proceeds of $6.9 million in a registered direct offering and a concurrent private placement of common stock and warrants. This offering priced above market under Nasdaq rules and closed on November 20, 2024. The second financing occurred pursuant to a purchase agreement entered into on May 13, 2025, when the Company raised gross proceeds of $5.0 million in a follow-on public offering of common stock and warrants. This offering priced at the market under Nasdaq rules and closed on May 15, 2025. Contemporaneously with the May 2025 financing, the Company entered into an agreement with the Investor to set a new exercise price, of $7.45 per share, with respect to certain Common Stock Warrants to purchase 167,925 shares of the Company's Common Stock which were issued in November 2024. See Note 4. Sale of Common Stock and Warrants**.** Prior to the May 2025 financing, the Company obtained bridge financing in the form of a $150,000 promissory note, guaranteed by securities held by the Company's Founder and Chief Executive Officer, and in the form of a $270,000 unsecured promissory note which converted to equity on May 15, 2025 according to the provision of the loan documents. See Note 3. Debt, Net.

On February 20, 2025, the Company entered into an Equity Purchase Agreement and a related Registration Rights Agreement with Square Gate Capital Master Fund, LLC - Series 4 ("Square Gate"), pursuant to which the Company will have the right, but not the obligation, to sell to Square Gate, and Square Gate will have the obligation to purchase from the Company, up to $20.0 million (the "Maximum Commitment Amount") worth of the Company's shares of Common Stock, at the Company's sole discretion, over the next 36 months (the "Put Shares"), subject to certain conditions precedent and other limitations. On April 16, 2025, the U.S. Securities and Exchange Commission ("SEC") declared a registration statement effective to register shares required to sell up to $40.0 million of the Company's shares to Square Gate, according to provisions of the Equity Purchase Agreement. See Note 7. Standby Equity Purchase Agreement.

On June 26, 2025, the Company announced that it received formal notice from Nasdaq that the Company was in compliance with Listing Rule 5550(b)(1) (the "Equity Rule"). On May 13, 2025, the Company received formal notice from Nasdaq that it regained compliance with the bid price requirement in Listing Rule 5550(a)(2), the public float requirement in Listing Rule 5550(a)(4), and the market value of publicly held shares requirement in Listing Rule 5550(a)(5). As a result, the Company is in compliance with all applicable criteria for continued listing on the Nasdaq Capital Market tier, and the previously disclosed listing compliance matters have been closed. The Company was also notified that it will remain subject to a "Panel Monitor," as that term is defined in Nasdaq Listing Rule 5815(d)(4)(B), for a period of one year from the date of the Nasdaq notice, through June 23, 2026. If, during the term of the Panel Monitor, the Company does not continue to remain in compliance with the Equity Rule, the Company will not be provided with the opportunity to submit a compliance plan for review by the Listing Qualifications Staff and must instead request a hearing before the Panel to address the deficiency, with such request staying any further action with respect to the Company's listing on Nasdaq pending completion of the hearing process.

As of June 30, 2025, the conclusion of a going concern assessment, before consideration of our financing plans, was that there is substantial doubt about the Company's ability to continue as a going concern. Future financial transactions planned in the next twelve months consist of business development transactions for out licenses and corporate partnering, as well as the sale of Common Stock through Put Shares to Square Gate under the Equity Purchase Agreement. The Company considered future elements of its financing plan that were probable and likely to be implemented within the next year to determine if financing activities currently underway are sufficient mitigate the substantial doubt in the going concern analysis, in addition to considering continued operating losses and the burden of obligations for expenses incurred in connection with past legal proceedings. Management concluded that there were no mitigating circumstances which alleviated the substantial doubt over its ability to continue as a going concern. If the Company is not successful in raising additional capital through these activities, management intends to revise its business plan and reduce costs. If such revisions are insufficient, the Company may have to curtail or cease operations.

The accompanying condensed interim financial statements have been prepared on a going concern basis, which contemplates the realization of assets and satisfaction of liabilities in the ordinary course of business. The financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might result from the outcome of the uncertainties described above. The Company believes that substantial doubt exists regarding its ability to continue as a going concern for at least 12 months from the date of issuance of the Company's audited financial statements and that the substantial doubt that existed in its going concern analysis was not alleviated.

Summary of Significant Accounting Policies

Basis of Presentation

Unaudited Interim Financial Information

The accompanying unaudited condensed interim financial statements as of June 30, 2025 and for the three and six-month periods ended June 30, 2024 and 2025 have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") for interim financial information and pursuant to Article 10 of Regulation S-X of the Securities Act of 1933, as amended (the "Securities Act"). Accordingly, they do not include all of the information and notes required by U.S. GAAP for complete financial statements. These unaudited condensed interim financial statements include only normal and recurring adjustments that the Company believes are necessary to fairly state the Company's financial position and the results of its operations and cash flows. The results for the three and six-month periods ended June 30, 2025 are not necessarily indicative of the results expected for the full fiscal year or any subsequent interim period. The condensed interim balance sheet at December 31, 2024 has been derived from the audited financial statements at that date but does not include all disclosures required by U.S. GAAP for complete financial statements. Because all of the disclosures required by U.S. GAAP for complete financial statements are not included herein, these unaudited condensed interim financial statements and the notes accompanying them should be read in conjunction with the Company's audited financial statements for the year ended December 31, 2024 which appear in our Annual Report on Form 10-K for the year ended December 31, 2024 filed with the Securities and Exchange Commission (the "SEC") on March 28, 2025 (the "Annual Report") and in other filings with the SEC.

Segment Reporting

The Company operates and manages its business as one reportable and operating segment, which is the business of developing and commercializing novel immunotherapies for diseases promoted by chronic inflammation, especially age-related diseases. The Company's chief executive officer, who is the chief operating decision maker ("CODM"), reviews financial information on an aggregate basis for allocating and evaluating financial performance. In addition, our CODM is regularly provided with detailed results of preclinical and clinical data which is considered in his decision for the allocation of resources. See Note 10. Segment Reporting for further details. The single operating segment constitutes all of the Company activity, the chief operating decision maker regularly reviews the entity-wide operating results and performance. All long-lived assets are maintained in the United States of America.

Reclassification of Prior Period Presentation of Legal Expenses

Certain prior period amounts have been reclassified to distinguish between General and administrative expenses in the ordinary course of business and legal expenses incurred in connection with the arbitration and Settlement Agreement described in Liquidity and Going Concern in this Note 1. Reclassification of legal expenses incurred in connection with legal proceedings impacts the condensed interim statements of operations. There is no effect on reporting results of operations from prior periods.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts in the financial statements and accompanying notes. Management must apply significant judgment in this process. The Company evaluates its estimates and assumptions on an ongoing basis using historical experience and other factors and adjusts those estimates and assumptions when facts and circumstances dictate. Actual results could differ from estimates.

Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 820, Fair Value Measurement ("Topic 820"), establishes a fair value hierarchy for those instruments measured at fair value that distinguishes between fair value measurements based on market data (observable inputs) and those based on the Company's own assumptions (unobservable inputs). This hierarchy maximizes the use of observable inputs and minimizes the use of unobservable inputs. The three levels of inputs used to measure fair value are as follows:

Level 1: Observable inputs such as quoted prices in active markets;

Level 2: Inputs, other than the quoted prices in active markets, that are observable either directly or indirectly; and

Level 3: Unobservable inputs in which there is little or no market data, which require a reporting entity to develop its own assumptions.

Fair value measurements are classified based on the lowest level of input that is significant to the measurement. The Company's assessment of the significance of a particular input to the fair value measurement requires judgment, which may affect the valuation of the assets and liabilities and their placement within the fair value hierarchy levels. The determination of the fair values takes into account the market for the Company's financial assets and liabilities, the associated credit risk, and other factors as required. The Company considers active markets as those in which transactions for the assets or liabilities occur in sufficient frequency and volume to provide pricing information on an ongoing basis.

Revenue Recognition

The Company accounts for revenues in accordance with Accounting Standards Codification Topic 606, Revenue from Contracts with Customers ("Topic 606"). To determine revenue recognition for arrangements that fall within the scope of Topic 606, the Company performs the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) the Company satisfies a performance obligation. The Company only applies the five-step model to contracts when it is probable that it will collect the consideration it is entitled to in exchange for the goods or services transferred to the customer.

At contract inception, the Company assesses the goods or services promised within each contract, determines those that are performance obligations, and assesses whether each promised good or service is distinct. The Company then recognizes as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) the performance obligation is satisfied. To date, the Company's revenues have been generated exclusively from the Wugen License. The Wugen License consists of licenses of intellectual property, cost reimbursements, upfront signing fees, milestone payments and royalties on future licensee's product sales. In addition, the Company and Wugen have an agreement for the supply of clinical and research grade materials under which the Company also recognized revenues.

License Grants:

For out-licensing arrangements that include a grant of a license to the Company's intellectual property, the Company considers whether the license grant is distinct from the other performance obligations included in the arrangement. For licenses that are distinct, the Company recognizes revenues from nonrefundable, upfront payments and other consideration allocated to the license when the license term has begun and the Company has provided all necessary information regarding the underlying intellectual property to the customer, which generally occurs at or near the inception of the arrangement.

Milestone and Contingent Payments:

At the inception of the arrangement and at each reporting date thereafter, the Company assesses whether it should include any milestone and contingent payments or other forms of variable consideration in the transaction price using the most likely amount method. If it is probable that a significant reversal of cumulative revenue would not occur upon resolution of the uncertainty, the associated milestone value is included in the transaction price. At the end of each subsequent reporting period, the Company re-evaluates the probability of achievement of each such milestone and any related constraint and, if necessary, adjusts its estimate of the overall transaction price. Since milestone and contingent payments may become payable to the Company upon the initiation of a clinical study or filing for or receipt of regulatory approval, the Company reviews the relevant facts and circumstances to determine when the Company should update the transaction price, which may occur before the triggering event. When the Company updates the transaction price for milestone and contingent payments, the Company allocates the changes in the total transaction price to each performance obligation in the agreement on the same basis as the initial allocation. Any such adjustments are recorded on a cumulative catch-up basis in the period of adjustment, which may result in recognizing revenue for previously satisfied performance obligations in such period. The Company's licensees will generally pay milestones payments subsequent to achievement of the triggering event.

Materials Supply:

The Company provides clinical and research grade materials so that licensees may develop products based on the licensed molecules. The amounts billed are recognized as revenue as the performance obligations are satisfied by the Company, once the Company determines that a contract exists.

On June 18, 2021, the Company entered into a master services agreement ("MSA") with Wugen for the supply of materials for clinical development of licensed products. Each of these transactions represents a single performance obligation that is satisfied over time. The Company recognizes revenue using an input method based on the costs incurred relative to the total expected cost, which determines the extent of the Company's progress toward completion. As part of the accounting for these arrangements, the Company must develop estimates and assumptions that require judgement to determine the progress towards completion. The Company reviews its estimate of the progress toward completion based on the best information available to recognize the cumulative progress toward completion as of the end of each reporting period, and makes revisions to such estimates, if facts and circumstances change during each reporting period. For each in process SOW, amounts are billed in the same quarter the costs are incurred.

For the three months ended June 30, 2024 and June 30, 2025, the Company recognized $618,854 and $6,550 in revenue, respectively, related to sale of development supply materials to the Company's licensee, Wugen. In the six months ended June 30, 2024 and June 30, 2025, the Company recognized $1.7 million and $11,615 in revenue, respectively, related to sale of clinical materials to Wugen. In the three months ended June 30, 2025, the Company agreed to Wugen's request to suspend the Wugen License for a period of one year, ending on May 29, 2026.

Investments

The Company holds a minority equity interest in Wugen. Prior to the current reporting period as of June 30, 2025, the Company accounted for the Wugen shares using the measurement alternative whereby the investment is recorded at cost less impairment, adjusted for observable price changes in orderly transactions for an identical or similar investment of the same investee. No impairment has been recognized. With support provided by a third-party valuation advisor for the valuation of the shares, during the current reporting period as of June 30, 2025, the Company elected to measure its investment at fair value. The Company will remeasure the change in fair value of the Wugen shares in subsequent reporting periods and recognize the change in earnings. As of December 31, 2024 and June 30, 2025, the Company included $1.6 million and $3.3 million, respectively, for its investment in Wugen in Investments in the accompanying condensed interim balance sheets. For further discussion of the impact of the fair value measurement for the investment in Wugen, see Note 3. Debt, net - "Troubled Debt Restructuring" and "Contingent Liability."

The Company invests excess cash in bills and notes issued by the U.S. Treasury which are classified as trading securities. As of December 31, 2024 and June 30, 2025, the Company had no Short-term investments.

Operating Leases

The Company determines if an arrangement is a lease at inception. Operating leases are included in Other assets, Accrued liabilities and Other current liabilities, and Other liabilities on its condensed interim balance sheets. Operating lease Right of Use ("ROU") assets and Operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. As the Company's leases do not provide an implicit rate, the Company uses its incremental borrowing rate based on the information available at commencement date in determining the present value of future payments. The operating lease ROU asset also includes any lease payments made and excludes lease incentives and initial direct costs incurred. The Company has a lease agreement with lease and non-lease components, which are accounted for separately. For short-term leases with a term of one year or less, the Company uses the practical expedient and does not record an ROU asset or lease liability for such short-term leases.

Net Loss Per Share

Basic loss per share of common stock is computed by dividing net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding during each period. Diluted loss per share of common stock includes the effect, if any, from the potential exercise of stock options and unvested shares of restricted stock, which would result in the issuance of incremental shares of common stock. For diluted net loss per share, the weighted-average number of shares of common stock is the same for basic net loss per share due to the fact that when a net loss exists, dilutive securities are not included in the calculation as the impact is anti-dilutive.

Standby Equity Purchase Agreement

The Company entered an Equity Purchase Agreement providing for an equity line of credit with an investor on February 20, 2025. This arrangement is in the nature of a Standby Equity Purchase Agreement ("SEPA"), which is an equity-linked instrument for which an entity has the right, but not the obligation, to sell the entity's common stock to third-party investors over a specified period. The total number of shares that the entity may issue to the investor is capped by either an aggregate dollar amount or an aggregate number of shares. Furthermore, the number of shares that an entity may issue at any particular time during the life of the SEPA is also limited. The price payable by the investor for each share of common stock purchased from the entity is generally discounted. In exchange for its access to capital through the SEPA, the entity typically provides up-front consideration to the investor in the form of cash or shares of the entity's common stock. Economically, before the entity has elected to sell shares, a SEPA represents a purchased put option on the entity's own equity. However, once the entity "draws" on the SEPA, the related number of shares issuable constitutes a forward contract to issue common stock. Thus, a SEPA contains both a purchased put option element and a forward share issuance element. This generally means that a SEPA generally does not qualify for equity classification. Accordingly, entities must recognize an asset or liability for its SEPA. Such asset or liability must be measured at fair value, with changes in fair value recognized in net (loss) income.

Because SEPAs do not qualify for classification in equity, an entity must expense as incurred the amount by which any consideration provided to the investor at the inception of the arrangement exceeds the fair value of the asset recognized for the SEPA.

An entity should recognize at fair value the common shares issued to the investor upon settlement of a SEPA by using the quoted price of the shares on the date of issuance. The then-current fair value of the asset or liability for the associated forward share issuance contract must be derecognized in conjunction with the settlement. The proceeds received from the investor are reflected and any residual amount must be charged (or credited) to earnings. This accounting is consistent with the guidance in ASC 815 that applies upon the settlement of a derivative instrument. When an equity-linked instrument classified as an asset or liability is settled, entities should measure the instrument at its current fair value as of the settlement date and include in earnings any previously unrecognized fair value gain or loss.

In summary, upon settlement of a forward issuance contract element of a SEPA, an entity would recognize in earnings the following amounts:

- The gain (loss) for the excess (deficit) of (a) the carrying amount of the asset or liability for the forward issuance contract plus the proceeds received and (b) the fair value of the common shares as of the issuance date.
- Any issuance or transaction costs incurred in conjunction with the issuance of the shares.

2. Accrued Liabilities and Other Current Liabilities

As of December 31, 2024, the Company had a balance of $981,940 included in Accrued liabilities and other current liabilities in the audited condensed balance sheet, consisting of $422,000 for construction expenses, $49,000 for manufacturing expenses, $155,000 for legal fees, $121,000 for clinical expenses, $5,000 for bonus expense, $202,000 for salary expenses and $28,000 for other liabilities.

As of June 30, 2025, the Company had a balance of $1.1 million included in Accrued liabilities and other current liabilities in the accompanying condensed interim balance sheet, consisting of $422,000 for construction expenses, $87,000 for property taxes, $52,000 for manufacturing expenses, $193,000 for legal fees, $127,000 for clinical expenses, and $180,000 for salary expenses.

3. Debt, Net

Cogent Bank Loan

On August 15, 2022, the Company entered the 2022 Loan Agreement with Cogent Bank, pursuant to which it received $6.5 million in proceeds to purchase a property where the Company planned to construct a manufacturing facility for biologics and upgraded research laboratory facilities. The loan is secured by a first priority lien on the building.

As of June 30, 2025, the Company had $6.3 million in principal outstanding under the 2022 Loan Agreement. The interest-only period was one year followed by 48 months of equal payments of principal and interest beginning on September 15, 2023 based on a 25-year amortization rate. The unamortized balance is due on August 15, 2027 (the "Maturity Date"), and bears interest at a fixed per annum rate equal to 5.75%. Upon the Maturity Date, a final payment of unamortized principal will be due. The Company is in compliance with covenants related to current payment of principal and interest as of June 30, 2025. The Company has the option to prepay the outstanding balance of the loan prior to the Maturity Date without penalty.

As of December 31, 2024 and June 30, 2025, certain subcontractors filed mechanics liens related to unpaid invoices issued in connection with the Company's construction of its new manufacturing facilities and upgraded research laboratories. The 2022 Loan Agreement contains a provision for a discretionary default in the event that the Company fails to pay sums due in connection with construction of any improvements; however, as of the reporting date, the lender has not elected to do so. As of December 31, 2024 and June 30, 2025, the Company has reflected this loan as Short-term debt, net, to reflect that the lender has the right to accelerate the loan under a discretionary default provision.

Senior Secured Notes

As of June 30, 2025, there was $325,000 of outstanding principal amount of Secured Notes reported in Debt, net in the accompanying condensed interim balance sheet. As of June 30, 2025, the Company restructured $6.6 million outstanding principal of Secured Notes by conversion to equity. On May 1, 2025, those noteholders who elected to convert their outstanding principal to equity entered the Second Amendment to the Amended and Restated Note Purchase Agreement (the "Conversion Agreement"). On May 7, 2025, $6.6 million of outstanding principal amount of Secured Notes were extinguished upon conversion. See discussion in section "Troubled Debt Restructuring of Secured Notes" below. Those noteholders who elected not to convert had no change in terms, except for the termination of their conversion feature. Under the terms of the agreement, the Secured Notes continue to bear interest at a rate of 9% per annum, payable quarterly in arrears. The Secured Notes will mature on August 30, 2026 (the "Maturity Date"), on which date the principal balance, accrued but unpaid interest and other amounts owed under the terms of the agreement shall be due and payable. The Company pledged its equity ownership interest in Wugen, which was equivalent to a 5.6% ownership stake in that company as of June 30, 2025 ("Pledged Collateral"). The Pledged Collateral will be held and released according to the terms of the Escrow Agreement, as security for the Secured Notes.

The Secured Notes have a Mandatory Prepayment provision, according to which the Company is required to prepay the Secured Notes before the Maturity Date under certain circumstances. In the event of a Mandatory Prepayment, Secured Notes may receive a bonus payment based on the gross proceeds of the sale of the Pledged Collateral. The agreement also contains default provisions, according to which, following an event of default, the Company may be required to distribute the Pledged Collateral to the Purchasers on a pro rata basis based on a $10.0 million issuance of Secured Notes, in full satisfaction of the indebtedness evidenced by the Secured Notes.

If the Secured Notes are repaid on the Maturity Date, holders will receive their pro rata share of a fixed bonus payment of $3.4 million in addition to payment of outstanding principal and accrued and unpaid interest. If a bonus payment is paid, then there is no prepayment penalty. In the three and six months ended June 30, 2025, the Company recognized $102,248 and $375,308, respectively as an expense for accretion of the fixed bonus payment due in the event the Secured Notes are repaid on the Maturity Date, presented within Depreciation in the accompanying condensed interim statements of operations. On May 7, 2025, upon conversion of $6.6 million of outstanding principal of Secured Notes, accretion of the fixed bonus was terminated for these Secured Notes and the accumulated accretion balance of $860,462 was derecognized. See discussion in section "Troubled Debt Restructuring of Secured Notes" below.

For those Secured Notes which remain outstanding, as of June 30, 2025, the Company reported $367,151 for the outstanding principal and accumulated accretion of a fixed bonus payment due upon maturity as a noncurrent liability in Debt, net in the accompanying condensed interim balance sheet.

Troubled Debt Restructuring of Senior Secured Notes

The Company entered into the Second Amendment to its Secured Note in which certain Secured Note noteholders and the Company agreed to the terms to effectively extinguished $7.4 million of debt through the issuance of 253,083 shares of Common Stock, warrants to purchase 126,540 shares of Common Stock, and rights to receive a pro rata share of 49.11% of the proceeds or shares from the Company's investment in Wugen. The transaction was accounted for under ASC 470-60 as a troubled debt extinguishment, as the Company was experiencing financial difficulty and it was granted a concession by Secured Note noteholders whereby the fair value of consideration transferred was less than the carrying amount of the Secured Notes. The net carrying amount of the restructured Secured Notes at the time of the amendment was $7.4 million including principal of $6.6 million and accumulated accretion of a fixed bonus payable upon Maturity Date of $860,462. The fair value of consideration transferred including Common Stock, warrants to purchase Common Stock, and rights to proceeds of a portion of the Company's shares of Wugen common stock was $4.0 million, with the difference of $3.5 million being recognized as a troubled debt restructuring gain. Due to the related party nature of the converting noteholders, the gain was recorded to additional paid-in capital for the period ended June 30, 2025.

Unsecured Promissory Notes

As of May 5, 2025, the Company issued a total of $270,000 principal amount of unsecured convertible promissory notes that mature on May 5, 2026 with paid in kind interest accruing thereon, payable quarterly in arrears at 10% per annum (the "Convertible Bridge Notes"). In accordance with their terms, following the completion of a qualified offering, the Convertible Bridge Notes were converted into shares of our Common Stock at the final offering price in an offering that closed on May 15, 2025. In addition, holders of the Convertible Bridge Notes have the right to receive a portion of the proceeds of the Company's shares of Wugen common stock, if and when such shares are ever sold, determined by the number of the Wugen shares equal to 0.25 multiplied by the original principal amount, in dollars, of the Convertible Bridge Notes. Investors included: $60,000 invested by Hing C. Wong, the Company's Founder and CEO; $100,000 invested by Scott T. Garrett, the Chairman of the Company's Board of Directors; and $10,000 invested by Gary M. Winer, who was a member of the Company's Board of Directors at the time of his investment.

As of May 15, 2025, the outstanding principal of Convertible Bridge Notes were converted. The fair value of consideration transferred including 36,242 shares of Common Stock and rights to proceeds of a portion of the Company's shares of Wugen common stock was $401,134, with the difference of $131,134 being recognized as a loss on conversion. Due to the related party nature of the converting noteholders, the loss was recorded to additional paid-in capital for the period ended June 30, 2025.

Promissory Note with Personal Guarantee

On May 8, 2025, the Company issued a promissory note for $150,000, secured by a personal guaranty and pledge given by the Company's Founder and CEO, Dr. Hing C. Wong ("Guarantor") in accordance with the provisions of that certain Guaranty and Pledge Agreement of even date herewith between the Company and the Holder. The promissory note was issued with an original issue discount of $75,000. On the Maturity Date of February 7, 2026, the Company will repay $225,000. There are provisions which allow the Company to prepay the promissory note before the Maturity Date. The proceeds of this promissory note were used to pay the expenses required to be paid prior to the equity financing which closed on May 15, 2025. The Company is accreting the original issue discount on a straight-line basis over the seven-month term. There is no current interest due on the promissory note with personal guarantee. In the three and six months ended June 30, 2025, the Company recognized accretion of original issue discount of $0 and $14,722, respectively, in Interest expense in the accompanying condensed interim statements of operations.

Contingent Liabilities

The Company extinguished $6.9 million of debt through conversion or restructuring of outstanding principal to shares of the Company's Common Stock, warrants to purchase the Company's Common Stock and the right to receive proceeds of a liquidation or sale of a portion of the Company's Wugen shares. The Company retained ownership of the Wugen shares allocated to the converted noteholders and recorded a contingent liability for the right to receive proceeds upon liquidation or sale, if such event occurs. As of June 30, 2025, the Company elected to measure its investment in Wugen at fair value. Similar to the underlying asset, the Company recognized the contingent liability at fair value and will recognize changes in fair value in subsequent reporting periods in earnings. As of June 30, 2025, the Company included $1.7 million for this contingent liability in the accompanying condensed interim balance sheets.

4. Sale of Common Stock and Warrants

May 2025 Equity Financing

On May 13, 2025, the Company entered into a securities purchase agreement with a single institutional investor (the "Investor") for the issuance and sale of (i) 158,000 shares (the "Shares") of the Company's Common Stock and (ii) pre-funded warrants to purchase up to 513,140 shares of Common Stock (the "Pre-Funded Warrants") in a follow-on public offering (the "Offering"), pursuant to a registration statement filed under Rule 424(b)(4) (File No. 333-287136), which was declared effective by the SEC on May 15, 2025. The Company also issued warrants to purchase up to an aggregate of 1,342,280 shares of Common Stock ("Common Stock Warrants") for $7.45 per share.

The Company sold the Common Stock and Pre-Funded Warrants with an accompanying two Common Stock Warrant, each of which may purchase one share of Common Stock, and the Common Stock and Pre-Funded Warrants were immediately separated from the Common Stock Warrants and issued separately. The combined purchase price for each Share and the two accompanying Common Stock Warrant was $7.45 per unit and the combined purchase price for each Pre-Funded Warrant and the two accompanying Common Stock Warrant was $7.4999 per unit. The Common Stock Warrants have an exercise price of $7.45 per share, are exercisable immediately, and expire on the five-year anniversary of the date of issuance. The Pre-Funded Warrants have an exercise price of $0.0001 per share, are exercisable immediately, and will not expire until exercised in full.

The gross proceeds to the Company from the Offering were approximately $5.0 million before deducting the placement agent's fees and other offering expenses of $802,602 payable by the Company. The Offering closed on May 15, 2025. In this financing, the Company issued shares of Common Stock of Pre-Funded Warrants that may be exercised to purchase Common Stock in lieu thereof, and warrants that may be exercised to purchase Common Stock. In a contemporaneous private agreement entered into with the Investor, the Company agreed to reprice warrants to purchase up to 167,925 shares of Common Stock that were issued to the Investor in a financing that closed on November 20, 2024 to an exercise price of $7.45 per share. The Company estimated the fair value of the securities issued, using the Black Scholes valuation model to estimate the fair value of the warrants, and determined the fair value of securities issued was $15.2 million. As this was a transaction with an existing stockholder, the Company recognized a $10.2 million deemed equity dividend to the Investor which was recorded in additional-paid-in capital for the period ended June 30, 2025.

The Investor may not exercise any portion of the Common Stock Warrants or Pre-Funded Warrants to the extent it would beneficially own more than the limits defined in the respective Warrant Purchase Agreement. The exercise price and number of shares of Common Stock issuable upon the exercise of the Common Stock Warrants and Pre-Funded Warrants are subject to adjustment in the event of any stock dividends and distributions, stock splits, stock combinations or stock reclassifications, as described in the respective warrant agreements. Under certain circumstances, the warrants may be exercised on a "cashless" basis.

Both the Common Stock Warrants and Pre-Funded Warrants were classified as a component of permanent stockholders' equity within additional paid-in-capital and were recorded at the issuance date. The Common Stock Warrants and Pre-Funded Warrants are equity classified because they are freestanding financial instruments that are legally detachable and separately exercisable from the equity instruments, are immediately exercisable, do not embody an obligation for the Company to repurchase its shares, permit the holders to receive a fixed number of shares of Common Stock upon exercise, are indexed to the Company's Common Stock and meet the equity classification criteria. In addition, the Common Stock Warrants and the Pre-Funded Warrants do not provide any guarantee of value or return.

As of June 30, 2025, the Investor exercised all of the Pre-Funded Warrants by delivering a notice of exercise to the Company and paying the exercise price. As a result, as of June 30, 2025, the Company issued 513,140 shares of registered Common Stock to the Investor.

As of June 30, 2025, none of the Common Stock Warrants issued on May 15, 2025 had been exercised.

November 2024 Equity Financing

On November 18, 2024, the Company entered into a securities purchase agreement with the Investor for the issuance and sale of (i) 104,000 shares (the "Shares") of the Company's common stock, par value $0.0001 per share (the "Common Stock") and (ii) pre-funded warrants to purchase up to 63,925 shares of Common Stock (the "Pre-Funded Warrants") in a registered direct offering (the "Registered Offering"), pursuant to a shelf registration statement on Form S-3 (File No. 333-266991), which was declared effective by the SEC on August 26, 2022. The Registered Offering was made by means of a prospectus supplement filed with the SEC on November 20, 2024 that forms a part of such registration statement. In a concurrent private placement (the "Private Placement" and together with the Registered Offering, the Company also issued unregistered warrants to purchase up to an aggregate of 167,925 shares of Common Stock ("Common Stock Warrants") for $41.20 per share. Share amounts and exercise price per share have been adjusted for the reverse stock split the Company effected on April 11, 2025.

The Company sold the Common Stock and Pre-Funded Warrants with an accompanying Common Stock Warrant to purchase one share of Common Stock, and the Common Stock and Pre-Funded Warrants were immediately separated from the Common Stock Warrants and issued separately. The combined purchase price for each Share and accompanying Common Stock Warrant was $41.20 per unit and the combined purchase price for each Pre-Funded Warrant and accompanying Common Stock Warrant was $41.1999 per unit. The Common Stock Warrants have an exercise price of $41.20 per share, are exercisable immediately, and expire on the five-year anniversary of the date of issuance. The Pre-Funded Warrants have an exercise price of $0.0001 per share, are exercisable immediately, and will not expire until exercised in full.

The gross proceeds to the Company from the offering were approximately $6.9 million before deducting the placement agent's fees and other offering expenses of $638,045 payable by the Company. It closed on November 20, 2024.

The Investor may not exercise any portion of the Common Stock Warrants or Pre-Funded Warrants to the extent it would beneficially own more than the limits defined in the respective Warrant Purchase Agreement. The exercise price and number of shares of Common Stock issuable upon the exercise of the Common Stock Warrants and Pre-Funded Warrants are subject to adjustment in the event of any stock dividends and distributions, stock splits, stock combinations or stock reclassifications, as described in the respective warrant agreements. Under certain circumstances, the warrants may be exercised on a "cashless" basis.

Both the Common Stock Warrants and Pre-Funded Warrants were classified as a component of permanent stockholders' equity within additional paid-in-capital and were recorded at the issuance date. The Common Stock Warrants and Pre-Funded Warrants are equity classified because they are freestanding financial instruments that are legally detachable and separately exercisable from the equity instruments, are immediately exercisable, do not embody an obligation for the Company to repurchase its shares, permit the holders to receive a fixed number of shares of Common Stock upon exercise, are indexed to the Company's Common Stock and meet the equity classification criteria. In addition, the Common Stock Warrants and the Pre-Funded Warrants do not provide any guarantee of value or return.

On November 20, 2024, the Investor exercised all of the Pre-Funded Warrants by delivering a notice of exercise to the Company and paying the exercise price. The Company issued 63,925 registered shares of Common Stock to the Investor on November 21, 2024.

On April 16, 2025, the 167,925 shares of Common Stock underlying the Common Stock Warrants issued on November 20, 2024 were registered in a registration statement filed pursuant to Rule 424(b)(3) (File No. 333-286409). On May 15, 2025, the Company entered into a privately negotiated agreement with the Investor for its Common Stock Warrants to reduce the exercise price of such warrants from $41.20 per share to $7.45 per share. The Company considered the change in fair value of this modification of the warrant as a deemed dividend to the Investor related to the equity offering that closed in May 2025 with the Investor.

As of June 30, 2025, none of the Common Stock Warrants issued on November 20, 2024 and repriced on May 15, 2025 had been exercised.

5. Preferred Stock

As of December 31, 2024 and June 30, 2025, the Company had 10,000,000 shares of preferred stock authorized and no shares of preferred stock issued.

6. Net Loss Per Share

The following table summarizes the computation of the basic and diluted net loss per share:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2025	2024	2025
Numerator:				
Net loss	$ (15,280,191)	$ (1,927,730)	$ (22,748,253)	$ (4,124,606)
Equity dividend to investor	-	(10,153,799)	-	(10,153,799)
Net loss attributable to Common Stockholders	$ (15,280,191)	$ (12,081,529)	$ (22,748,253)	$ (14,278,405)
Denominator:				
Weighted-average common shares outstanding, basic and diluted	945,585	1,780,113	938,087	1,448,502
Net loss per share, basic and diluted	$ (16.16)	$ (6.79)	$ (24.25)	$ (9.86)

The following table summarizes the outstanding potentially dilutive securities. At June 30, 2024 and 2025, these securities were excluded in the calculation of diluted net loss per share because their inclusion would be anti-dilutive:

	June 30,	
	2024	2025
Common stock options	44,902	44,347
Common stock warrants	—	1,636,745
Potentially dilutive securities	44,902	1,681,092

7. Standby Equity Purchase Agreement

On February 20, 2025, the Company entered into an Equity Purchase Agreement (the "Equity Purchase Agreement") with Square Gate Capital Master Fund, LLC - Series 4 ("Square Gate"), which the Company deemed to be a Standby Equity Purchase Agreement ("SEPA"). Under the Equity Purchase Agreement, the Company will have the right, but not the obligation, to sell to Square Gate, and Square Gate will have the obligation to purchase from the Company, up to $20,000,000 (the "Maximum Commitment Amount") worth of the Company's shares of common stock, at the Company's sole discretion, over the next 36 months (the "Put Shares"), subject to certain conditions precedent and other limitations. Square Gate has covenanted not to cause or engage in any short sales or hedging transactions with respect to the shares of the Company's common stock. The Maxim Group LLC acted as the Company's exclusive Placement Agent in connection with this transaction.

Unless earlier terminated, the Equity Purchase Agreement will remain in effect until the earlier of February 18, 2028 (*i.e.*, the expiry of the 36-month period commencing on the date of the Equity Purchase Agreement) or the date on which Square Gate has purchased the Maximum Commitment Amount (the "Commitment Period"). The Company has the right to terminate the Equity Purchase Agreement at any time, subject to certain provisions as set forth in the Equity Purchase Agreement. Square Gate has the right to terminate the Equity Purchase Agreement under certain provisions as set forth in the Equity Purchase Agreement, including the continued listing of the Company's common stock on an Eligible Market.

During the Commitment Period, the Company will have the right, but not the obligation, to direct Square Gate to make a purchase of the Put Shares by delivering written notice (a "Put Notice") to Square Gate on any trading day (the "Put Date") to purchase a number of Put Shares pursuant to a formula set forth in the Equity Purchase Agreement. The number of Put Shares that the Company can issue to Square Gate from time to time under the Equity Purchase Agreement may not exceed 4.99% of the number of shares of our common stock outstanding immediately after giving effect to the issuance of shares issuable pursuant to a Put Notice.

The per share purchase price for the Put Shares that we elect to sell to Square Gate in a Put Notice pursuant to the Equity Purchase Agreement will be equal to 98% of the lowest daily VWAP during the Valuation Period (as defined in the Equity Purchase Agreement), in the case of a Valuation Period ending on the date that is at the end of the third trading day immediately following the applicable Put Date. The Company also agreed to a $150,000 commitment fee (the "Commitment Fee"), which shall be in the form of shares of Common Stock to be issued to Square Gate in accordance with the terms of the Equity Purchase Agreement.

The Equity Purchase Agreement and Registration Rights Agreement contain customary representations, warranties and agreements by the Company and customary conditions to Square Gate's obligation to purchase the Put Shares. Actual sales of shares of our common stock, if any, to Square Gate under the Equity Purchase Agreement will depend on a variety of factors to be determined by the Company from time to time, including, among others, market conditions, the trading price of the Company's common stock and determinations by the Company as to the appropriate sources of funding for the Company and its operations. The net proceeds to us from sales of our common stock to Square Gate under the Equity Purchase Agreement, if any, will depend on the frequency and prices at which the Company sells shares to Square Gate under the Equity Purchase Agreement. Any proceeds that the Company receives from sales of shares of our common stock to Square Gate under the Equity Purchase Agreement will be used to advance our clinical development programs and expand our discovery, research and preclinical activities in the near term and in the future.

On March 12, 2025, the Company issued 9,616 shares of the Company's Common Stock (subject to adjustment for the Reverse Stock Split) to Square Gate in payment of the Commitment Fee ("Commitment Shares"). At the Special Meeting of Stockholders, stockholders approved the Company's use of the Equity Purchase Agreement. On April 16, 2025, the U.S. Securities and Exchange Commission ("SEC") declared a registration statement effective to register the Commitment Shares and shares required to sell up to $40.0 million of the Company's shares to Square Gate, according to provisions of the Equity Purchase Agreement.

The Company concluded that the Equity Purchase Agreement does not qualify for equity classification. On the effective date, the Company concluded that the fair value of the Equity Purchase Agreement at inception was zero and no asset or liability was recorded. As a result, fees paid to Square Gate in excess of the fair value of the Equity Purchase Agreement were expensed as incurred. Any issuance costs or other transaction costs attributable to a freestanding equity-linked financial instrument that is classified as an asset or liability should be recognized in earnings in the period incurred. The Commitment Fee was expensed as of March 31, 2025. The issuance costs were expensed as of June 30, 2025.

When the Company wishes to draw on the Equity Purchase Agreement, the Company submits a put order to Square Gate on Day 0, issues the shares on Day 1, and the pricing of the transaction is determined from Day 1 – 3 trading days, with the price to be paid by Square Gate fixed by using the minimum trading price in one of the three trading days after the put order is accepted. Square Gate is required to pay for the Put Shares under the terms of the Equity Purchase Agreement by Day 5. When there is a lag between the pricing of the shares and the issuance of the shares, the Company will account for the sale as a forward contract and the issuance as a settlement of the forward contract.

The fair value of the Equity Purchase Agreement is zero since inception. In the three months ended June 30, 2025, the Company expensed $48,608 of issuance costs incurred during the period, which are reported within General and administrative expenses in the accompanying condensed interim statements of operations. In the six months ended June 30, 2025, the Company expensed the $150,000 Commitment Fee which was incurred in the period ended March 31, 2025 and $148,608 of issuance costs which were incurred in the period ended June 30, 2025.

No draws were made under the Equity Purchase Agreement as of June 30, 2025. Subsequent to June 30, 2025, the Company made draws on the Equity Purchase Agreement and the Equity Purchase Agreement was amended by mutual agreement to allow for intraday trading. See Note 12. Subsequent Events.

8. Fair Value of Financial Instruments

The carrying amount of the Company's financial instruments, including cash and cash equivalents, accounts receivable, prepaid expenses and other current assets, U.S. government-backed securities with maturity dates up to one year, accounts payable and accrued liabilities, approximate fair value due to their short-term maturities.

Money market funds included in cash and cash equivalents and U.S. government-backed securities are measured at fair value based on quoted prices in active markets, which are considered Level 1 inputs. The investments and contingent liability included in the balance sheet are measured at fair value based on the adjusted enterprise value method, which is considered Level 3 inputs. No transfers between levels occurred during the periods presented. The following table presents the Company's assets and liabilities which were measured at fair value at December 31, 2024 and June 30, 2025:

	December 31, 2024			
	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds	$ 3,748,325	$ —	$ —	$ 3,748,325
Total	$ 3,748,325	$ —	$ —	$ 3,748,325

	June 30, 2025			
	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds	$ 2,124,762	$ —	$ —	$ 2,124,762
Investments	—	—	3,348,438	3,348,438
Liabilities				
Contingent Liability	—	—	(1,748,356)	(1,748,356)
Total	$ 2,124,762	$ —	$ 1,600,082	$ 3,724,844

9. Income Taxes

For the three and six months ended June 30, 2025, The Company computes its quarterly income tax expense/(benefit) by using a forecasted annual effective tax rate and adjusts for any discrete items arising during the quarter. The Company did not have a provision for income taxes (current or deferred tax expense) as of December 31, 2024 and June 30, 2025. The Company will continue to maintain a 100% valuation allowance on total deferred tax assets. The Company believes it is more likely than not that the related deferred tax assets will not be realized. As a result, the Company's effective tax rate will remain at 0.00% because no items either estimated or discrete items would impact the tax provision.

See Note 12. Subsequent Events for information on the recent One Big Beautiful Bill Act and the potential impacts thereof.

10. Segment Reporting

HCW Biologics, Inc. has one reportable segment: life science. The life science segment consists of operations focused on discovering and developing novel immunotherapies to lengthen health span by disrupting the link between chronic, low-grade inflammation and diseases. The Company's CODM is the Chief Executive Officer.

The accounting policies of the life science segment are the same as those described in the summary of significant accounting policies. The CODM assesses performance for the life science segment based on net loss, which is reported on the statement of operations as net loss. The measure of segment assets is reported on the balance sheet as total assets.

The Company has not generated any product revenue from commercial product sales of internally-developed immunotherapeutic products for the treatment of diseases, as no products have been approved for commercial sale as of June 30, 2025. The Company expects to continue to incur significant expenses and operating losses for the foreseeable future as it advances molecules through all stages of development and clinical trials and, ultimately, seek approval for commercial sale.

As such, the CODM uses cash forecast models in deciding how to invest into the life science segment. Such cash forecast models are reviewed to assess the entity-wide operating results and performance in conjunction with monitoring the results of R&D experiments for preclinical compounds and clinical trial data for clinical-stage compounds. The assessment of results of preclinical and clinical studies are critical to the allocation of resources by the CODM.

There were no material changes to the measures for segment revenue, profit or loss, and other metrics since March 31, 2025. The tables below summarize the significant expense categories regularly reviewed by the CODM for the three and six months ended June 30, 2024 and June 30, 2025:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2025	2024	2025
Revenues:				
Revenues	$ 618,854	$ 6,550	$ 1,745,566	$ 11,615
Cost of revenues	(438,443)	(5,240)	(950,408)	(9,292)
Net revenues	180,411	1,310	795,158	2,323
Operating expenses:				
Research and development expenses				
Salaries, benefits and related expenses	756,646	778,440	1,536,393	1,479,546
Manufacturing and materials	751,770	33,986	1,328,072	296,783
Preclinical expenses	258,476	146,948	543,568	324,060
Clinical trials	65,120	110,935	331,757	298,755
Overhead allocations	197,174	156,515	412,680	306,392
Total research and development expenses	2,029,186	1,226,824	4,152,470	2,705,536
General and administrative				
Salaries, benefits and related expenses	714,974	765,539	1,236,585	1,554,026
Professional services[(a)]	229,963	496,641	583,769	951,008
Facilities and office expenses	204,715	111,740	408,314	206,068
Depreciation expenses	66,615	59,160	133,694	120,398
Rent and occupancy expenses	63,992	62,528	106,708	112,278
Insurance	192,680	270,598	365,951	560,866
Taxes	62,045	61,576	96,200	94,168
Other expenses	59,209	165,991	229,064	328,181
Total general and administrative expenses	1,594,193	1,993,773	3,160,285	3,926,993
Other segment items[(b)]	11,837,223	(1,291,557)	16,230,656	(2,505,600)
Total operating expenses	15,460,602	1,929,040	23,543,411	4,126,929
Net segment loss	**$ (15,280,191)**	**$ (1,927,730)**	**$ (22,748,253)**	**$ (4,124,606)**

(a) Professional services consist primarily of audit and accounting advisory services, tax advisory services, corporate legal services and other services related to SEC compliance, and legal fees related to patent filings.

(b) Other segment items include the following unusual or nonrecurring item that comprise other segment items for the three and six months ended June 30, 2024 and 2025:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2025	2024	2025
Arbitration legal fees (recoveries), net	$ 10,393,042	$ 142,542	$ 14,812,076	$ (1,596,951)
Accretion of fixed bonus upon maturity of Secured Notes	—	102,248	—	375,308
Interest expense	159,666	228,714	159,666	505,853
Unrealized gain on investment	—	(1,748,688)	—	(1,748,688)
Nonoperating loss	1,300,000	—	1,300,000	—
Other income, net	(15,485)	(16,373)	(41,086)	(41,122)
Other segment items	**$ 11,837,223**	**$ (1,291,557)**	**$ 16,230,656**	**$ (2,505,600)**

11. Commitments and Contingencies

Operating Leases

The Company has operating leases for approximately 12,250 square feet of space located in Miramar, Florida. On February 29, 2024, the lease on the Company's current location reached the end of its term and the Company entered a new one-year lease for the same location which commenced on March 1, 2024 and terminated on February 28, 2025. On January 27, 2025, the Company entered a new one-year lease for the same location which commenced on March 1, 2025 and terminates on February 28, 2026. As a lease of 12 months or less in duration and qualifies for a short-term lease exemption under ASC 842-20-25-2, the Company elected to account for this lease on a straight-line basis over the lease term and will not recognize a ROU asset and a lease liability as a result. The Company has no obligations under financing leases.

For the three months ended June 30, 2024 and 2025, rent expense recognized by the Company was $49,524 and $52,619 respectively, of which $25,936 and $27,557, respectively, are included in research and development in the accompanying condensed interim statements of operations. For the six months ended June 30, 2024 and 2025, rent expense recognized by the Company was $96,907 and $103,175 respectively, of which $48,389 and $54,033, respectively are included in research and development in the accompanying condensed interim statements of operations.

Contractual Commitments

The Company has commitments with a third-party manufacturing organization to supply us with clinical grade materials. As of June 30, 2025, it is under contract for obligations of $34,200 it expects to pay during the year ending December 31, 2025. On January 22, 2025, the Company entered into a forbearance agreement with BE&K to allow the Company until March 31, 2025 to continue efforts to find the financing required to complete the construction and renovation of the building. Pursuant to the forbearance agreement, the Company made an initial payment of $1.0 million in partial satisfaction of amounts owing to BE&K and its subcontractors. Upon the expiration of the forbearance agreement, BE&K took additional legal actions. See Legal - *Other Matters* below. The Company has continued to pursue financing alternatives to provide the funding needed to come current in past amounts due and complete the construction and renovation of the property.

Company Victim to Fraudulent Criminal Scheme

As reported in the Company's Form 8-K filed on May 1, 2024 with the SEC, the Company became aware that it was the victim of a criminal scheme involving the impersonation of a purchaser upon the default (the "Default") on a legally binding commitment to purchase $8.0 million of secured notes from the Company. The scheme resulted in the misdirection of approximately $1.3 million held in Company accounts to a fraudulent account controlled by a third party. The Company recognized a $1.3 million loss reported as a Nonoperating loss in the accompanying condensed interim statements of operations. The Company has pursued all available remedies to recover this loss, including reporting it to law enforcement.

Legal

Legal Proceedings

From time to time, the Company is a party to or otherwise involved in legal proceedings, including suits, assessments, regulatory actions and investigations generally arising out of the normal course of business. In addition, the Company enters into agreements that may include indemnification provisions, pursuant to which the Company agrees to indemnify, hold harmless and defend the indemnified parties for losses suffered or incurred by the indemnified party. When the Company believes that the outcome of such a matter will result in a liability that is probable to be incurred and result in a potential loss, or range of loss, that can be reasonably estimated, the Company will accrue a liability and make the appropriate disclosure in the footnotes to the financial statements.

Arbitration, Settlement and General Release

On December 23, 2022, Altor BioScience, LLC and NantCell, Inc. (collectively "ImmunityBio") initiated an arbitration against Dr. Hing C. Wong, the Company's Founder and Chief Executive Officer, in California alleging breach of contract and fiduciary duty, among other claims. On that same date, ImmunityBio filed a lawsuit against the Company in federal court alleging misappropriation of trade secrets, inducement of breach of contract and breach of fiduciary duty, among other claims against the Company. On April 26, 2023, the parties stipulated that ImmunityBio's action against the Company would be consolidated with the ImmunityBio Arbitration demand against Dr. Wong. On April 27, 2023, the Court approved the parties' stipulation and ordered the parties to Arbitration. On May 1, 2023, ImmunityBio filed a demand against the Company before JAMS. On May 3, 2023, ImmunityBio dismissed the federal court action without prejudice and the Court ordered the case dismissed without prejudice and closed the case. ImmunityBio's proceeding against the Company proceeded in Arbitration before JAMS and consolidated with the arbitration ImmunityBio initiated against Dr. Wong (the "Arbitration"). On March 26, 2024, ImmunityBio filed a complaint (the "Complaint") against the Company in the Chancery Court of the State of Delaware for the contribution of legal fees and expenses advanced to Dr. Wong.

As reported in the Company's Form 8-K filed on July 18, 2024 and described in Part II, Item 1. – "Legal Proceedings," as of July 13, 2024, the Company and Dr. Hing C. Wong, the Company's Founder and Chief Executive Officer, entered into a confidential Settlement Agreement and Release (the "Settlement Agreement") with Altor BioScience, LLC ("Altor"), NantCell, Inc. ("NantCell"), and ImmunityBio, Inc. (the parent of Altor and NantCell, together with Altor and NantCell, "ImmunityBio"), to resolve the previously disclosed Arbitration before JAMS brought by Altor and NantCell as well as the Complaint Altor filed against the Company in the Chancery Court of the State of Delaware for the contribution of legal fees and expenses advanced to Dr. Wong. The Settlement Agreement includes mutual general releases by and among the parties thereto. No party is required to make any monetary payments to any other party or person under the Settlement Agreement and each party will bear its own expenses incurred in connection with the matter. The Arbitration and the Complaint were dismissed as of December 31, 2024.

Other Matters

As the Company reported in a Form 8-K, on April 17, 2025, the Company received a summons and a copy of a complaint filed by BE&K in the Circuit Court of the 17th Judicial Circuit in and for Broward County, Florida (the "BE&K Complaint"). Other Defendants named in the BE&K Complaint who are subcontractors elected to filed counterclaims and cross-claims in response to the BE&K Complaint. Cogent Bank, also named as a Defendant in the BE&K Complaint, has not elected to take legal action at this time. In addition, on April 28, 2025, the Company received a summons and a copy of a complaint filed by Fisk Electric Company (which is a defendant in the BE&K Complaint) in the Circuit Court of the 17th Judicial Circuit in and for Broward County, Florida (the "Fisk Complaint") against the Company, BE&K, and the other defendants in the BE&K Litigation. On August 8, 2025, B&I Contractors, Inc., one of the defendants in the BE&K Complaint, filed a motion for summary judgment (the "MSJ") as to the Count I (Foreclosure of Construction Lien). The Company has responded to the BE&K and Fisk Complaints and cross-claims and intends to file a timely response to the B&I MSJ.

Inflationary Cost Environment, Banking Crisis, Supply Chain Disruption and the Macroeconomic Environment

The Company's operations have been affected by many headwinds, including inflationary pressures, including those brought about by tariffs and other economic policies, high interest rates, ongoing global supply chain disruptions resulting from increased geopolitical tensions such as the war in the Middle East, the conflict between Russia and Ukraine, China-Taiwan relations as well as U.S. trade policies, financial market volatility and currency movements. The Company has been impacted by inflation, and may continue to be so, when procuring materials required for the buildout of our new manufacturing and laboratory facilities, the costs for recruiting and retaining employees and other employee-related costs. Management employs a number of strategies to effectively navigate these issues, including product redesign, alternate sourcing, and establishing contingencies in budgeting and timelines. Future developments in these and other areas present material uncertainty and risk with respect to the Company's clinical trials, IND-enabling activities, buildout of the new manufacturing and laboratory facilities, as well as the Company's financial condition and results of operations. The extent and duration of such events and conditions, and resulting disruptions to our operations, are highly unpredictable.

12. Subsequent Events

Subsequent events have been evaluated through the date the financial statements were filed. In addition to the required recognition or disclosure disclosed in the footnotes herein, there were also the following subsequent events after the reporting date:

On July 4, 2025, following the end of the second quarter, the One Big Beautiful Bill Act was enacted into law in the United States. This legislation includes various tax provisions that may affect U.S. corporate taxpayers, including changes to the deductibility of interest expense, the treatment of research and development costs, and depreciation of certain property, among other items. The Company is currently assessing the potential impact of this new legislation on its annual income tax expense, deferred tax assets and liabilities, valuation allowances, and projected cash flows. Based on its preliminary analysis, the Company does not expect the legislation to have a material effect on its financial statements.

On July 22, 2025, the Company submitted a Put Notice to Square Gate for 5,000 shares to be sold under the terms of the Equity Purchase Agreement, which was settled on July 25, 2025 for $19,803, net of transaction fees.

On August 8, 2025, B&I Contractors, Inc., one of the defendants in the BE&K Complaint, filed a motion for summary judgment (the "MSJ") as to the Count I (Foreclosure of Construction Lien).

On August 14, 2025, the Company entered into the First Amendment to the Equity Purchase Agreement between HCW Biologics Inc., and Square Gate Capital Master Fund, LLC – Series 4, a series limited liability company organized in the State of Delaware (the "Square Gate"). The amended agreement provides an alternative process for the issuance of put notices to Square Gate, allowing intraday trading.

On August 15, 2025, the Company filed a "Notification of Late Filing" to allow the Company to extend the deadline for filing its Quarterly Report on Form 10-Q.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with (i) our unaudited condensed interim financial statements and related notes appearing elsewhere in this Quarterly Report on Form 10-Q and (ii) our audited financial statements and related notes and the discussion under the heading "Management's Discussion and Analysis of Financial Condition and Results of Operations" for the fiscal year ended December 31, 2024 included in the Annual Report on Form 10-K filed with the U.S. Securities and Exchange Commission (the "SEC") on March 28, 2025 (the "Annual Report"). Our historical results are not necessarily indicative of the results that may be expected for any period in the future. Unless the context requires otherwise, references in this Quarterly Report on Form 10-Q to the "Company," "HCW Biologics," "HCWB", "we," "us" and "our" refer to HCW Biologics Inc.

Forward-Looking Statements

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. All statements other than statements of historical facts contained in this quarterly report, including statements regarding our future results of operations and financial position, business strategy, prospective products, product approvals, research and development costs, timing and likelihood of success of our clinical trials, plans and objectives of management for future operations, adequacy of our cash resources and working capital, future economic conditions or performance, and future results of anticipated products, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as "may," "will," "should," "expect," "plan," "anticipate," "could," "intend," "target," "project," "contemplates," "believes," "estimates," "predicts," "potential" or "continue" or the negative of these terms or other similar expressions. The forward-looking statements in this Quarterly Report on Form 10-Q are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements are subject to certain risks and uncertainties that could cause actual results to differ materially from those anticipated in the forward-looking statements. Factors that might cause such a difference include, but are not limited to, those discussed in this report in Part II, Item 1A -"Risk Factors," in this Quarterly Report on Form 10-Q and in other filings we make with the SEC from time to time. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Moreover, we operate in an evolving environment. New risk factors and uncertainties may emerge from time to time, and it is not possible for management to predict all risk factors and uncertainties. These forward-looking statements speak only as of the date hereof. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise.

Overview

HCW Biologics Inc. ("HCWB" or the "Company") is a clinical-stage biopharmaceutical company developing proprietary immunotherapies to treat diseases promoted by chronic inflammation, especially age-related and senescence-associated diseases. Our immunotherapeutics represent a new class of drug that we believe has the potential to fundamentally change the treatment of cancer and many other diseases and conditions that are promoted by chronic inflammation — and in doing so, improve patients' quality of life and possibly extend longevity. While chronic inflammation is possible at any age, it is more common as we age. In this case, the condition is known as inflammaging. The induction and retention of low-grade inflammation in an aging human body is mainly the result of the accumulation of non-proliferative but metabolically active senescent cells, which can also be caused by persistent activation of immune cells.

Chronic inflammation, including inflammaging, is believed to be a significant contributing factor to the cause for senescence-associated diseases and conditions that diminish health span, including many types of cancer, autoimmune diseases, and neurodegenerative diseases, as well as indications that impact quality-of-life that are not life-threatening. Senescence is a physiologic process important in promoting wound healing, tissue homeostasis, regeneration, embryogenesis, fibrosis regulation, and tumorigenesis suppression. However, accumulation of senescent cells with Senescence-Associated Phenotype ("SASP") proinflammatory factors has been implicated as a major source of chronic sterile inflammation leading to many aging-related pathologies. SASP factors, including proinflammatory cytokines, chemokines, and proteinases, drive an inflammation cycle. Senescence is considered a stress response and can be induced by a wide range of intrinsic and extrinsic insults. Over time, these insults cause normal tissue cells to enter a senescent state of irreversible growth arrest accompanied by the release of SASP factors. The inflammation cycle promoted by SASP factors also activates immune cells. Similar to senescent cells, prolonged activation of immune cells promotes the release of highly proinflammatory cytokines. Unresolved activation of immune cells leads to chronic low-grade inflammation, which perpetuates this cycle.

Studies have shown that strategies to reduce or eliminate senescent cells can delay, prevent, and improve age-related dysfunctions, including cancer. Unfortunately, to date, there has been limited clinical success in targeting senescent cell accumulation or aberrant inflammasome activity using small molecule-based approaches. Preclinical research and preliminary results from first-in-human clinical trials indicate that our immunotherapeutic approach may achieve success for cancer indications, and many other age-related diseases and conditions. We believe our lead product candidates represent a novel immunotherapeutic approach and a clinically promising new class of senotherapeutic drugs for the treatment of age-related diseases.

The Company has developed two different drug discovery and development platforms, our legacy TOBI™ (Tissue factOr-Based fusIon) platform and our newly developed targeted platform technology – the T-cell Receptor β Chain constant region ("TRBC") platform:

- The TOBI platform is designed to engineer multi-functional fusion protein molecules and protein complexes. It employs a Tissue Factor ("TF") scaffold that can be packaged with multiple protein targets, including cytokines, chemokines, ligands, receptors, and single-chain antibodies.

- The Company invented its second-generation platform, the TRBC platform, to create novel immunotherapeutics designed to treat diseases, including cancer, as well as improve quality-of-life conditions. The immunotherapeutics created using the TRBC platform include multi-specific cytokines, targeted second-generation immune checkpoint inhibitors, and immune-cell engagers, which have the capabilities to activate subsets of immune cells that specifically target cancerous or infected cells.

As of July 13, 2024, the Company, Dr. Wong, Altor BioScience, LLC, NantCell, Inc. and ImmunityBio, Inc. (collectively, Altor BioScience, LLC, NantCell, Inc. and ImmunityBio Inc. will be referred to herein as "ImmunityBio"), entered into a Settlement Agreement that is described in Part II, Item 1. – "Legal Proceedings" below. The Settlement Agreement eliminated the uncertainty of the outcome of the previously disclosed Arbitration proceedings and provided clarity for the future direction and emphasis of our clinical development strategy. The settlement involved intellectual property the Company developed based on our proprietary TOBI™ drug discovery platform and its unique Tissue-Factor scaffold used to create protein-fusion molecules

With clarity on ownership of intellectual property, the Company reassessed its clinical development pipeline and the future direction of our Company. Our expertise is in immunotherapeutic treatments and our clinical development pipeline will remain so. Our focus continues to be to develop protein-based immunotherapies that are administered by subcutaneous injection. We remain focused on diseases promoted by chronic inflammation driven by senescence, including cancer, especially age-related diseases. The diseases we will target will have no curative FDA approved treatments. Finally, we have selected programs that include life-threatening diseases, such as pancreatic and ovarian cancer, as well as "quality-of-life" indications, such as alopecia areata and senile lentigo. HCW9302 will remain one of our lead product candidates. Future drug discovery and new drug development will be based on TRBC Molecules. There are several potential candidates in each class of TRBC Molecules from which the Company will select lead molecules for each program. Part of this selection will be to determine which TRBC molecules will be developed in-house and which are more appropriate to develop through business development transactions, such as out-licensing agreements.

Our clinical development program is based on a few select lead product candidates which will be evaluated in Company-sponsored clinical trials in autoimmune disorders, solid tumors and quality-of-life conditions. We have a large portfolio of non-core programs and assets and, for these, we anticipate that clinical development will be conducted through licensing agreements and other business development transactions.

HCWB has an experienced team led by Dr. Hing C. Wong, our Founder and CEO, who discovered and developed the immunotherapeutic Anktiva® (also known as ALT-803, an IL-15 agonist receptor) through pivotal trials. This blockbuster immunotherapeutic treatment for cancer was sold to ImmunityBio, Inc. in 2017 in a $1.0 billion acquisition. Anktiva® was approved by the U.S. Food and Drug Administration ("FDA") for a bladder cancer indication in 2024.

Business Highlights

Financing

Our financing strategy includes capital raising through the issuance of securities as well as business development transactions, especially out-licensing certain rights outside of our focus areas. The Company continues to evaluate its portfolio to identify compounds which may be good candidates for licensing or other collaborations, where it will be to our advantage to leverage the expertise and financial strength of a partner in the development of a compound or market.

Wugen License Agreement and Potential Spin Off in Favor of HCWB

We signed our first out-license agreement at the end of 2020, when we entered into an exclusive worldwide license (the "Wugen License") with Wugen, Inc., a company specializing in cell-based therapies for cancer. Wugen licensed limited rights to develop, manufacture, and commercialize cell-based therapy treatments for cancer based on two of our internally-developed, multi-cytokine fusion protein molecules, HCW9201 and HCW9206. Wugen has created an off-the-shelf NK-cell treatment called WU-NK-101 based on the licensed molecules. Wugen is focusing is clinical development strategy on its CAR-T program, which is in a pivotal clinical trial.

Since inception in December 2020, the Company has recognized $16.2 million of revenues derived from the Wugen License, including upfront license fees in cash and shares of Wugen common stock, purchase of the Company's inventory of certain molecules needed for manufacturing, and purchases of materials for its clinical trials. In addition, the Company received over $1.8 million of reimbursement for some of the Company's R&D expenses.

In the quarter ended June 30, 2025, the Company agreed to a request from Wugen to suspend the Wugen License, including all of its rights related to the license molecules and its obligation to pay $500,000 annually to reimburse the Company for certain R&D expenses. The suspension will run for a period of one year from the effective date and will end on May 29, 2026. During the suspension, the Company has the right to terminate the license in order to enter other business development transactions related to the licensed molecules. The Company is currently in active discussions for a license agreement with major biologics manufacturing companies who are interested in licensing molecules to use as reagents in the manufacturing process for CAR-T therapies.

The Company has no remaining performance obligations. There is no deferred revenue related to the sale of clinical material to Wugen. There is product in storage that is the responsibility of Wugen. No impairment charges were taken in relation to the suspension.

WY Biotech License Agreement

In November 2024, the Company and WY Biotech Co., Ltd. ("WY Biotech") entered into a License, Research and Co-Development Agreement ("WY Biotech License"), as amended. The WY Biotech License is a grant of an exclusive, worldwide license to use and apply HCW11-006, a preclinical molecule, for *in vivo* applications. The Company holds an Opt-In Right under the provisions of the WY Biotech License, which gives the Company the option to assume all control and responsibility for the development, manufacture and commercialization of HCW11-006 for *in vivo* applications in North America, South America, and Central America. The Company retains *ex vivo* rights. Under the amended terms, the parties agreed to extend the timing for the payment of the upfront license fee of $7.0 million and reduced the performance obligation for the Company to the delivery of a technical report that characterized the licensed molecule by May 13, 2025.

In the quarter ended June 30, 2025, the Company delivered the technical report and WY Biotech notified the Company that it completed its due diligence to study the technical report delivered by the Company and elected to continue with the exclusive worldwide WY Biotech License, as amended. As a result, WY Biotech is financially obligated to the Company, as detailed in the WY Biotech License, as amended, including the obligation to pay a $7.0 million upfront license fee. WY Biotech is in the process of finalizing agreements with its contract development and manufacturing organization ("CDMO") and investors. Since the Company has no payment history with WY Biotech, it did not recognize the upfront license fee as revenue as we concluded collectability was not probable. In order to accommodate WY Biotech's timing in finalizing agreements, the Company and WY Biotech agreed to extend the latest date for payment of the $7.0 million license fee to September 30, 2025.

As of June 30, 2025, the Company determined that it had fully satisfied the performance obligation under the agreement and that the $7.0 million non-refundable, upfront license fee was fixed and not subject to future performance. Based on its assessment under ASC 606-10-25-1(e), the Company concluded revenue would be recognized when WY Biotech enters legally binding agreements with its investors, at which time it would be considered collectable.

$5.0 Million Equity Offering and Equity Dividend to Investor

On May 15, 2025, the Company closed on an equity offering with gross proceeds of $5.0 million through a follow-on offering of an aggregate of 671,140 units at a purchase price of $7.45 per unit priced at-the-market under Nasdaq rules, with an existing institutional investor, the Investor. Each unit consisted of one share of Common Stock or one Pre-Funded Warrants to purchase one share of Common Stock, with two warrants, each of which can be exercised for one share of Common Stock for $7.45 per share. In addition, the Company has entered into a privately negotiated agreement with the Investor to reduce the existing exercise price of its outstanding warrants to purchase up to 167,925 shares of Common Stock (the "Existing Warrants") from $41.20 per share to $7.45 per share. The Company estimated the fair value of the securities issued and the value of repricing the warrants, and determined a fair value of $15.2 million. The difference between the gross proceeds and estimated fair value was recognized as an equity dividend to an existing stockholder.

Full Settlement of $7.7 million of Debt to Strengthen the Company's Balance Sheet

On May 7, 2025, the Company restructured $7.4 million of debt that was issued in the form of Secured Notes including accumulated accretion of a fixed bonus payable upon Maturity Date for full settlement. Investors included: $2.4 million invested by Dr. Hing C. Wong, Founder and Chief Executive Officer; $220,000 invested by Rebecca Byam, Chief Financial Officer; $25,000 invested by Lee Flowers, Senior Vice President of Business Development; $140,000 invested by Scott T. Garrett, the Chairman of the Company's Board of Directors; $60,000 invested by Gary M. Winer, who was a member of our Board of Directors at the time of his investment; $25,000 invested by Rick S. Greene, a member of our Board of Directors; as well as other significant stockholders. Converting noteholders received 253,083 unregistered shares of Common Stock at a conversion price of $26.00 per share, and Common Stock Warrants to purchase up to 126,540 shares of Common Stock at an exercise price of $26.00 per share. In addition, the Company transferred to converting noteholders the right to receive the proceeds of the liquidation or sale of 1,067,796 of the Company's Wugen shares, which was recorded as a contingent liability at a fair value of $1.6 million as of June 30, 2025. The Company recognized a $3.5 million gain from the restructuring, inclusive of derecognition of accumulated accretion of a fixed bonus payable upon Maturity Date of $860,462. Due to the related party nature of the noteholders, the gain was recorded to additional paid-in capital for the period ended June 30, 2025.

On May 15, 2025, the Company extinguished $270,000 of debt that was issued in the form unsecured promissory notes, according to conversion provisions of the purchase agreement. Investors included: $60,000 invested by Hing C. Wong, the Company's Founder and CEO; $100,000 invested by Scott T. Garrett, the Chairman of the Company's Board of Directors; $10,000 invested by Gary M. Winer, who was a member of the Company's Board of Directors at the time of his investment; and other significant stockholders. According to the terms of the conversion provision contained in the purchase agreement, the Company issued 36,242 registered shares of the Company's Common Stock at a conversion price of $7.45 per share. These securities are subject to a 90-day lockup. In addition, the Company transferred to converting noteholders the right to receive the proceeds of the liquidation or sale of 67,500 of the Company's Wugen shares, which was recorded as a contingent liability at a fair value of $103,950 as of June 30, 2025. The Company recognized a loss of upon conversion of $131,134. Due to the related party nature of the noteholders, the loss was recorded to additional paid-in capital for the period ended June 30, 2025.

Compliance with Nasdaq Listing Rules

On June 26, 2025, HCW Biologics Inc. (the "Company") announced that it received formal notice from The Nasdaq Stock Market LLC ("Nasdaq") that the Company is in compliance with Listing Rule 5550(b)(1) (the "Equity Rule"). On May 13, 2025, the Company received formal notice from Nasdaq that it regained compliance with the bid price requirement in Listing Rule 5550(a)(2), the public float requirement in Listing Rule 5550(a)(4), and the market value of publicly held shares requirement in Listing Rule 5550(a)(5). As a result, the Company was in compliance with all applicable criteria for continued listing on the Nasdaq Capital Market tier, and the previously disclosed listing compliance matters have been closed.

The Company was notified that it will remain subject to a "Panel Monitor," as that term is defined in Nasdaq Listing Rule 5815(d)(4)(B), for a period of one year from the date of the Nasdaq notice, through June 23, 2026. If, during the term of the Panel Monitor, the Company does not continue to remain in compliance with the Equity Rule, the Company will not be provided with the opportunity to submit a compliance plan for review by the Listing Qualifications Staff and must instead request a hearing before the Panel to address the deficiency, with such request staying any further action with respect to the Company's listing on Nasdaq pending completion of the hearing process.

Biologics Manufacturing Facility

The Company remains committed to establishing some control over our clinical supply of materials, and the supply of licensed molecules for our licensees, as well as other clinical-stage companies developing biologics. We have retained manufacturing rights for the licensed molecules under our license agreements. With the threat of pharmaceutical tariffs hanging over the biopharmaceutical industry and a push to "re-shore" manufacturing, especially pharmaceuticals, a growing list of major drug makers are bolstering their manufacturing footprints in the U.S.

On January 22, 2025, the Company entered a forbearance agreement with BE&K Building Group ("BE&K") and certain subcontractors filed mechanics liens related to unpaid invoices issued in connection with construction of the Company's new manufacturing facilities and upgraded research laboratories. The forbearance agreement terminated on March 31, 2025, and the Company did not have financing in place to satisfy the liens. On April 17, 2025, the Company received a summons and a copy of a complaint filed by BE&K in the Circuit Court of the 17th Judicial Circuit in and for Broward County, Florida (the "BE&K Complaint"). In addition, on April 28, 2025, the Company received a summons and a copy of a complaint filed by Fisk Electric Company (which is a defendant in the BE&K Complaint) in the Circuit Court of the 17th Judicial Circuit in and for Broward County, Florida (the "Fisk Complaint") against the Company, BE&K, and the other defendants in the BE&K Litigation. Subsequent to this filing date, certain other claims and cross claims were filed. See Part II, Item 1. – "Legal Proceedings." On August 8, 2025, B&I Contractors, Inc., one of the defendants in the BE&K Complaint, filed a motion for summary judgment (the "MSJ") as to the Count I (Foreclosure of Construction Lien). The Company has responded to the BE&K and Fisk Complaints and cross-claims and intends to file a timely response to the B&I MSJ.

The Company has continued to pursue financing alternatives to provide the funding needed to come current in past amounts due and complete the construction and renovation of the property.

Clinical Development

HCW9302

On January 28, 2025, the Company received clearance of its IND from the FDA to initiate a first-in-human Phase 1 dose escalation clinical trial to evaluate one of its lead drug candidates, HCW9302, in patients with moderate-to-severe alopecia areata, a common autoimmune disease in humans that currently has no curative FDA approved treatments. The Company intends to include up to five clinical sites in this study, and we expect to open and initiate the clinical trial in the third quarter of 2025.

HCW9302 is a fusion protein molecule that contains two IL-2 domains linked by an extracellular tissue factor domain. IL-2 signaling is essential for homeostasis of T_{reg} cells. Unfortunately, recombinant IL-2 has an unfavorable pharmacokinetic profile and induces cytokine release syndrome limiting its therapeutic use. HCW9302 provides a potential solution to this problem. It is designed to have the therapeutic advantages of IL-2 while being well tolerated. In our preclinical and non-human primate studies, we found that HCW9302 exhibited a longer serum half-life with an approximately 1,000-fold higher affinity for the IL2Rα than IL-2. In addition, preclinical studies have shown HCW9302 can be administered at a dosing range that expanded and activated T_{reg} cells but not $CD4^+$ effector T cells. $CD4^+$ effector T cells (also known as helper T cells) are crucial for immune responses, but under certain conditions, their excessive activation can lead to negative effects like inflammation, tissue damage, and autoimmune reactions, particularly when they become dysregulated and target self-antigens, contributing to conditions like multiple sclerosis, rheumatoid arthritis, and inflammatory bowel disease.

HCW9206

The Company recently announced results of studies of our proprietary compound, HCW9206, and its availability for commercialization. Given the results of the studies, HCW9206 has the potential to provide a solution for key challenges facing T-cell receptor - T cell ("CAR-T") therapies. While CAR-T therapy is a revolutionary technology that continues to play a pivotal role in treatment of cancer, autoimmune diseases, and age-related diseases, it faces challenges. In the result of the studies shared by the Company, we showed that HCW9206 has the potential to significantly reduce costs and improve clinical efficacy of engineered effector T cells. This data was first shared at the 2025 Annual Meeting of American Association of Immunologists.

HCW9206 is a proprietary fusion protein shown to be highly effective at generating CAR-Ts for immunotherapy. HCW9206 is a novel class of immunotherapeutic drug that enables the combination of multiple immune stimulatory cytokines within a single molecule. The activity of HCW9206 was significantly better than that of standard methods employing anti-CD3/anti-CD28 and IL-2 reagents for CAR lentiviral transduction and subsequent expansion of human CAR-Ts.

At the 2025 Annual Meeting of American Association of Immunologists, our collaborator gave a poster presentation that showed that HCW9206 is not only a better reagent than the current anti-CD3/anti-CD28/IL-2 method for CAR-T viral transduction, it also effectively expanded stem cell-like memory T cells (T_{scm}) carrying the CAR constructs. It is well known that the T_{scm} subset of T cells exhibits better targeted cell killing and persistence than other subsets of T cells, including memory T cells, following adoptive transfer into patients. In experimental humanized models in mice, adoptively transferred HCW9206-generated HIV- and CD19-specific CAR-Ts displayed more potency in the suppression of HIV-1 and leukemic cells with enhanced persistence, respectively, when compared with the same CAR-Ts generated with the standard methods. The results of these studies represent an alternative novel strategy for CAR-T cell production with the advantage of generating a large population of CAR-Ts with a T_{scm} cell phenotype, which should enhance the persistence of CAR-Ts in patients. This strategy will likely improve long-term survival of disease-specific CAR-Ts following adoptive transfer and enable sustained suppression of malignancies, chronic infections and autoimmune diseases.

The GMP master cell bank of HCW9206 and its manufacturing process has been established, and its drug master file as an *ex vivo* reagent has been filed with the US Food and Drug Administration. The Company has commenced a search to identify a strong commercial partner for the sale and/or integration of HCW9206 as a reagent into CAR-T based manufacturing processes.

Second-Generation Multi-Specific T-Cell Engagers

The Company has developed second-generation, multi-specific T-cell engagers against solid tumors, particularly for pancreatic cancer, using its novel proprietary TRBC product discovery and development platform technology.

T-cell engagers revolutionized the immunotherapeutic approach against cancer. Currently, T-cell engagers have approval from the U.S. Food and Drug Administration to be used in the treatment of a small number of indications, including various hematological and solid tumors. The Company believe that it has created a potentially highly effective T-cell engagers against difficult-to-treat solid tumors by using exceptional targets while managing immunosuppression.

The TRBC technology enabled the Company to construct T-cell engagers that not only target cancer antigens and CD3 activation of effector T cells, but also simultaneously reduce the immunosuppression in tumor microenvironment. Such immunosuppression plays a pivotal role in reducing effector T-cell infiltration and anti-tumor efficacy in solid tumors. The Company's two lead T-cell engagers target tissue factor and mesothelin, which are proven solid tumor antigens. These product candidates exhibit potent and antigen-specific anti-pancreatic cancer activities both in vitro and in humanized mouse models at dose levels that are well tolerated.

We plan to begin actively seeking a partner for the development of the Company's T-Cell Engager and other Immune Cell Engagers in Q3 2025.

Second-Generation Immune Checkpoint Inhibitors

The Company has developed second-generation, pembrolizumab-based immunotherapeutics against solid tumors, particularly for pancreatic and ovarian cancer, using its novel proprietary TRBC product discovery and development platform technology. Pembrolizumab, known as KEYTRUDA® (a registered trademark of Merck Sharp & Dohme LLC), is the leading FDA-approved ICI.

Since their introduction to the treatment of cancer in 2011, immune checkpoint inhibitors ("ICIs") have been hailed as a breakthrough cancer therapy. Immune checkpoint proteins are expressed on the surface of T cells as the acting regulators for inhibiting the over-activation of T cells. By using ICIs, the immune response of T cells can be largely activated to re-establish the immune effects of anti-tumor exhausted T cells. However, there is vast evidence in preclinical and clinical studies suggesting that the lack of immune-cell costimulatory activities on ICIs diminishes their anti-tumor efficacy.

The Company's pembrolizumab-based fusion molecules have been selected as leading clinical product candidates because they exhibit potent anti-pancreatic cancer activities and outperform pembrolizumab as monotherapy for cancer both *in vitro* and in humanized mouse models at dose levels that are well tolerated. This novel fusion immunotherapeutics block the checkpoint receptors and engages the costimulatory receptors, analogous to taking the foot off the brake and simultaneously hitting the gas, thus, representing a breakthrough second-generation ICI which revives anti-tumor function of T cells.

Trends and Uncertainties

Inflationary Cost Environment, Banking Crisis, Supply Chain Disruption and the Macroeconomic Environment

The Company's operations have been affected by many headwinds, including inflationary pressures, including those brought about by tariffs and other economic policies, high interest rates, ongoing global supply chain disruptions resulting from increased geopolitical tensions such as the war in the Middle East, the conflict between Russia and Ukraine, China-Taiwan relations as well as U.S. trade policies, financial market volatility and currency movements. These headwinds, specifically the supply chain disruptions, have adversely impacted our ability to procure certain services and materials, which in some cases impacts the cost and timing of clinical trials and IND-enabling activities. In addition, we have been impacted by inflation when procuring materials required for the buildout of our new manufacturing and laboratory facilities, the costs for recruiting and retaining employees and other employee-related costs. Further, rising interest rates would also increase borrowing costs to the extent that the Company takes on any additional debt. The Company uses a number of strategies to effectively navigate these issues, including product redesign, alternate sourcing, and establishing contingencies in budgeting and timelines. However, the extent and duration of such events and conditions, and resulting disruptions to our operations, are highly unpredictable.

For discussion of risks related to potential impacts of supply chain, inflation, geopolitical and macroeconomic challenges on our operations, business results and financial condition, see Item 1A. "Risk Factors" in our Annual Report.

Components of our Results of Operation

Revenues

We have no products approved for commercial sale and have not generated any revenue from commercial product sales of internally-developed immunotherapeutic products for the treatment of cancer and other age-related diseases. The principal source of our revenues to date have been generated from our Wugen License and Master Services Agreement (the "MSA") with Wugen. See Note 1 to our condensed interim financial statements included elsewhere in this Quarterly Report for these definitions and more information.

We derive revenue from license agreements. The Company entered the Wugen License in December 2020. On May 30, 2025, the Company agreed to a request from Wugen to suspend the Wugen License for a period of one-year. During this time, the Company may seek other business development transactions and may choose to terminate the Wugen License.

Since inception, the Company has recognized $16.2 million of revenues derived from the Wugen License, including upfront license fees in cash and shares of Wugen common stock, payments for vials of materials, and for manufacturing of development supplies for clinical trials. Consideration under our contract included a nonrefundable upfront payment, development, regulatory and commercial milestones, and royalties based on net sales of approved products. Additionally, HCW Biologics retained manufacturing rights and has agreed to provide Wugen with clinical and research grade materials for clinical development and commercialization of licensed products under separate agreements. We assessed which activities in the Wugen License should be considered distinct performance obligations that should be accounted for separately. We develop assumptions that require judgement to determine whether the license to our intellectual property is distinct from the research and development services or participation in activities under the Wugen License.

Performance obligations relating to the granting a license and delivery of licensed product and R&D know-how were satisfied when transferred upon the execution of the Wugen License on December 24, 2020. The Company recognized revenue for the related consideration at a point in time. The revenue recognized from a transaction to supply clinical and research grade materials entered into under the MSA and covered by a Statement of Work ("SOW"), represents one performance obligation that is satisfied over time. The Company recognizes revenue generated for supply of material for clinical development using an input method based on the costs incurred relative to the total expected cost, which determines the extent of the Company's progress toward completion.

The Company entered the WY Biotech License in November 2024. On May 30, 2025, WY Biotech notified the Company that it completed its due diligence to study the technical report delivered by the Company and elected to continue with the WY Biotech License. As a result, WY Biotech is financially obligated to the Company, as detailed in the WY Biotech License, as amended, including the obligation to pay a $7.0 million upfront license fee. WY Biotech is in the process of finalizing agreements with its contract development and manufacturing organization ("CDMO") and investors. Since the Company has no payment history with WY Biotech, it did not recognize the upfront license fee as revenue as we concluded collectability was not probable. In order to accommodate WY Biotech's timing in finalizing agreements, the Company and WY Biotech agreed to extend the latest date for payment of the $7.0 million license fee to September 30, 2025.

Operating Expenses

Our operating expenses are reported as research and development expenses and general and administrative expenses.

Research and Development

Our research and development expenses consist primarily of costs incurred for the development of our product candidates, which include:

- Employee-related expenses, including salaries, benefits, and stock-based compensation expense;
- Expenses related to manufacturing and materials, consisting primarily of expenses incurred in connection with CMOs, which produce cGMP materials for clinical trials on our behalf;
- Expenses associated with preclinical activities, including research and development and other IND-enabling activities;
- Expenses incurred in connection with clinical trials; and
- Other expenses, such as facilities-related expenses, direct depreciation costs for capitalized scientific equipment, and allocation for overhead.

We expense research and development costs as they are incurred. Costs for contract manufacturing are recognized based on an evaluation of the progress to completion of specific tasks using information provided to us by our vendors. Payments for these activities are based on the terms of the agreement, and the pattern of payments for goods and services will change depending on the material. Nonrefundable advance payments for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses and expensed as the related goods are delivered or the services are performed.

We expect research and development expenses to increase substantially for the foreseeable future as we continue the development of our product candidates. We cannot reasonably determine the nature, timing, and costs of the efforts that will be necessary to complete the development of, and obtain regulatory approval for, any of our product candidates. Product candidates in later stages of development generally have higher development costs than those in earlier stages. See "Risk Factors -- Risks Related to the Development and Clinical Testing of Our Product Candidates," in our Annual Report for a discussion of some of the risks and uncertainties associated with the development and commercialization of our product candidates. Any changes in the outcome of any of these risks and uncertainties with respect to the development of our product candidates in preclinical and clinical development could mean a significant change in the costs and timing associated with the development of these product candidates. For example, if the FDA or another regulatory authority were to delay our planned start of clinical trials or require us to conduct clinical trials or other testing beyond those that we currently expect or if we experience significant delays in enrollment in any of our planned clinical trials, we could be required to expend significant additional financial resources and time on the completion of clinical development of that product candidate.

General and Administrative Expenses

General and administrative expenses consist primarily of employee-related expenses, including salaries, related benefits, and stock-based compensation expense for employees in the executive, legal, finance and accounting, human resources, and other administrative functions. General and administrative expenses also include third-party costs such as insurance costs, fees for professional services, such as legal fees in the ordinary course of business, accounting advisors, auditing and tax services, facilities administrative costs, expenses related to maintaining our listing on Nasdaq and remaining in compliance with SEC filings, and other expenses.

We expect general and administrative expenses incurred in the normal course of business for other purposes, such as costs for recruitment and retention of personnel, service fees for consultants, advisors and accountants, as well as costs to comply with government regulations, corporate governance, internal control over financial reporting, insurance and other requirements for a public company, to continue to increase for the foreseeable future as we build our clinical programs.

Legal Expenses

Legal expenses include fees incurred by the Company in its own defense and that of Dr. Hing C. Wong, our Founder and Chief Executive Officer, with a legal matter brought against the Company and Dr. Wong by a former employer of Dr. Wong.

During the period ended December 31, 2022, Altor/NantCell initiated legal proceedings against Dr. Wong and the Company. On April 26, 2023, the parties stipulated that Altor/NantCell's action against the Company would be consolidated with the Altor/NantCell arbitration demand against Dr. Wong. On April 27, 2023, the U.S. District Court for the Southern District of Florida (the "Court") with jurisdiction over the lawsuit against the Company approved the parties' stipulation and ordered the parties to arbitration. On May 1, 2023, Altor/NantCell filed a demand against the Company before JAMS. On May 3, 2023, Altor/NantCell dismissed the federal court action without prejudice and the Court ordered the case dismissed without prejudice and closed the case. Proceedings against the Company and Dr. Wong were consolidated in the arbitration before JAMS (the "Arbitration"). On March 26, 2024, Altor/NantCell filed a complaint (the "Complaint") against the Company in the Chancery Court of the State of Delaware for the contribution of legal fees and expenses advanced to Dr. Wong. The Arbitration hearing was held on May 20, 2024 to May 31, 2024, after which the parties entered into settlement negotiations.

As reported in the Company's Form 8-K filed on July 18, 2024 and further described in Part II, Item 1. – "Legal Proceedings" below, as of July 13, 2024, the Company and Dr. Hing C. Wong, the Company's Founder and Chief Executive Officer, entered into a confidential Settlement Agreement and Release (the "Settlement Agreement") with Altor BioScience, LLC ("Altor"), NantCell, Inc. ("NantCell"), and ImmunityBio, Inc. (the parent of Altor and NantCell, together with Altor and NantCell, "ImmunityBio"), to resolve the previously disclosed Arbitration before JAMS brought by Altor and NantCell as well as a Complaint Altor filed against the Company in the Chancery Court of the State of Delaware for the contribution of legal fees and expenses advanced to Dr. Wong. The Settlement Agreement includes mutual general releases by and among the parties thereto. No party is required to make any monetary payments to any other party or person under the Settlement Agreement and each party will bear its own expenses incurred in connection with the matter. The Arbitration and related Complaint were dismissed as of December 31, 2024.

Nonoperating Loss

As reported in the Company's Form 8-K filed on May 1, 2024 with the SEC, the Company became aware that it was the victim of a criminal scheme involving the impersonation of a purchaser upon the default on a legally binding commitment to purchase $8.0 million of secured notes from the Company. The scheme resulted in the misdirection of approximately $1.3 million held in Company accounts to a fraudulent account controlled by a third party. The Company is pursuing all available remedies to recover this loss. Given the limited success that these efforts have had to date for the recovery of funds, the Company recognized a loss of $1.3 million in the three- and six-month periods ended June 30, 2024.

Interest Expense

Interest expense includes interest paid on debt. This includes interest due on the Cogent Bank loan, Secured Notes issued by the Company and accretion of original issue discount and debt issuance costs.

Unrealized Gain on Investment

Unrealized gain on investment includes the gain on Wugen shares which Company elected to measure at fair value in the period ended June 30, 2025.

Other Income, Net

Other income, net consists of interest earned on our cash, cash equivalents, unrealized gains and losses related to our investments in U.S. government-backed securities, and other income and expenses related to non-operating activities.

Results of Operations

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2025	2024	2025
Revenues:				
Revenues	$ 618,854	$ 6,550	$ 1,745,566	$ 11,615
Cost of revenues	(438,443)	(5,240)	(950,408)	(9,292)
Net revenues	180,411	1,310	795,158	2,323
Operating expenses:				
Research and development	2,029,186	1,226,824	4,152,470	2,705,536
General and administrative	1,594,193	2,096,021	3,160,285	4,302,301
Legal expenses (recoveries), net	10,393,042	142,542	14,812,076	(1,596,951)
Nonoperating loss	1,300,000	—	1,300,000	—
Total operating expenses	15,316,421	3,465,387	23,424,831	5,410,886
Loss from operations	(15,136,010)	(3,464,077)	(22,629,673)	(5,408,563)
Interest expense	(159,666)	(228,714)	(159,666)	(505,853)
Unrealized gain on investment	—	1,748,688	—	1,748,688
Other income, net	15,485	16,373	41,086	41,122
Net loss	$ (15,280,191)	$ (1,927,730)	$ (22,748,253)	$ (4,124,606)

Comparison of the Three Months ended June 30, 2024 and June 30, 2025

Revenues

The Company recognized revenues of $618,854 and $6,550 for the three months ended June 30, 2024 and 2025, respectively. Revenues were derived exclusively from the sale of licensed molecules to Wugen in the three months ended June 30, 2024. There were no deferred revenues as of June 30, 2024 or June 30, 2025.

Research and Development Expenses

The following table summarizes our research and development expenses for the three months ended June 30, 2024 and June 30, 2025:

	Three Months Ended June 30,			
	2024	2025	$ Change	% Change
Salaries, benefits and related expenses	$ 756,646	$ 778,440	$ 21,794	3%
Manufacturing and materials	751,770	33,986	(717,784)	(95)%
Preclinical expenses	258,476	146,948	(111,528)	(43)%
Clinical trials	65,120	110,935	45,815	70%
Other expenses	197,174	156,515	(40,659)	(21)%
Total research and development expenses	**$ 2,029,186**	**$ 1,226,824**	**$ (802,362)**	(40)%

Research and development expenses decreased by $802,362, or 40%, from $2.0 million for the three months ended June 30, 2024 to $1.2 million for the three months ended June 30, 2025. The decrease was primarily due to a decline in manufacturing and materials and preclinical expenses.

Salaries, benefits, and related expenses increased by $21,794, or 3%, from $756,646 for the three months ended June 30, 2024 to $778,440 for the three months ended June 30, 2025. This increase was primarily attributable to the loss of $125,000 of the Wugen reimbursement of certain R&D expenses, which required that the Company pay all of these expenses.

Manufacturing and materials expense decreased by $717,784, or 95%, from $751,770 for the three months ended June 30, 2024 to $33,986 for the three months ended June 30, 2025. In the three months ended June 30, 2024, costs were primarily attributable to increased costs of production and materials related to manufacturing high-producing cell line of HCW9101, an affinity ligand we use in our manufacturing process. In the three months ended June 30, 2025, the Company had produced and vialed the product necessary for the clinical trials for HCW9302. Manufacturing activities for the molecules invented with the Company's new TRBC platform have not yet commenced. the Company is focused on internal development and preparation for the subsequent creation of master cell banks to generate TRBC-based products.

Expenses associated with preclinical activities decreased by $111,528, or 43%, from $258,476 for the three months ended June 30, 2024 to $146,948 for the three months ended June 30, 2025. In the three months ended June 30, 2024, toxicology and other IND-enabling studies were winding down, as we prepare to submit the IND application for HCW9302, for which the Company received clearance of its IND from FDA early in 2025. In the three months ended June 30, 2025, there was a $195,830 decrease in cost related to toxicology and drug testing that were necessary for the IND application.

Expenses associated with clinical activities increased by $45,815, or 70%, from $65,120 for the three months ended June 30, 2024 to $110,935 for the three months ended June 30, 2025. The increase of expenses is primarily attributable to a $45,217 increase in costs related to outside advisors and collaborators and a $16,163 increase in costs related to site fees and data management, partially offset by a $15,575 decrease in patient-related fees. We anticipate that clinical expenses will increase in the coming year due to the initiation of the clinical trial to evaluate HCW9302 in an autoimmune indication.

Other expenses, which include overhead allocations, decreased by $40,659, or 21%, from $197,174 for the three months ended June 30, 2024 to $156,515 for the three months ended June 30, 2025. This decrease is primarily attributable to a $40,955 decrease allocation of depreciation for scientific equipment.

General and Administrative Expenses

The following table summarizes our general and administrative expenses for the three months ended June 30, 2024 and June 30, 2025:

	Three Months Ended June 30,			
	2024	2025	$ Change	% Change
Salaries, benefits and related expenses	$ 714,974	$ 765,539	$ 50,565	7%
Professional services	229,963	496,641	266,678	116%
Facilities and office expenses	204,715	111,740	(92,975)	(45)%
Accretion of fixed bonus upon maturity of Secured Notes	—	102,248	102,248	NM
Depreciation	66,615	59,160	(7,455)	(11)%
Rent and occupancy expense	63,992	62,528	(1,464)	(2)%
Other expenses	313,934	498,165	184,231	59%
Total general and administrative expenses	**$ 1,594,193**	**$ 2,096,021**	**$ 501,828**	31%

NM = Not meaningful

General and administrative expenses increased $501,828, or 31%, from $1.6 million for the three months ended June 30, 2024 to $2.1 million for the three months ended June 30, 2025. The increase is primarily due to increases in fees for professional services and accretion expense related to the fixed bonus payment due to the holders of the Secured Notes, in the event they are repaid on the Maturity Date, partially offset by a decrease in expenses related to facilities and office expenses.

Salaries, benefits and related expenses increased by $50,565, or 7%, from $714,974 for the three months ended June 30, 2024 to $765,539 for the three months ended June 30, 2025. There was a $33,931 increase in salaries, bonus payments and related taxes and a $33,203 increase in expense related to stock-based compensation, partially offset by a $16,569 decrease in expenses related to employee benefits.

Professional services increased by $266,678, or 116%, from $229,963 for the three months ended June 30, 2024 to $496,641 for the three months ended June 30, 2025. There was a $210,521 increase in fees paid for audit services, technical accounting advice, tax services, as well as the costs related to maintaining compliance with SEC and Nasdaq listing requirements. During this period, the Company completed a reverse stock split and received a Nasdaq determination letter for compliance with all listing rules. There was a $47,544 increase in fees paid related to patents. As a result of the Settlement Agreement, the Company agreed to maintain certain patent protection for rights retained under the Settlement Agreement as well as new patents related to the TRBC drug discovery and development platform and compounds created using this platform.

Facilities and office expenses decreased by $92,975, or 45%, from $204,715 for the three months ended June 30, 2024 to $111,740 for the three months ended June 30, 2025, primarily due to decreases of $93,576 in fees paid for licenses, software and IT services.

Throughout 2024, the Company issued $6.9 million of Secured Notes. The terms of the Secured Notes were amended on July 2, 2024 to include a fixed bonus payment in the event that the Secured Notes were repaid on their Maturity Date. In the three months ended June 30, 2025, the Company recognized an expense of $102,248 for accretion of the fixed bonus payment. On May 7, 2025, $6.6 million of the principal of the Secured Notes converted to equity. The accretion expense represents the accretion for the period up to the conversion date for these Secured Notes.

Other expenses increased by $184,231, or 59%, from $313,934 for the three months ended June 30, 2024 to $498,165 for the three months ended June 30, 2025. The increase is primarily attributable a $79,314 increase in insurance-related costs and an increase of $105,363 for expenses related to recognition of financing costs that did not qualify for deferral, primarily related to the registration of the underlying shares of the Equity Purchase Agreement with Square Gate.

Legal Expenses

In the three months ended June 30, 2024, the Company incurred $10.4 million in legal expenses in connection with the Arbitration. The Company incurred legal expenses on its own behalf and on behalf of Dr. Wong in preparation for the hearing, which took place in May 2024. During the three months ended June 30, 2024, terms for the Settlement were reached. The Arbitration was settled on July 13, 2024, and the Arbitration and related Complaint were dismissed with prejudice as of December 31, 2024. As of June 30, 2025, the Company reported a balance of $12.4 million for legal fees incurred but not yet paid that were included within Accounts payable and an accrual of $6,700 for accrued legal fees within Accrued liabilities and other current liabilities. We require a reasonable payment plan to prevent these expenses from overwhelming the Company's resources. We are engaged in discussions with the law firms involved with this matter. See Part II, Item 1, "Legal Proceedings."

In the three months ended June 30, 2025, the Company incurred $142,542 of legal expenses related to the Arbitration. We anticipate we will continue to incur expenses for the costs of remaining in compliance with the terms of the Settlement Agreement.

Interest Expense

On August 15, 2022, we entered into a loan and security agreement with Cogent Bank to partially fund our purchase of the property we acquired on that same date (the "2022 Loan"). We borrowed $6.5 million under this agreement. Amounts outstanding on the term loan accrue interest at a rate per annum equal to 5.75%. We were obligated to make interest-only payments on this loan from September 2022 through August 2023 and principal and interest payments in 48 equal monthly installments, based on a 25-year maturity schedule, commencing September 15, 2023. Related to the 2022 Loan, in the three months ended June 30, 2024 and June 30, 2025, we paid $93,789 and $92,569, respectively, in cash for interest. For the three months ended June 30, 2024 and 2025, interest was expensed.

From March 31, 2024 to October 30, 2024, the Company issued $6.9 million in Secured Notes in multiple closings. The Secured Notes bear interest at an annual rate of 9%, payable quarterly in arrears. During the three months ended June 30, 2024 and 2025, the Company incurred $65,293 and $67,324, respectively, of interest expense related to the Secured Notes. The noteholders holding $6.6 million of the outstanding principal of the Secured Notes converted their Secured Notes for equity on May 7, 2025.

On May 8, 2025, the Company issued a $150,000 promissory note with a personal guarantee from the Company's Founder and Chief Executive Officer, which has an original issue discount of $75,000 which is accreted on a straight-line basis from the date of issuance to the Maturity Date of February 7, 2026. In the three months ended June 30, 2025, the Company recognized $6,389 of accretion expense.

For the three months ended June 30, 2024 and 2025, the Company recognized $2,592 and $17,314, respectively, for the amortization of debt issuance costs included within Interest expense on the condensed interim statement of operations.

Unrealized Gain on Investment

The Company recognized $1.7 million of unrealized gain on investment for the three months ended June 30, 2025. There was no unrealized gain on investment in the comparable period in 2024.

Other Income, Net

Other income, net had a de minimis increase from $15,485 for the three months ended June 30, 2024 to $16,373 for the three months ended June 30, 2025.

Comparison of the Six Months ended June 30, 2024 and June 30, 2025

Revenues

The Company recognized $1.7 million and $11,615 of revenues for the six months ended June 30, 2024 and 2025, respectively. In the six months ended June 30, 2024 and 2025, revenues were derived exclusively from the sale of licensed molecules to Wugen. Under the terms of the supply agreement between Wugen and the Company, the Company earns an industry-standard gross margin. Occasionally, Wugen acquires product which is part of inventory we made for our own use. In these instances, we do not apply the standard costs since the cost of manufacturing these materials would have already been expensed in a prior period. As of June 30, 2025, the Company agreed to a request from Wugen to suspend the Wugen License for a period of one year, so the Company expects there will be no revenue under the Wugen license during this time. The suspension will run for a period of one year from the effective date and will end on May 29, 2026. During the suspension, the Company is free to enter licenses with other parties for the molecules that are subject of the Wugen license. We are in active negotiations with some large biologics manufacturers concerning a license for HCW9206, which can be used to make the manufacturing of CAR-T products more efficient.

Research and Development Expenses

The following table summarizes our research and development expenses for the six months ended June 30, 2024 and June 30, 2025:

	Six Months Ended June 30,			
	2024	2025	$ Change	% Change
Salaries, benefits and related expenses	$ 1,536,393	$ 1,479,546	$ (56,847)	(4)%
Manufacturing and materials	1,328,072	296,783	(1,031,289)	(78)%
Preclinical expenses	543,567	324,060	(219,507)	(40)%
Clinical trials	331,758	298,755	(33,003)	(10)%
Other expenses	412,680	306,392	(106,288)	(26)%
Total research and development expenses	**$ 4,152,470**	**$ 2,705,536**	**$ (1,446,934)**	(35)%

Research and development expenses decreased by $1.5 million, or 35%, from $4.2 million for the six months ended June 30, 2024 to $2.7 million for the six months ended June 30, 2025. This decrease was primarily attributable to a decrease in expenses related to manufacturing and materials and preclinical expenses, although expenses declined in all categories.

Salaries, benefits, and related expenses decreased by $56,847, or 4%, from $1.5 million for the six months ended June 30, 2024 to $1.5 million for the six months ended June 30, 2025. This decrease is primarily attributable to a decrease in salaries and payroll taxes of $177,258 and a decrease of $73,277. In addition, the Company did not have the Wugen reimbursement of certain R&D expenses at this time, which ordinarily would have offset costs. During this time, the Wugen reimbursement to support the Company's R&D activities declined by $187,500.

Manufacturing and materials expense decreased by $1.0 million, or 78%, from $1.3 million for the six months ended June 30, 2024 to $296,783 for the six months ended June 30, 2025. In the six months ended June 30, 2024, costs were primarily attributable to the costs of production and materials related to manufacturing the high producing cell-line of HCW9101. In the six months ended June 30, 2025, the decrease in manufacturing and materials costs were primarily attributable to a $1.0 million decrease in drug costs and a $15,107 decrease in ancillary expenses such as shipping and storage costs.

Expenses associated with preclinical activities decreased by $219,507, or 40%, from $543,567 for the six months ended June 30, 2024 to $324,060 for the six months ended June 30, 2025. In the six months ended June 30, 2024, toxicology and other IND-enabling studies were winding down, as we prepared its IND application for the evaluation of HCW9302 in an autoimmune disease. The Company received clearance of its IND from FDA early in 2025. In the six months ended June 30, 2025, expenses were incurred in connection with further testing and research with collaborators.

Expenses associated with clinical activities decreased by $33,003, or 10%, from $331,758 for the six months ended June 30, 2024 to $298,755 for the six months ended June 30, 2025. The decrease was primarily attributable to a $73,231 decrease in patient fees, partially offset by a $41,815 in costs related to clinical site maintenance and data management. In the six months ended June 30, 2024, our activities were focused on post-clinical correlative studies which we conducted through collaborations. In the six months ended June 30, 2024, as a result of the Settlement Agreement, ImmunityBio has the exclusive right to the use of HCW9218 in the treatment of cancer. In the six months ended June 30, 2025, activities were focused on additional studies with collaborators and start up fees related to opening clinical sites in preparation for the initiation of the clinical trial to evaluate HCW9302 in an autoimmune disease.

Other expenses, which include overhead allocations, decreased by $106,288, or 26%, from $412,680 for the six months ended June 30, 2024 to $306,392 for the six months ended June 30, 2025. The decrease in other expenses is primarily attributable to a $87,716 decrease in the allocation of depreciation and a $18,267 decrease in costs related to repairs and maintenance.

General and Administrative Expenses

The following table summarizes our general and administrative expenses for the six months ended June 30, 2024 and June 30, 2025:

	Six Months Ended June 30,			
	2024	2025	$ Change	% Change
Salaries, benefits and related expenses	$ 1,236,585	$ 1,554,026	$ 317,441	26%
Professional services	583,769	951,008	367,239	63%
Facilities and office expenses	408,314	206,068	(202,246)	(50)%
Accretion of fixed bonus upon maturity of Secured Notes	—	375,308	375,308	NM
Depreciation	133,694	120,398	(13,296)	(10)%
Rent expense	106,708	112,278	5,570	5%
Other expenses	691,215	983,215	292,000	42%
Total general and administrative expenses	**$ 3,160,285**	**$ 4,302,301**	**$ 1,142,016**	36%

NM = Not meaningful

General and administrative expenses related to the ordinary course of business increased by $1.1 million, or 36%, from $3.2 million for the six months ended June 30, 2024 to $4.3 million for the six months ended June 30, 2025. The increase is primarily attributable to increases in salaries and benefits, professional fees, accretion of the fixed bonus payable if Secured Notes are repaid on the Maturity Date, and insurance costs.

Salaries, benefits and related expenses increased by $317,441, or 26%, from $1.2 million for the six months ended June 30, 2024 to $1.5 million for the six months ended June 30, 2025. In the six months ended June 30, 2024, officers waived a $298,159 a performance-based bonus payment that was earned in 2022, which effectively reduced the salaries, benefits and related expenses by that amount. Excluding the benefit of the waiver of the performance-based bonus, there was a $19,282 increase in salaries, benefits and related expenses from the six months ended June 30, 2024 to the six months ended June 30, 2025. In the six months ended June 30, 2025, there was a $35,978 increase in employee benefits, partially offset by a $16,695 decrease in salaries and related taxes.

Professional services increased by $367,239, or 63%, from $583,769 for the six months ended June 30, 2024 to $951,008 for the six months ended June 30, 2025. The increase is primarily attributable to a $356,801 increase in fees paid for audit services, technical accounting advice, tax services, as well as the costs related to maintaining compliance with SEC and Nasdaq listing requirements. During this period, the Company completed a reverse stock split and received a Nasdaq determination letter for compliance with all listing rules. There was an increase of $16,400 related to expenses for public relations activities such as press releases. In the six months ended June 30, 2025, professional services include legal expenses of $305,536 for fees related to patents, a $5,962 decrease from the comparable period a year earlier. As a result of the Settlement Agreement, the Company agreed to maintain certain patent protection for rights retained under the Settlement Agreement as well as new patents related to the TRBC drug discovery and development platform and compounds created using this platform.

Facilities and office expenses decreased by $202,246, or 50%, from $408,314 for the six months ended June 30, 2024 to $206,068 for the six months ended June 30, 2025. The decrease is primarily due to a $187,483 decrease in fees paid for licenses, software and IT services.

Throughout 2024, the Company issued $6.9 million of Secured Notes. The terms of the Secured Notes were amended on July 2, 2024 to include a fixed bonus payment in the event that the Secured Notes were repaid on their Maturity Date. In the six months ended June 30, 2025, the Company recognized an expense of $375,308 for accretion of the fixed bonus payment. On May 7, 2025, $6.6 million of the principal of the Secured Notes converted to equity. The accretion expense represents the accretion for the period up to the conversion date for these Secured Notes.

Other expenses increased by $292,000, or 42%, from $691,215 for the six months ended June 30, 2024 to $983,215 for the six months ended June 30, 2025. The increase is primarily attributable to a $108,848 related to expenses for financing costs, including the Equity Purchase Agreement with Square Gate and a $194,915 increase in insurance-related costs, partially offset by a $17,937 decrease in travel-related expenses.

Legal Expenses

Legal expenses related to the Arbitration were $14.8 million for the six months ended June 30, 2024. In the six months ended June 30, 2024, preparations for the Arbitration were taking place with witness preparation and depositions. The Arbitration hearing was held from May 20, 2024 to May 31, 2024, which required a large team of lawyers primarily to represent the Company and Dr. Wong, our Founder and Chief Executive Officer, but also for Dr. Peter Rhode, our Chief Scientific Officer and Vice President of Clinical Affairs and an officer of the Company; as well as other employees. The hearing was followed by an extended period of intense negotiations which culminated in a Settlement Agreement entered into by the Company and Dr. Wong as of July 13, 2024 with Altor/NantCell and its parent, ImmunityBio. While the Company has relief from the future burden of ongoing legal expenses related to these proceedings, we incurred significant legal expenses for our defense and for the defense of officers and employees. As of June 30, 2025, the Company reported a balance of $12.4 million for legal fees incurred but not yet paid that were included within Accounts payable and an accrual of $6,700 for accrued legal fees within Accrued liabilities and other current liabilities. We require a reasonable payment plan to prevent these expenses from overwhelming the Company's resources. We are engaged in discussions with the law firms involved with this matter. See Part II, Item 1, "Legal Proceedings."

In the six months ended June 30, 2025, the Company received a $2.0 million insurance reimbursement for legal fees incurred on behalf of Dr. Hing Wong, the Company's Founder and Chief Executive Officer, for his defense costs associated with the Arbitration, in prior periods, which was paid directly to the law firm involved. The insurance reimbursement is included within Legal expenses, net, along with legal fees related to the Arbitration of $402,995 incurred in the six months ended June 30, 2025. For the six months ended June 30, 2025, the Company reported a contra expense of $1.6 million in Legal expenses, net in the accompanying condensed interim statement of operations.

Interest Expense

On August 15, 2022, we entered into a loan and security agreement with Cogent Bank to partially fund our purchase of the property we acquired on that same date (the "2022 Loan"). We borrowed $6.5 million under this agreement. Amounts outstanding on the term loan accrue interest at a rate per annum equal to 5.75%. We were obligated to make interest-only payments on this loan from September 2022 through August 2023 and principal and interest payments in 48 equal monthly installments, based on a 25-year maturity schedule, commencing September 15, 2023. Related to the 2022 Loan, in the six months ended June 30, 2024 and June 30, 2025, we paid $188,162 and $183,604, respectively, in cash for interest. For the six months ended June 30, 2024, three months interest was capitalized and three months interest was expensed. For the six months ended June 30, 2025, interest was expensed.

From March 31, 2024 to October 30, 2024, the Company issued $6.9 million in Secured Notes in multiple closings. The Secured Notes bear interest at an annual rate of 9%, payable quarterly in arrears. During the six months ended June 30, 2024 and 2025, the Company incurred $65,293 and $220,558, respectively, of interest expense related to the Secured Notes. The noteholders holding $6.6 million of the outstanding principal of the Secured Notes converted their Secured Notes for equity on May 7, 2025.

On May 8, 2025, the Company issued a $150,000 promissory note with a personal guarantee from the Company's Founder and Chief Executive Officer, which has an original issue discount of $75,000 which is accreted from the date of issuance to the Maturity Date of February 7, 2026. In the six months ended June 30, 2025, the Company recognized $14,722 of accretion expense.

For the six months ended June 30, 2024 and 2025, the Company recognized $5,183 and $74,344, respectively, for the amortization of debt issuance costs included within Interest expense on the condensed interim statement of operations.

Unrealized Gain on Investment

The Company recognized $1.7 million of unrealized gain on investment for the six months ended June 30, 2025. There was no unrealized gain on investment in the comparable period in 2024.

Other Income, Net

Other income, net increased from $41,086 for the six months ended June 30, 2024 to $41,122 in the six months ended June 30, 2025.

Liquidity and Capital Resources

Sources of Liquidity

As of June 30, 2025, our principal source of liquidity was $2.4 million in cash and cash equivalents, including money market investments, and as a result, there was substantial doubt over whether the Company had sufficient capital to operate for the next twelve months from the issuance date of this Quarterly Report. We considered elements of our financing plan that were probable and likely to be implemented within the next year. While we have already begun to successfully execute our financing plan, including raising $11.9 million in two equity financings, putting an Equity Purchase Agreement in place, and completing our performance obligation under the WY Biotech License to earn an $7.0 million upfront license fee which we expect to collect in the third quarter of 2025, we concluded that elements of our financing plan are not probable and thus they were not sufficient to include in our going concern analysis. In addition, during the period ended June 30, 2025, the Company strengthened our balance sheet by extinguishing $7.7 million of debt through restructuring and conversion to equity, including restructuring $7.4 million of Secured Notes and accumulated accretion of a fixed bonus payable upon Maturity Date and converting $270,000 of unsecured promissory notes according to the terms in the agreement.

In the coming year, we believe we have some significant potential valuation inflection points related to expected initiation of a clinical trial to evaluate HCW9302 in an autoimmune disease, licensing agreements and revelations regarding the potential of some of the new class of molecules the Company has created with our TRBC platform. These events could provide much needed momentum for successful financings. However, if the Company is not successful in raising additional capital through these activities, management may need to revise its business plan and reduce costs. If such revisions are insufficient, the Company may have to curtail or cease operations.

The Company expects to continue to access the public markets through the issuance of shares of Common Stock and other securities. Thus, resolving the compliance issues with Nasdaq is a critical element to our liquidity and capital reserves. On June 26, 2025, Company announced that it received formal notice from Nasdaq that the Company is in compliance with Listing Rule 5550(b)(1) (the "Equity Rule"). On May 13, 2025, the Company received formal notice from Nasdaq that it regained compliance with the bid price requirement in Listing Rule 5550(a)(2), the public float requirement in Listing Rule 5550(a)(4), and the market value of publicly held shares requirement in Listing Rule 5550(a)(5). As a result, the Company is in compliance with all applicable criteria for continued listing on the Nasdaq Capital Market tier, and the previously disclosed listing compliance matters have been closed. The Company was also notified that it will remain subject to a "Panel Monitor," as that term is defined in Nasdaq Listing Rule 5815(d)(4)(B), for a period of one year from the date of the Nasdaq notice, through June 23, 2026.

One of the means the Company has at its disposal for accessing the public market through the issuance of shares of Common Stock is a standby equity purchase agreement. On February 20, 2025, the Company entered into an Equity Purchase Agreement and a related Registration Rights Agreement with Square Gate Capital Master Fund, LLC - Series 4 ("Square Gate"), pursuant to which the Company will have the right, but not the obligation, to sell to Square Gate, and Square Gate will have the obligation to purchase from the Company, up to $20.0 million (the "Maximum Commitment Amount") worth of the Company's shares of Common Stock, at the Company's sole discretion, over the next 36 months (the "Put Shares"), subject to certain conditions precedent and other limitations. On April 16, 2025, the SEC declared a registration statement effective to sell up to $40.0 million of the Company's shares to Square Gate, according to provisions of the Equity Purchase Agreement.

In addition to equity financings, a key strategy in our financing plan is identifying candidates in our sizeable molecule portfolio that would be appropriate to develop through business development transactions, especially out-licensing. In the second quarter of 2025, we intend to begin our search for an appropriate partner to commercialize our Immune-Cell Engagers, including T-Cell Engagers, created using our TRBC drug discovery and development platform. Since the inception of the Wugen License in December 2020, the Company has recognized cumulative revenues of $16.2 million. In the quarter ended June 30, 2025, the Company agreed to a request from Wugen to suspend the Wugen License, including Wugen's clinical trial due diligence obligations and its obligation to pay $500,000 annually to reimburse the Company for certain R&D expenses. The suspension will run for a period of one year from the effective date and will end on May 29, 2026. During the suspension, the Company has the exclusive right to seek alternate licensees and terminate the license in order to enter other business development transactions related to the *ex vivo* rights of licensed molecules. We are actively engaged in discussions with several large biologics manufacturing companies with interest in a license for these molecules. In the quarter ended June 30, 2025, WY Biotech notified the Company that it completed its due diligence to study the technical report delivered by the Company and elected to continue with the exclusive worldwide license agreement, as amended (the "WY Biotech License"). As a result, WY Biotech is financially obligated to the Company, as detailed in the WY Biotech License, as amended, including the obligation to pay the $7.0 million upfront license fee. In order to accommodate WY Biotech's timing in finalizing agreements with its CDMO and investors, the Company and WY Biotech agreed to extend the date for payment of the $7.0 million license fee on or before September 30, 2025. Since the Company has no payment history with WY Biotech, the Company will recognize revenue when there are legally binding agreements with investors, as we concluded collectability was not probable.

As reported in the Company's Form 8-K filed on July 18, 2024 and further described in Part II, Item 1. – "Legal Proceedings" below, as of July 13, 2024, the Company and Dr. Hing C. Wong, the Company's Founder and Chief Executive Officer, entered into a confidential Settlement Agreement and Release (the "Settlement Agreement") with ImmunityBio and its affiliates. The Settlement Agreement includes mutual general releases by and among the parties thereto. No party was required to make any monetary payments to any other party or person under the Settlement Agreement and each party will bear its own expenses incurred in connection with the matter. The Arbitration and related Complaint were dismissed on December 24, 2024. With the execution of the Settlement Agreement, we resolved the attendant uncertainties for the outcome of the Arbitration and additional complexities, and we launched our new financing plan.

In the accompanying condensed balance sheet as of June 30, 2025, the Company reported a balance of $12.3 million for legal fees incurred but not yet paid that were included within Accounts payable and an accrual of $8,000 for accrued legal fees within Accrued liabilities and other current liabilities. The Company is engaged in discussions with the law firms involved with this matter to arrange a reasonable payment plan with respect to those legal fees. With the execution of the Settlement Agreement, the Company resolved the attendant uncertainties for the outcome of the Arbitration and additional complexities, and it launched its new financing plan. In the six months ended June 30, 2025, the Company received a $2.0 million insurance payment, which was paid directly to the law firm that represented Dr. Wong for his defense during the Arbitration. The insurance payment is reported within Legal expenses, net in the condensed interim statement of operations.

The Company owns a property which we are renovating to create a biologics manufacturing facility to produce clinical trial quantities of material to serve our needs, the needs of our licensees, and other small clinical-stage immunotherapeutic companies. We are actively seeking financing to complete this project. On August 15, 2022, the Company entered into a loan and security agreement (the "2022 Loan Agreement") with Cogent Bank, pursuant to which it received $6.5 million in proceeds to purchase our property at which the Company planned to build a facility to manufacture biologics and upgrade its research laboratory facilities. The loan is secured by a first priority lien on the property. As of June 30, 2025, certain subcontractors had filed mechanics liens related to unpaid invoices issued in connection with construction. The 2022 Loan Agreement contains a provision for a discretionary default in the event that the Company fails to pay sums due in connection with construction of any improvements; however, as of the reporting date, the lender has not elected to do so. As of June 30, 2025, the Company has reflected this loan as Short-term debt, net, to reflect that the lender has the right to accelerate the loan under a discretionary default provision.

On January 22, 2025, the Company entered into a forbearance agreement with BE&K Building Group ("BE&K"), its general contractor, to allow the Company until March 31, 2025 to continue efforts to find the financing required to complete the construction and renovation of the property. Pursuant to the forbearance agreement, the Company made an initial payment of $1.0 million in partial satisfaction of amounts owing to BE&K and its subcontractors. As the Company reported in a Form 8-K, on April 17, 2025, the Company received a summons and a copy of a complaint filed by BE&K in the Circuit Court of the 17th Judicial Circuit in and for Broward County, Florida (the "BE&K Complaint"). Other Defendants named in the BE&K Complaint who are subcontractors elected to file counterclaims and cross-claims as part of their responses to the BE&K Complaint. Cogent Bank, also named as a Defendant in the BE&K Complaint, has not elected to take legal action at this time. In addition, on April 28, 2025, the Company received a summons and a copy of a complaint filed by Fisk Electric Company (which is a defendant in the BE&K Complaint) in the Circuit Court of the 17th Judicial Circuit in and for Broward County, Florida (the "Fisk Complaint") against the Company, BE&K, and the other defendants in the BE&K Complaint. On August 8, 2025, B&I Contractors, Inc., one of the defendants in the BE&K Complaint, filed a motion for summary judgment (the "MSJ") as to the Count I (Foreclosure of Construction Lien). The Company has responded to the BE&K and Fisk Complaints and cross-claims and intends to timely respond to the B&I MSJ.

The accompanying condensed interim financial statements have been prepared on a going concern basis, which contemplates the realization of assets and satisfaction of liabilities in the ordinary course of business. The financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might result from the outcome of the uncertainties described above. The Company believes that substantial doubt exists regarding its ability to continue as a going concern for at least 12 months from the date of issuance of the Company's condensed interim financial statements, without additional funding or financial support. After considering management's plan for financing and funds raised that are probable to occur within one year, as well as that the Company expects to continue to incur losses from operations for the foreseeable future, management concluded that the substantial doubt that existed in its going concern analysis as of June 30, 2025 was not alleviated.

Because of the numerous risks and uncertainties associated with the clinical development and commercialization of immunotherapeutics, we are unable to estimate the exact amount of capital requirements to pursue these activities. Our funding requirements will depend on many factors, including, but not limited to:

- timing, progress, costs, and results of our ongoing preclinical studies and clinical trials of our immunotherapeutic products;
- costs, timing, and outcome of regulatory review of our product candidates;
- number of trials required for regulatory approval;
- whether we enter into any cooperative, collaboration or co-development agreements and the terms of such agreements;
- whether we raise additional funding through bank loan facilities, other debt arrangements, out-licensing or joint ventures, cooperative agreements or strategic collaborations;
- effect of competing technology and market developments;
- cost of maintaining, expanding, and enforcing our intellectual property rights;
- impact of future arbitration, litigation, regulatory inquiries, or investigations, as well as costs to indemnify our officers and directors against third-party claims related to our patents and other intellectual property:
- cost and timing of buildout of the Company's new manufacturing and laboratory facilities, including manufacturing for biologics and upgraded research and development facilities, including risks of cost overruns and delays, and ability to obtain additional financing, if needed;
- impact of legal actions taken by BE&K and other lien holders related to foreclosure and other claims; and
- costs and timing of future commercialization activities, including product manufacturing, marketing, sales, and distribution, for any of our product candidates for which we receive regulatory approval.

A change in the outcome of any of these or other factors with respect to the clinical development and commercialization of our product candidates could significantly change the costs and timing associated with the development of that product candidate. Further, our operating plan may change, and we may need additional funds to meet operational needs and capital requirements for clinical trials and other research and development expenditures.

Comparison of the Cash Flows for the Six Months Ended June 30, 2024 and June 30, 2025

The following table summarizes our cash flows for the six months ended June 30, 2024 and June 30, 2025:

	Six Months Ended June 30,	
	2024	2025
Cash used in operating activities	$ (8,466,076)	$ (6,796,159)
Cash (used in) provided by investing activities	(111,142)	—
Cash provided by financing activities	6,143,431	4,560,549
Net decrease in cash and cash equivalents	**$ (2,433,787)**	**$ (2,235,610)**

Operating Activities

Net cash used in operating activities were $8.5 million for the six months ended June 30, 2024 and $6.8 million for the six months June 30, 2025.

Cash used in operating activities for the six months ended June 30, 2024 consisted primarily of net loss for the period of $22.7 million, partially offset by cash from a $11.9 million increase in accounts payable primarily related to legal fees incurred in connection with the Arbitration and Settlement Agreement, a $880,784 decrease in accounts receivable, and a $703,805 decrease in prepaid expenses and other assets, as well as cash provided by non-cash adjustments, consisting of $373,433 of cash provided for adjustment for depreciation and accretion and $484,506 of cash provided for adjustment for stock-based compensation.

Cash used by operating activities for the six months ended June 30, 2025 consisted primarily of net loss for the period of $4.1 million, a $1.7 million adjustment for unrealized gain on investment, a $560,590 decrease in Accounts receivable, a $2.8 million decrease in Accounts payable, and a $131,134 loss on conversion with a related party, partially offset by non-cash adjustments of $710,926 for depreciation and accretion expenses, $553,949 for compensation expenses related to stock-based compensation, and a $150,000 Commitment Fee paid in the Company's Common Stock. Cash provided by operations includes a $2.0 million insurance reimbursement for legal fees incurred on behalf of Dr. Hing Wong, the Company's Founder and Chief Executive Officer, for his defense costs associated with the Arbitration, in prior periods, which was paid directly to the law firm involved. See Part II, Item 1, "Legal Proceedings."

Investing Activities

Cash used by investment activities for the six months ended June 30, 2024 consisted of $111,142 used for purchases of property and equipment. There was no cash used in or provided by investing activities for the six months ended June 30, 2025.

Financing Activities

During the six months ended June 30, 2024, $6.1 million of cash provided by financing activities consisted of a $2.5 million private placement of the Company's common stock and $3.7 million from the issuance of Secured Notes, partially offset by $58,829 of cash used for debt repayment.

During the six months ended June 30, 2025, $4.6 million of cash provided by financing activities consisted of the following:

- $1.5 million of gross proceeds for the issuance of shares of the Company's Common Stock.
- $3.8 million in gross proceeds for the issuance of Pre-Funded Warrants may be exercised to purchase shares of the Company's Common Stock.
- $150,000 in gross proceeds upon the issuance of a promissory note secured by a personal guarantee by the Company's Founder and Chief Executive Officer.
- $824,899 used for issuance costs.
- $63,385 used to repay debt.

In the six months ended June 30, 2025, there were significant noncash transactions. The Company restructured $7.4 million of Secured Notes and accumulated accretion for a fixed bonus payable upon Maturity Date, in exchange for shares of Common Stock, warrants to exercise for Common Stock, and the right to receive proceeds upon the liquidation or sale of a portion of the Company's shares of Wugen common stock. Because this was a transaction with related parties, the gain from restructuring was recorded to additional paid-in capital for the period ended June 30, 2025. Also during this period, the Company closed on a $5.0 million financing in which it issued shares of the Company's Common Stock and warrants to exercise to purchase shares of the Company's Common Stock and repriced previously issued warrants with an existing stockholder of the Company. The Company estimated fair value of the securities issued and repriced warrants was $15.2 million. The difference between the gross proceeds and fair value was recognized as an equity dividend to investor, as this transaction was with an existing stockholder of the Company. The Company recorded a $10.2 million dividend to additional paid-in capital for the period ended June 30, 2025.

Critical Accounting Policies, Significant Judgements and Use of Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our unaudited condensed interim financial statements, which have been prepared in accordance with U.S. GAAP. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported expenses incurred during the reporting periods. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgements about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We believe that the accounting policies discussed below are critical to understanding our historical and future performance, as these policies relate to the more significant areas involving management's judgements and estimates.

Revenue Recognition

We recognize revenue under the guidance of Topic 606. To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of Topic 606, we perform the following five steps: (i) identification of the contract(s) with the customer, (ii) identification of the promised goods or services in the contract and determination of whether the promised goods or services are performance obligations, (iii) measurement of the transaction price, (iv) allocation of the transaction price to the performance obligations, and (v) recognition of revenue when (or as) we satisfy each performance obligation. We only apply the five-step model to contracts when it is probable that we will collect the consideration we are entitled to in exchange for the goods or services we transfer to our customer. See Note 1 to our condensed interim financial statements appearing elsewhere in this Quarterly Report on Form 10-Q for more information.

Other than the above, there have been no material changes to our critical accounting policies and estimates from those described under the heading "Management's Discussion and Analysis of Financial Condition and Results of Operations— Critical Accounting Policies, Significant Judgements and Use of Estimates" in our Annual Report.

Standby Equity Line of Credit

The Company entered an Equity Purchase Agreement (the "Equity Purchase Agreement") with an investor on February 20, 2025, which the Company deemed to be a Standby Equity Purchase Agreement ("SEPA"). A SEPA is an equity-linked instrument for which an entity has the right, but not the obligation, to sell the entity's common stock to third-party investors over a specified period. The total number of shares that the entity may issue to the investor is capped by either an aggregate dollar amount or an aggregate number of shares. Furthermore, the number of shares that an entity may issue at any particular time during the life of the SEPA is also limited. The price payable by the investor for each share of common stock purchased from the entity is generally discounted. In exchange for its access to capital through the SEPA, the entity typically provides up-front consideration to the investor in the form of cash or shares of the entity's common stock. Economically, before the entity has elected to sell shares, a SEPA represents a purchased put option on the entity's own equity. However, once the entity "draws" on the SEPA, the related number of shares issuable constitutes a forward contract to issue common stock. Thus, a SEPA contains both a purchased put option element and a forward share issuance element. This generally means that a SEPA generally does not qualify for equity classification. Accordingly, entities must recognize an asset or liability for its SEPA. Such asset or liability must be measured at fair value, with changes in fair value recognized in net (loss) income.

Because SEPAs do not qualify for classification in equity, an entity must expense as incurred the amount by which any consideration provided to the investor at the inception of the arrangement exceeds the fair value of the asset recognized for the SEPA.

An entity should recognize at fair value the common shares issued to the investor upon settlement of a SEPA by using the quoted price of the shares on the date of issuance. The then-current fair value of the asset or liability for the associated forward share issuance contract must be derecognized in conjunction with the settlement. The proceeds received from the investor are reflected and any residual amount must be charged (or credited) to earnings. This accounting is consistent with the guidance in ASC 815 that applies upon the settlement of a derivative instrument. When an equity-linked instrument classified as an asset or liability is settled, entities should measure the instrument at its current fair value as of the settlement date and include in earnings any previously unrecognized fair value gain or loss.

In summary, upon settlement of a forward issuance contract element of a SEPA, an entity would recognize in earnings the following amounts:

- The gain (loss) for the excess (deficit) of (a) the carrying amount of the asset or liability for the forward issuance contract plus the proceeds received and (b) the fair value of the common shares as of the issuance date.
- Any issuance or transaction costs incurred in conjunction with the issuance of the shares.

Recent Accounting Pronouncements

See Note 1 to our Annual Report.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

As of June 30, 2025, we had cash and cash equivalents of $2.4 million including cash, cash equivalents and market investments. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. We are exposed to market risk related to the marketability of our Wugen common stock reported within Investments in the accompanying condensed interim balance sheet. Until such time as these shares become publicly traded, we will have limited access to liquidity for these securities.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our disclosure controls and procedures are designed to ensure that information required to be disclosed by us in reports that we file or submit under the Securities Exchange Act of 1934, as amended or the Exchange Act, is recorded, communicated to our management to allow timely decisions regarding required disclosure, summarized and reported within the time periods specified in the SEC's rules and forms. Any disclosure controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objective and management necessarily applies its judgement in evaluating the cost-benefit relationship of possible controls and procedures.

Under the supervision and with the participation of our management, including the Chief Executive Officer, or CEO, and Chief Financial Officer, or CFO, we conducted an evaluation of the effectiveness of our disclosure controls and procedures, as such term is defined under Rules 13a-15(e) and 15d-15(e) under the Exchange Act, as of June 30, 2025. Based on that evaluation, the CEO and CFO have concluded that, as of such date, our disclosure controls and procedures were effective.

Inherent Limitations of Internal Controls

While we strive to create a stronger control environment, we recognize that it is impossible for our internal controls over financial reporting to prevent all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within our company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the control. While we are committed to continuously improve and strengthen our control environment, over time, our internal controls over financial reporting may become inadequate because of changes in conditions, or the degree of compliance with the policies or procedures may deteriorate.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act during the three months ended June 30, 2025 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

From time to time, the Company is a party to or otherwise involved in legal proceedings, including suits, assessments, regulatory actions and investigations generally arising out of the normal course of business. Such proceedings can be costly, time consuming, and unpredictable. Therefore, no assurance can be given on the outcome of any proceeding or the potential impact on our results of operations or financial condition.

Settlement and General Release: Arbitration

During the period ended December 31, 2022, Altor/NantCell initiated legal proceedings against Dr. Wong and the Company. On April 26, 2023, the parties stipulated that Altor/NantCell's action against the Company would be consolidated with the Altor/NantCell Arbitration demand against Dr. Wong. On April 27, 2023, the U.S. District Court for the Southern District of Florida (the "Court") with jurisdiction over the lawsuit against the Company approved the parties' stipulation and ordered the parties to Arbitration. On May 1, 2023, Altor/NantCell filed a demand against the Company before JAMS. On May 3, 2023, Altor/NantCell dismissed the federal court action without prejudice and the Court ordered the case dismissed without prejudice and closed the case. Proceedings against the Company and Dr. Wong were consolidated in the Arbitration before JAMS. The Arbitration hearing was held from May 20, 2024 to May 31, 2024, after which the parties entered into settlement negotiations.

As reported in the Company's Form 8-K filed on July 18, 2024, as of July 13, 2024, the Company and Dr. Hing C. Wong, the Company's Founder and Chief Executive Officer, entered into a confidential Settlement Agreement and Release (the "Settlement Agreement") with Altor BioScience, LLC ("Altor"), NantCell, Inc. ("NantCell"), and ImmunityBio, Inc. (the parent of Altor and NantCell, together with Altor and NantCell, "ImmunityBio"), to resolve the previously disclosed Arbitration before JAMS brought by Altor and NantCell (the "Arbitration") as well as a complaint Altor filed against the Company in the Chancery Court of the State of Delaware for the contribution of legal fees and expenses advanced to Dr. Wong ("Complaint"). The Settlement Agreement includes mutual general releases by and among the parties thereto. No party is required to make any monetary payments to any other party or person under the Settlement Agreement and each party will bear its own expenses incurred in connection with the matter. In accordance with the provisions of the Settlement Agreement, upon completion of remedial procedures, the parties stipulated that the Arbitration and Complaint should be dismissed. The Arbitration and related Complaint were dismissed with prejudice on or about December 24, 2024.

Pursuant to the Settlement Agreement, the Company transferred and assigned to ImmunityBio ownership of certain intellectual property (including issued patents, pending patent applications, and know-how) for TOBI-based molecules. The Company retains the worldwide, perpetual, irrevocable, fully paid-up, royalty-free, exclusive right and license to exploit HCW9218 for all age-related diseases other than cancer. The Company also retains the right to develop treatments for all indications with respect to HCW9302 and HCW9206, which, along with HCW9218, are the lead product candidates in the Company's clinical development pipeline. ImmunityBio has the exclusive right to pursue oncology indications with all of the TOBI-based molecules designed with a TGF-β domain, including HCW9218. Under the Settlement Agreement ImmunityBio also receives an exclusive license to exploit fusion proteins, molecules and/or antibodies created utilizing the TOBI platform directed to the receptors of PDL-1, IL-7, IL-12, IL-18, IL-15, and IL-21 in the oncology field. The Company's ownership and rights with respect to HCW9302, HCW9206 and HCW9201 are expressly excluded from the rights transferred to ImmunityBio for oncology indications. In addition, ImmunityBio received a non-exclusive license to exploit HCW9201 administered by injection for oncology indications.

The Company retains ownership and control of the TOBI platform and TOBI-based molecules, with no restrictions under the Settlement Agreement on our ability to use the TOBI platform for protein-fusion molecules for non-oncology indications. We have rights to pursue oncology indications, in particular using HCW9302, HCW9206 and HCW9201. Further, the Company retains ownership of the Wugen license and shares of Wugen common stock transferred to the Company as the upfront licensing fee from Wugen for granting the Wugen license. For our molecule, HCW9218, we maintain the exclusive rights for clinical development and use of HCW9218 in the treatment of all non-oncological diseases. We retain ownership of our lead molecule, HCW9302, which expands T_{reg} cells and is designed to treat autoimmune diseases and other proinflammatory diseases, including cancer, and the ownership of HCW9206, a preclinical molecule which we are developing for the treatment of cancer and other age-related diseases. The Company agreed to provide ImmunityBio with a right of first refusal to enter a licensing agreement for oncology indications for HCW9206. We have no restrictions on the development of HCW9206 for our own clinical development activities, including oncology indications. Under the terms of the Settlement Agreement, ImmunityBio will own the cell line and supply for HCW9218, and the parties agreed that within six months from the date of the Settlement Agreement they will enter into a supply agreement providing the Company with a continuing supply of HCW9218 molecules. However, as of the reported date, the supply agreement of HCW9218 is not yet in place. The Company also retains *in vivo* rights to HCW9201, a combination of IL-12, IL-15, and IL-18 in a single protein complex which is designed to stimulate activation and proliferation signals in human NK cells. The Company retains ownership of the cell lines for HCW9302, HCW9206 and HCW9201, and thus will retain independent control over manufacturing and supply for these compounds.

Other Matters

As the Company reported in a Form 8-K, on April 17, 2025, the Company received a summons and a copy of a complaint filed by BE&K in the Circuit Court of the 17th Judicial Circuit in and for Broward County, Florida (the "BE&K Complaint"). Other Defendants named in the BE&K Complaint who are subcontractors elected to filed counterclaims and cross-claims in response thereto. Cogent Bank, also named as a Defendant in the BE&K Complaint, has not elected to take legal action at this time. In addition, on April 28, 2025, the Company received a summons and a copy of a complaint filed by Fisk Electric Company (which is a defendant in the BE&K Litigation) in the Circuit Court of the 17th Judicial Circuit in and for Broward County, Florida (the "Fisk Complaint") against the Company, BE&K, and the other defendants in the BE&K Complaint. On August 8, 2025, B&I Contractors, Inc., one of the defendants in the BE&K Complaint, filed a motion for summary judgment (the "MSJ") as to the Count I (Foreclosure of Construction Lien). The Company has responded to the BE&K and Fisk Complaints and cross-claims and intends to timely respond to the B&I MSJ.

Item 1A. Risk Factors.

There have been no material changes to the risk factors previously disclosed by us in our Annual Report. The risk factors included our Annual Report continue to apply to us and describe risks and uncertainties that could cause actual results to differ materially from the results expressed or implied by the forward-looking statements contained in this Quarterly Report. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business, financial condition and results of operations.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

Sale of Unregistered Shares of Common Stock

On February 20, 2024 (the "Purchase Date"), we entered into subscription agreements (the "Subscription Agreements") with certain officers and directors of the Company, including our Founder and Chief Executive Officer, our Chief Financial Officer and the Chairman of the Company's Board of Directors, pursuant to which the Company sold an aggregate of 1,785,718 shares (the "Shares") of our common stock, par value $0.0001 per share (the "Common Stock"), at a purchase price of $1.40 per share for an aggregate purchase price of $2.5 million. The per share purchase price represents a 25% premium to the per share closing price of the Common Stock as reported on the Nasdaq Global Market on the Purchase Date and a 19% premium to the 5-day volume weighted average closing price per share of the Common Stock as reported on the Nasdaq Global Market for the period ending on the Purchase Date.

The Shares issued pursuant to the Subscription Agreements were not registered under the Securities Act of 1933, as amended, in in reliance upon exemptions provided by Section 4(a)(2) of the Securities Act of 1933, as amended, and Rule 506 of Regulation D promulgated thereunder.

Conversion of Senior Secured Notes for Unregistered Shares of Common Stock and Unregistered Warrants

On March 28, 2024, the Company entered into a senior secured note purchase agreement (the "Note Purchase Agreement") with the Purchasers (as defined in the Note Purchase Agreement), pursuant to which we agreed to issue senior secured notes in an aggregate principal amount of up to $10.0 million ("Secured Notes") to certain accredited investors, including unrelated parties as well as officers and directors of the Company. As of March 31, 2024, the Company had an initial closing and issued $2.0 million in Initial Secured Notes. As of June 30, 2024, all existing investors approved an Amended and Restated Note Purchase Agreement ("Amended and Restated Note Purchase Agreement"), with terms described below. As of September 30, 2024, the Amended and Restated Note Purchase Agreement was amended to extend the last closing date to issue Additional Secured Notes to October 31, 2024. See Exhibit 10.25. No other terms were amended. The material terms of the Additional Secured Notes are identical to the terms of the Initial Secured Notes.

As of October 31, 2024, the Company issued an aggregate of $6.9 million of Secured Notes, with $2.9 million from the Company's officers and members of the Board of Directors, including $2.4 million purchased by Dr. Hing C. Wong, Founder and Chief Executive Officer; $220,000 purchased by Rebecca Byam, Chief Financial Officer; $140,000 purchased by Scott T. Garrett, Chairman of the Board of Directors; $60,000 purchased by Gary M. Winer, who was a member of the Board of Directors at the time he made this investment; $25,000 purchased by Lee Flowers, Senior Vice President for Business Development; and $25,000 purchased by Rick S. Greene, member of the Board of Directors.

The Secured Notes bear interest at a rate of 9% per annum, payable quarterly in arrears, and mature on August 30, 2026 (the "Maturity Date"), on which date the principal balance, accrued but unpaid interest, and other amounts that may be due under the terms of the Amended and Restated Note Purchase Agreement shall be due and payable. The Secured Notes may be prepaid on or prior to December 31, 2024, but will be subject to a 5% prepayment penalty ("Premium Amount"). Thereafter, the Secured Notes may be repaid upon a Mandatory Redemption event or at the end of the term.

As a condition to entering into the Amended and Restated Note Purchase Agreement, the Company, Mercedes M. Sellek, P.A. ("Escrow Agent"), and the Purchasers entered into that certain Escrow Agreement and Amended and Restated Pledge Agreement, dated July 2, 2024, pursuant to which the Company agreed to pledge our equity ownership interest in Wugen, which was equivalent to a 5.6% ownership stake in that company as of December 31, 2024 (the "Pledged Collateral"), to be held and released by Escrow Agent according to the terms of the Escrow Agreement, as security for the Secured Notes.

Upon a qualifying event involving a transaction such as an acquisition, merger or initial public offering in which the Pledged Collateral can be sold or liquidated prior to the Maturity Date, subject to certain limitations (such as a threshold price per share in the case of an initial public offering), the Company agreed to repay all indebtedness (including accrued interest) related to the Secured Notes plus a Bonus Payment (as defined in the Amended and Restated Note Purchase Agreement). If there is no such mandatory redemption prior to the Maturity Date, the Company agreed to pay the holders of Secured Notes a Bonus Payment under certain circumstances.

Upon an Event of Default (as defined in the Amended and Restated Note Purchase Agreement), the Company will have a thirty (30) day cure period (the "Cure Period"), and if the Event of Default is not so cured at the end of the Cure Period, the Company is required to distribute the Pledged Collateral to the Purchasers on a *pro rata* basis, determined based on the issuance of $10.0 million in Secured Notes, in full satisfaction of the indebtedness evidenced by the Secured Notes.

The foregoing descriptions of the Amended and Restated Note Purchase Agreement, Amended and Restated Senior Secured Notes, Escrow Agreement and Amended and Restated Pledge Agreement do not purport to be complete and are qualified in their entirety by reference to the full text of the Form of Amended and Restated Senior Secured Note Purchase Agreement, Form of Senior Secured Promissory Note, Form of the Amended and Restated Pledge Agreement and Form of Amended and Restated Escrow Agreement, copies of which are filed as Exhibit 10.21 (and Exhibit 10.25 for the first amendment thereto as amended on September 30, 2024), Exhibit 10.22, Exhibit 10.23 and Exhibit 10.24, respectively, to our Annual Report and on Form 10-K are incorporated herein by reference.

The issuance of the Additional Secured Notes was exempt from the registration requirements of the Securities Act of 1933, as amended, in accordance with Section 4(a)(2), as a transaction by an issuer not involving a public offering. In addition, our Board of Directors and the Audit Committee of our Board of Directors reviewed the transaction under our policy for Related Party Transactions (the "Policy") and determined that the issuance of the Additional Secured Notes was in compliance with the Policy.

On February 20, 2025, the Company and certain Noteholders agreed to Principal Terms for Conversion of their Secured Notes. Noteholders and the Company agreed that, subject to stockholder approval, at least $6.6 million principal amount of the Secured Notes will be converted into shares of our Common Stock at a conversion price of $0.65 per share ($26.00 per share, as adjusted for the Reverse Stock Split). As part of the conversion, the Company will issue warrants to purchase shares of our Common Stock to the converting Noteholders for up to an additional $3.3 million of shares of our Common Stock, at an exercise price of $0.65 per share ($26.00 per share, as adjusted for the Reverse Stock Split). Upon conversion, converting Noteholders would be subject to a lock-up period of 180 days from the date of conversion. Further, the Escrow Agreement will be amended such that the proceeds from the Pledged Collateral will be allocated among the Company and the converting Noteholders, as provided for in the Principal Terms. The conversion of principal amount of the Secured Notes will result in a dollar-for-dollar increase in stockholders' equity (partially offset by the carrying value of the portion of the Company's investment in the Pledged Collateral the proceeds of which will be paid to converting Noteholders), contributing to the Company's plan to gain compliance with the Nasdaq Minimum Shareholder Equity Rule and to maintaining listing of the our Common Stock on Nasdaq.

The Principal Terms of Conversion were approved at a Special Meeting of Stockholders held on March 31, 2025 and were effected pursuant to the terms of that certain Second Amendment to Amended and Restated Senior Secured Note Purchase Agreement and Related Agreements dated as of May 1, 2025 (the "Conversion Amendment"). On May 7, 2025, pursuant to the Conversion Amendment, the Secured Notes held by the participating noteholders were cancelled, and the Company issued unregistered shares of Common Stock and warrants to purchase an up to $3.3 million of Common Stock with terms as agreed in the Principal Terms for Conversion. The Company issued 253,083 unregistered shares of Common Stock and Common Stock Warrants to purchase up to 126,540 shares of Common Stock to the noteholders who converted. In addition, the Company transferred the right to receive the proceeds of the liquidation or sale of 1,067,796 of the Company's Wugen shares, if that occurs, which was recorded as a contingent liability at a fair value of $1.6 million as of June 30, 2025. If no such event occurs by August 2030, then the converting noteholders will receive the 1,067,796 shares of Wugen common stock. Shares of Common Stock, including those underlying the Common Stock Warrants, are subject to a 180-day lockup from date of issuance.

Sale of Unregistered Warrants

On November 20, 2024, the Company closed on a $6.9 million offering with a single institutional investor (the "Investor") for the issuance and sale of (i) 104,000 shares (the "Shares") of the Company's common stock, par value $0.0001 per share (the "Common Stock") and (ii) pre-funded warrants to purchase up to 63,925 shares of Common Stock (the "Pre-Funded Warrants") in a registered direct offering (the "Registered Offering"), pursuant to a shelf registration statement on Form S-3 (File No. 333-266991), which was declared effective by the SEC on August 26, 2022. The Registered Offering was made by means of a prospectus supplement filed with the SEC on November 20, 2024 that forms a part of such registration statement. All Pre-Funded Warrants issued in the Registered Offering were exercised on November 20, 2024. In a concurrent private placement (the "Private Placement" and together with the Registered Offering, the Company also issued unregistered warrants to purchase up to an aggregate of 167,925 shares of Common Stock ("Common Stock Warrants") for $41.20 per share. Share amounts and exercise price per share reflect the adjustment for the Reverse Stock Split that was effective on April 11, 2025.

On April 16, 2025, the SEC declared the registration statement effective which registered the 167,925 shares of Common Stock underlying the Common Stock Warrants. On May 15, 2025, the Company entered into a privately negotiated agreement with the holder of these Common Stock Warrants to reduce the exercise price of such warrants from $41.20 per share to $7.45 per share.

Issuance of Unregistered Shares of Common Stock for Commitment Shares

The Company issued 9,616 shares of the Company's Common Stock on March 12, 2025, reflecting the adjustment for the Reverse Stock Split that was effective on April 11, 2025. These shares were issued in connection with an Equity Purchase Agreement ("EPA") and a Registration Rights Agreement (the "RRA") the Company entered into with Square Gate Capital Master Fund, LLC – Series 4, a series limited liability company organized in the State of Delaware ("Square Gate"). Pursuant to Section 6.4(a) of the EPA, following expiration of Square Gates's Due Diligence Period (as defined in the EPA), the Company is obligated to pay to Square Gate a commitment fee of $150,000 (the "Commitment Fee"), which is required to be paid in the form of a number of shares of the Company's Common Stock, valued at the closing share price of the Common Stock on The Nasdaq Stock Market on February 19, 2025 ("Commitment Shares").

On April 16, 2025, the SEC declared the registration statement effective which registered the Commitment Shares, and the Commitment Shares were transferred to Square Gate, without restrictions.

Issuer Repurchases of Equity Securities

None.

Item 3. Defaults Upon Senior Securities.

Not Applicable.

Item 4. Mine Safety Disclosures.

Not Applicable.

Item 5. Other Information.

Insider Adoption or Termination of Trading Arrangements

During the fiscal quarter ended June 30, 2025, none of our directors or officers informed us of the adoption, modification or termination of a "Rule 10b5-1 trading arrangement" or "non-Rule 10b5-1 trading arrangement," as those terms are defined in Regulation S-K, Item 408.

Item 6. Exhibits.

The exhibits filed or furnished as part of this Quarterly Report on Form 10-Q are set forth on the Exhibit Index, which Exhibit Index is incorporated herein by reference.

Exhibit Number	Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit No.	Filing Date	
10.1	Equity Purchase Agreement, dated February 20, 2025, between the Company and Square Gate Master Fund - Series 4.	10-K	011-40591	10.33	03/28/2025	
10.2	Registration Rights Agreement, dated February 20, 2025, between the Company and Square Gate Master Fund - Series 4	10-K	011-40591	10.34	03/28/2025	
10.3	Definitive Proxy Statement dated February 21, 2025, on Form 14A, including Appendices	10-K	011-40591	10.35	03/28/2025	
10.4	Form of Promissory Note, dated May 8, 2025, between the Company and Holder	10-Q	011-40591	10.4	05/15/2025	
10.5	Form of Guaranty and Pledge Agreement, dated May 8, 2025, between the Dr. Hing C. Wong and Lender	10-Q	011-40591	10.5	05/15/2025	
10.6	Form of Unsecured Convertible Promissory Note, dated May 5, 2025, between the Company and Holder	10-Q	011-40591	10.6	05/15/2025	
10.7	Form of Placement Agency Agreement, dated May 13, 2025, between Company and Maxim Group LLC	8-K	011-40591	10.1	05/15/2025	
10.8	Form of Securities Purchase Agreement, dated May 13, 2025, between the Company and Purchaser	8-K	011-40591	10.2	05/15/2025	
10.9	Form of Pre-Funded Warrant Purchase Agreement, dated May 13, 2025, between Company and Holder	8-K	011-40591	4.2	05/15/2025	
10.10	Form of Common Stock Warrant Purchase Agreement, dated May 13, 2025, between Company and Holder	8-K	011-40591	4.1	05/15/2025	
10.11	Form of Common Stock Warrant, original issue date November 20, 2024, between Company and Holder, as amended	8-K	011-40591	4.3	05/15/2025	
10.12	Second Amendment to Amended and Restated Senior Secured Note Purchase Agreement and Related Agreements, dated May 1, 2025, between Company and Holder					X
10.13	Form of Common Stock Warrant, dated May 7, 2025, between Company and Holder					X
10.14	Letter Agreement to the License, Research and Co-Development Agreement, dated March 17, 2025, between Company and WY Biotech Co. Ltd.					X
10.15	Confirmation of Letter of Acceptance of Deliverable from Company by WY Biotech Co. Ltd., dated May 30, 2025					X
10.16	Second Letter Agreement to the License, Research and Co-Development Agreement, dated July 13, 2025, between Company and WY Biotech Co. Ltd.					
10.17	Exclusive License Agreement 12-month Suspension, dated May 29, 2025, between the Company and Wugen, Inc.					X
31.1	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
31.2	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
32.1*	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X

32.2*	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	X
101	The following materials from the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2025, formatted in Inline XBRL (eXtensible Business Reporting Language): (i) the Condensed Balance Sheets as of December 31, 2024 and June 30, 2025 (unaudited); (ii) the Condensed Statements of Operations for the three and six months ended June 30, 2024 (unaudited) and June 30, 2025 (unaudited); (iv) the Condensed Statements of Changes in Stockholders' Equity for the three and six months ended June 30, 2024 (unaudited) and June 30, 2025 (unaudited); (v) the Condensed Statements of Cash Flows for the six months ended June 30, 2024 (unaudited) and June 30, 2025 (unaudited); and (vi) the notes to the Condensed Financial Statements (unaudited).	X
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)	X

* This certification is deemed not filed for purpose of Section 18 of the Exchange Act or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act or the Exchange Act.

SIGNATURES

Pursuant 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.

HCW Biologics Inc.

Date: August 18, 2025

By: /s/ Hing C. Wong
Hing C. Wong
Founder and Chief Executive Officer
(Principal Executive Officer)

Date: August 18, 2025

By: /s/ Rebecca Byam
Rebecca Byam
Chief Financial Officer
(Principal Financial and Accounting Officer)

EXHIBIT 10.12

HCW BIOLOGICS INC.
SECOND AMENDMENT TO AMENDED AND RESTATED SENIOR SECURED NOTE PURCHASE AGREEMENT AND RELATED AGREEMENTS

This Second Amendment to Amended and Restated Senior Secured Note Purchase Agreement and Related Agreements (this "Second Amendment") is made as of April __, 2025 (the "Effective Date") by and between HCW Biologics Inc., a Delaware corporation (the "Company"), and each of the purchasers listed on Exhibit B attached thereto (each a "Converting Purchaser" and together the "Converting Purchasers").

RECITALS

The Company and the Purchasers entered into (1) that certain Amended and Restated Senior Secured Note Purchase Agreement dated as of July 2, 2024, as amended by that certain First Amendment to Amended and Restated Senior Secured Note Purchase Agreement dated as of September 30, 2024 (as so amended, the "Purchase Agreement"); (2) that certain Amended and Restated Pledge Agreement dated as of July 2, 2024 (the "Pledge Agreement"); (3) that certain Amended and Restated Escrow Agreement dated as of July 2, 2024 (the "Escrow Agreement" and, together with the Purchase Agreement and the Pledge Agreement, the "Agreements"); and (4) certain Notes (as defined in the Purchase Agreement) purchased by the Purchasers pursuant to the Purchase Agreement (each a "Note" and, collectively, the "Notes").

The Company and the Converting Purchasers desire to amend the Agreements to memorialize the terms and conditions for the conversion of the Notes held by the Converting Purchasers as agreed pursuant to that certain Binding Term Sheet for Conversion of Senior Secured Notes dated as of February 20, 2025 (the "Principal Terms"). Share amounts, prices and other relevant terms herein have been adjusted to reflect the 40-to-1 reverse stock split with respect to the Company's common stock par value $0.0001 per share (the "Common Stock"), which became effective on April 11, 2025. Capitalized terms not otherwise defined herein have the meaning given them in the Agreements.

Therefore, the parties hereby agree as follows:

1. **Amendment to Section 6 of the Purchase Agreement.** Section 6 of the Purchase Agreement is hereby amended and restated to be and read in its entirety as follows:

> "6. **Conversion Option**. The Purchasers shall each have a one-time option (the "Conversion Option") to convert all, but not less than all, of the outstanding, unpaid principal amount of their Notes into shares of the Company's Common Stock at a conversion price of $26.00 per share as adjusted for any stock split, reverse stock split, stock dividend, combination or other recapitalization occurring between the Effective Date and the Conversion Date (defined below) with respect to the Common Stock (the "Conversion Price"), the number of shares of Common Stock determined by dividing the

principal amount of a Converting Purchaser's Note(s) by the Conversion Price, rounded to the nearest whole share, being referred to as the Converting Purchaser's "Conversion Shares".

(a) Additional Consideration. In addition to the Conversion Price, on the Conversion Date, each Converting Purchaser shall receive: (i) a warrant, in the form attached as Exhibit A to the Second Amendment to this Agreement dated as of April __, 2025 (the "Second Amendment"), to purchase a number of shares of Common Stock equal to fifty percent (50%) of the number of shares of Common Stock into which the outstanding principal amount of such Converting Purchaser's Note(s) is converted, such number to be adjusted for any stock split, reverse stock split, stock dividend, combination or other recapitalization occurring between the Effective Date and the Conversion Date (defined below) with respect to the Common Stock (each, a "Warrant"), rounded to the nearest whole share, (ii) the right to receive such Converting Purchaser's Pro Rata Share of the Wugen Proceeds, determined in accordance with subsection 6(b) below, and (iii) an amount, in cash, equal to the amount of accrued but unpaid interest under such Converting Purchaser's Note(s) through the Conversion Date ("Accrued Interest").

(b) Allocation of Wugen Proceeds. Notwithstanding conversion of the Converting Purchasers' Notes or any other provision of the Agreements (as defined in the Second Amendment) to the contrary, the Pledged Shares will remain in Escrow under the Escrow Agreement until occurrence of a Mandatory Prepayment Event. Following a Mandatory Prepayment Event, the Company will receive and retain 50.89% of the Wugen Proceeds, and the Converting Purchasers will receive their Pro Rata Share (defined below) of 49.11% of the Wugen Proceeds. Each Converting Purchaser's "Pro Rata Share" shall mean the product of (i) 49.11% multiplied by (ii) the quotient of the principal amount of the Converting Purchaser's converted Note(s) divided by $6,580,000.

(c) Conversion Date. As used herein, the "Conversion Date" shall mean a date selected by the Company within five (5) business days after all Converting Purchasers have executed the Second Amendment.

(d) Exhibit B attached to the Second Amendment sets forth the post-conversion shares of Common Stock and Warrants that will be held by each Converting Purchaser, as well as the number of Wugen Shares the proceeds of which will be allocated to each Converting Purchaser, following the Conversion Date.

2. **Waiver of Bonus Payments - Sections 5 and 4(b) of the Purchase Agreement**. All payments under and benefits of Section 5 of the Purchase Agreement and the last sentence of Section 4(b) of the Purchase Agreement, with respect to potential Bonus Payments, are hereby waived in their entirety by, and shall be of no force or effect with respect to, any of the Converting Purchasers or their respective Notes.

3. **Amendment To Pledge Agreement.** The definition of "Discharge of Obligations" in Section 1.1 of the Pledge Agreement is hereby amended and restated to be and read in its entirety as follows:

""***Discharge of Obligations***": the satisfaction or discharge in full of the Secured Obligations, including distribution to each Converting Purchaser of such Converting Purchaser's Pro Rata Share of either (i) the Wugen Proceeds following a Mandatory

Prepayment Event in accordance with the terms of the Note Purchase Agreement, as amended by the Second Amendment thereto dated as of April __, 2025 or (ii) the Wugen Shares, if a Mandatory Prepayment Event has not occurred on or before August 30, 2030."

4. **Amendment To Escrow Agreement**. A new subsection 4.c. is hereby added to the Escrow Agreement, to be and read as follows:

"c. Release to HCW and Converting Purchasers. If a Mandatory Prepayment Event (as defined in the Note Purchase Agreement) has not occurred on or before August 30, 2030, 50.89% of the Pledged Shares shall be delivered by the Escrow Agent to HCW, and 49.11% of the Pledged Shares shall be delivered to the Converting Purchasers (as defined in the Second Amendment to the Note Purchase Agreement) in accordance with their respective Pro Rata Shares (as defined in the Second Amendment to the Note Purchase Agreement)."

5. **Conversion**. Each of the Converting Purchasers, by their execution of this Second Amendment, hereby agrees to all of the foregoing terms and conditions and hereby exercises the Conversion Option with respect to the entire principal amount of the Note(s) they each hold. On the Conversion Date, (a) each Converting Purchaser shall deliver to the Company all of the Notes that they hold, marked "Cancelled," and they each agree that such Notes shall have been automatically cancelled, paid in full and of no further force or effect on the Conversion Date and (b) the Company shall issue, or cause to be issued, to the Converting Purchasers their respective Conversion Shares and Warrants, and pay to the Converting Purchasers their respective Accrued Interest.

6. **Lock-Up And Registration**. The Conversion Shares, Warrants and shares of Common Stock underlying the Warrants and Wugen Shares have not been and will not be registered upon issuance. Each Converting Purchaser represents, warrants and agrees that such Converting Purchaser is acquiring the Conversion Shares, Warrants and shares of Common Stock underlying the Warrants and Wugen Shares for investment and not with a view to, or in connection with, the sale or distribution thereof. Each Converting Purchaser hereby agrees that no such sale or distribution of any Conversion Shares, Warrants or shares of Common Stock issued upon exercise of Warrants will be effected (a) in any manner during the 180-day period beginning on the Conversion Date (the "Lock-Up Period"), and (b) following the Lock-up Period without an effective registration statement related thereto or an opinion of counsel in a form satisfactory to the Company that such registration is not required under the Securities Act of 1933, as amended. Following the end of the Lock-Up Period, the Company will prepare and file a resale registration statement with the U.S. Securities and Exchange Commission with respect to such shares and make commercially reasonable efforts to cause such registration statement to be declared effective as promptly as practicable thereafter.

7. **Survival**. Except as expressly amended hereby, the Agreements shall remain in full force and effect without further modification.

8. **Miscellaneous**. The provisions of Sections 12 through 15 of the Purchase Agreement are incorporated by reference into this Second Amendment and shall be deemed to apply hereunder, *mutatis mutandis* for all relevant purposes. Without limiting the foregoing, the parties agree that, upon execution by all Converting Purchasers, this Second Amendment replaces

and supersedes the Principal Terms. This Second Amendment may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and all of which together shall constitute one and the same agreement. Execution of this Second Amendment via Docusign, Box Sign or similar system or execution of a facsimile or scanned copy will have the same force and effect as execution of an original, and a facsimile or scanned signature will be deemed an original and valid signature.

[*Signature Page Follows*]

The parties have executed this Second Amendment to Amended and Restated Senior Secured Note Purchase Agreement and Related Agreements as of the date first written above.

THE COMPANY:

HCW BIOLOGICS INC.

By: /s/ Hing C. Wong
Name: Hing C. Wong
Title: Chief Executive Officer

THE CONVERTING PURCHASERS:

O'NEILL AAF LLC

By: /s/ George D. O'Neill, Jr.
George D. O'Neill, Jr., Manager

/s/ Hing C. Wong
DR. HING C. WONG

/s/ Chris Cheung
CHRIS CHEUNG

/s/ Ling Cheung
LING CHEUNG

/s/ Michael Poon
MICHAEL POON

/s/ Manwah Wong
MANWAH WONG

/s/ Ho Cheung Wong
HO CHEUNG WONG

/s/ Hoi Sang Yeung
HOI SANG YEUNG

/s/ R. Kemp Riechmann
R. KEMP RIECHMANN, Trustee of Revocable Trust of Roland Kemp Riechman

/s/ Benjamin J. Patz
BENJAMIN J. PATZ

/s/ Rebecca Byam
REBECCA BYAM

/s/ Scott T. Garrett
SCOTT T. GARRETT

/s/ Gary M. Winer
GARY M. WINER

Rick S. Greene
RICK S. GREENE

/s/ Lee Flowers
LEE FLOWERS

/s/ Kathy Chiu
KATHY CHIU

ESCROW AGENT:

Mercedes M. Sellek, P.A.
a Florida corporation

By: /s/ Mercedes M. Sellek
Mercedes M. Sellek, Esq., President

EXHIBIT A
FORM OF WARRANT

[***]

EXHIBIT B
CONVERSION SHARES AND WARRANTS

[***]

Exhibit 10.13

FORM OF COMMON STOCK PURCHASE WARRANT

MAY 7, 2025

NEITHER THIS SECURITY NOR THE SECURITIES FOR WHICH THIS SECURITY IS EXERCISABLE HAVE BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO AN AVAILABLE EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS. THIS SECURITY AND THE SECURITIES ISSUABLE UPON EXERCISE OF THIS SECURITY MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT OR OTHER LOAN SECURED BY SUCH SECURITIES.

COMMON STOCK PURCHASE WARRANT

HCW BIOLOGICS INC.

Warrant Shares: _____

Issue Date: May __, 2025

THIS COMMON STOCK PURCHASE WARRANT (the "Warrant") certifies that, for value received, _____ or its assigns (the "Holder") is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after the date hereof (the "Initial Exercise Date") and on or prior to 5:00 p.m. (New York City time) on April __, 2030 (the "Termination Date") but not thereafter, to subscribe for and purchase from HCW Biologics Inc., a Delaware corporation (the "Company"), up to _____ shares (as subject to adjustment hereunder, the "Warrant Shares") of Common Stock. The purchase price of one share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b). This Warrant is being issued to the Holder pursuant to that certain Amended and Restated Senior Secured Note Purchase Agreement dated as of July 2, 2024, as amended by that certain First Amendment to Amended and Restated Senior Secured Note Purchase Agreement dated as of September 30, 2024 and that certain Second Amendment to Amended and Restated Senior Secured Note Purchase Agreement and Related Agreements dated as of the date hereof among the Company and certain purchasers identified therein (as so amended, the "Purchase Agreement")

Section 1. Definitions. Capitalized terms used and not otherwise defined herein shall have the meanings set forth in the Purchase Agreement. As used in this Warrant, the following capitalized terms shall have the respective meanings set forth below:

"Person" means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

"Trading Day" means a day on which the principal Trading Market is open for trading.

"Trading Market" means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange, the Pink Market, OTCQB or the OTCQX (or any successors to any of the foregoing).

"Transfer Agent" means Equiniti Trust Company, LLC, the current transfer agent of the Company, with a mailing address of 48 Wall Street, Floor 23, New York, New York 10005 and an email address of frank.misciagna@equiniti.com, and any successor transfer agent of the Company.

"Warrant Shares" means the shares of Common Stock issuable upon exercise of this Warrant.

Section 2. Exercise.

a) Exercise of Warrant. Exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company of a duly executed PDF copy submitted by e-mail (or e-mail attachment) of the Notice of Exercise in the form annexed hereto (the "Notice of Exercise"). Within the earlier of (i) one (1) Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined in Section 2(d)(i) herein) following the date of exercise as aforesaid, the Holder shall deliver the aggregate Exercise Price for the shares specified in the applicable Notice of Exercise by wire transfer or cashier's check drawn on a United States bank unless the cashless exercise procedure specified in Section 2(c) below is specified in the applicable Notice of Exercise. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation as soon as reasonably practicable of the date on which the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise on the Trading Day of receipt of such notice. **The Holder and any assignee, by**

acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.

b) Exercise Price. The exercise price per share of Common Stock under this Warrant shall be **$26.00**, subject to adjustment hereunder (the "Exercise Price").

c) Cashless Exercise. If at the time of exercise hereof there is no effective registration statement registering, or the prospectus contained therein is not available for the resale of the Warrant Shares by the Holder, then this Warrant may also be exercised, in whole or in part, at such time by means of a "cashless exercise" in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

(A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) delivered pursuant to Section 2(a) hereof on a day that is not a Trading Day or (2) delivered pursuant to Section 2(a) hereof on a Trading Day prior to the opening of "regular trading hours" (as defined in Rule 600(b) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) the highest Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. ("Bloomberg") within two (2) hours of the time of the Holder's delivery of the Notice of Exercise pursuant to Section 2(a) hereof if such Notice of Exercise is delivered during "regular trading hours," or with two (2) hours after the close of "regular trading hours," on a Trading Day or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is delivered pursuant to Section 2(a) hereof after two (2) hours following the close of "regular trading hours" on such Trading Day;

(B) = the Exercise Price of this Warrant, as adjusted hereunder; and

(X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

If Warrant Shares are issued in such a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the Securities Act, the holding period of the Warrant Shares being issued may be tacked on to the holding period of this Warrant. The Company agrees not to take any position contrary to this Section 2(c).

"Bid Price" means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the bid price of the Common Stock for the time in question (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m.

(New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on The Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Company, the fees and expenses of which shall be paid by the Company.

"VWAP" means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if the OTCQB Venture Market ("OTCQB") or the OTCQX Best Market ("OTCQX") is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on the Pink Open Market ("Pink Market") operated by the OTC Markets, Inc. (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Company, the fees and expenses of which shall be paid by the Company.

Notwithstanding anything herein to the contrary, on the Termination Date, this Warrant shall be automatically exercised via cashless exercise pursuant to this Section 2(c).

d) Mechanics of Exercise.

i. Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder's or its designee's balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system ("DWAC") if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by the Holder or (B) the Warrant Shares are eligible for resale by the Holder without volume or manner-of-sale limitations pursuant to Rule 144 (assuming cashless exercise of the Warrants), and otherwise by physical delivery of a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earlier of (i) one (1) Trading Day after the delivery to the Company of the Notice of Exercise and (ii) the number of

Trading Days comprising the Standard Settlement Period after the delivery to the Company of the Notice of Exercise (such date, the "Warrant Share Delivery Date"). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received within the earlier of (i) one (1) Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period following delivery of the Notice of Exercise. If the Company fails for any reason to deliver to the Holder the Warrant Shares subject to a Notice of Exercise by the Warrant Share Delivery Date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each $1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Stock on the date of the applicable Notice of Exercise), $10 per Trading Day (increasing to $20 per Trading Day on the third Trading Day after the Warrant Share Delivery Date) for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise. The Company agrees to maintain a transfer agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable. As used herein, "Standard Settlement Period" means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Stock as in effect on the date of delivery of the Notice of Exercise.

ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise.

iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2(d)(i) above pursuant to an exercise on or before the Warrant Share Delivery Date, and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the

Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "Buy-In"), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of $11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with an aggregate sale price giving rise to such purchase obligation of $10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder $1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.

v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall round to the nearest whole share.

vi. Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that, in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental

thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

Section 3. Certain Adjustments.

a) Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of its Common Stock or any other equity or equity equivalent securities payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon exercise of this Warrant), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding shares of Common Stock into a smaller number of shares, or (iv) issues by reclassification of shares of the Common Stock any shares of capital stock of the Company, then in each case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 3(a) above, if at any time the Company grants, issues or sells any Common Stock Equivalents or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights.

c) Pro Rata Distributions. During such time as this Warrant is outstanding, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities,

property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "Distribution"), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution.

d) Calculations. All calculations under this Section 3 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding treasury shares, if any) issued and outstanding.

e) Notice to Holder.

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment.

ii. Notice to Allow Exercise by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all holders of the Common Stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company (or any of its Subsidiaries) is a party, any sale or transfer of all or substantially all of its assets, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by email to the Holder at its last email address as it shall appear upon the Warrant Register of the Company, at least 20 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification,

consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided in this Warrant constitutes, or contains, material, non-public information regarding the Company or any of the Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

f) Voluntary Adjustment By Company. Subject to the rules and regulations of the Trading Market, the Company may at any time during the term of this Warrant reduce the then current Exercise Price to any amount and for any period of time deemed appropriate by the board of directors of the Company.

Section 4. Transfer of Warrant.

a) Legends; Removal of Legends. This Warrant and the Warrant Shares may only be disposed of in compliance with state and federal securities laws. In connection with any transfer of this Warrant or the Warrant Shares other than pursuant to an effective registration statement or Rule 144, to the Company or to an Affiliate of the Holder or in connection with a pledge as contemplated in Section 4(b), the Company may require the transferor thereof to provide to the Company an opinion of counsel selected by the transferor and reasonably acceptable to the Company, the form and substance of which opinion shall be reasonably satisfactory to the Company, to the effect that such transfer does not require registration of such transferred Common Warrant under the Securities Act. The Holder agree to the imprinting, so long as is required by this Section 4, of a legend on any of this Warrant or the Warrant Shares in the following form:

NEITHER THIS SECURITY NOR THE SECURITIES INTO WHICH THIS SECURITY IS EXERCISABLE HAS BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO AN AVAILABLE EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION

REQUIREMENTS OF THE SECURITIES ACT AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS. THIS SECURITY AND THE SECURITIES ISSUABLE UPON EXERCISE OF THIS SECURITY MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT WITH A REGISTERED BROKER-DEALER OR OTHER LOAN WITH A FINANCIAL INSTITUTION THAT IS AN "ACCREDITED INVESTOR" AS DEFINED IN RULE 501(a) UNDER THE SECURITIES ACT OR OTHER LOAN SECURED BY SUCH SECURITIES.

The Company acknowledges and agrees that the Holder may from time to time pledge pursuant to a bona fide margin agreement with a registered broker-dealer or grant a security interest in some or all of this Warrant or the Warrant Shares to a financial institution that is an "accredited investor" as defined in Rule 501(a) under the Securities Act and, if required under the terms of such arrangement, the Holder may transfer pledged or secured Warrant Shares to the pledgees or secured parties. Such a pledge or transfer would not be subject to approval of the Company and no legal opinion of legal counsel of the pledgee, secured party or pledgor shall be required in connection therewith. Further, no notice shall be required of such pledge. At the appropriate Purchaser's expense, the Company will execute and deliver such reasonable documentation as a pledgee or secured party of this Warrant and the Warrant Shares may reasonably request in connection with a pledge or transfer of this Warrant or the Warrant Shares.

Certificates evidencing the Warrant Shares shall not contain any legend (including the legend set forth above): (i) while a registration statement covering the resale of such security is effective under the Securities Act, or (ii) following any sale of such Warrant Shares pursuant to Rule 144 (assuming cashless exercise of this Warrant), or (iii) if such Common Warrant Shares are eligible for sale under Rule 144 (assuming cashless exercise of this Warrant), or (iv) if such legend is not required under applicable requirements of the Securities Act (including judicial interpretations and pronouncements issued by the staff of the Commission). The Company shall cause its counsel to issue a legal opinion to the Transfer Agent or the Holder promptly if required by the Transfer Agent to effect the removal of the legend hereunder, or if requested by the Holder, respectively. If all or any portion of this Warrant is exercised at a time when there is an effective registration statement to cover the resale of the Warrant Shares, or if such Warrant Shares may be sold under Rule 144 (assuming cashless exercise of the Common Warrants) or if such legend is not otherwise required under applicable requirements of the Securities Act (including judicial interpretations and pronouncements issued by the staff of the Commission) then such Warrant Shares shall be issued free of all legends. The Company agrees that following such time as such legend is no longer required under this Section 4(a), the Company will, no later than the earlier of (i) one (1) Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined below) following the delivery by the Holder to the Company or the Transfer Agent of a certificate representing the Warrant

Shares, as applicable, issued with a restrictive legend (such date, the "Legend Removal Date"), deliver or cause to be delivered to the Holder a certificate representing such shares that is free from all restrictive and other legends. The Company may not make any notation on its records or give instructions to the Transfer Agent that enlarge the restrictions on transfer set forth in this Section 4. Warrant Shares subject to legend removal hereunder shall be transmitted by the Transfer Agent to the Purchaser by crediting the account of the Holder's prime broker with the Depository Trust Company System as directed by the Holder. As used herein, "Standard Settlement Period" means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Stock as in effect on the date of delivery of a certificate representing the Warrant Shares issued with a restrictive legend.

b) Transferability. Subject to compliance with any applicable securities laws and the conditions set forth elsewhere in this Section 4, this Warrant and all rights hereunder (including, without limitation, any registration rights) are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company within three (3) Trading Days of the date on which the Holder delivers an assignment form to the Company assigning this Warrant in full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

c) New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(b), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the original Issue Date and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

d) Warrant Register. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the "Warrant Register"), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any

exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

e) Transfer Restrictions. If, at the time of the surrender of this Warrant in connection with any transfer of this Warrant, the transfer of this Warrant shall not be either (i) registered pursuant to an effective registration statement under the Securities Act and under applicable state securities or blue sky laws or (ii) eligible for resale without volume or manner-of-sale restrictions or current public information requirements pursuant to Rule 144, the Company may require, as a condition of allowing such transfer, that the Holder or transferee of this Warrant, as the case may be, agree in writing to be bound by the provisions of this Warrant.

f) Representation by the Holder. The Holder, by the acceptance hereof, represents and warrants that it is acquiring this Warrant and, upon any exercise hereof, will acquire the Warrant Shares issuable upon such exercise, for its own account and not with a view to or for distributing or reselling such Warrant Shares or any part thereof in violation of the Securities Act or any applicable state securities law, except pursuant to sales registered or exempted under the Securities Act.

Section 5. Miscellaneous.

a) No Rights as Stockholder Until Exercise; No Settlement in Cash. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3. Without limiting any rights of a Holder to receive Warrant Shares on a "cashless exercise" pursuant to Section 2(c) or to receive cash payments pursuant to Section 2(d)(i) and Section 2(d)(iv) herein, in no event shall the Company be required to net cash settle an exercise of this Warrant.

b) Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c) Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then such action may be taken or such right may be exercised on the next succeeding Business Day.

d) Authorized Shares.

The Company covenants that, during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a sufficient number of shares to provide for the issuance of the Warrant Shares upon

the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Stock may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment. Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

Before taking any action which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e) Jurisdiction. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be determined in accordance with the provisions of the Purchase Agreement.

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies. Without limiting any other provision of this Warrant or the Purchase Agreement, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

h) Notices. Any notice, request or other document required or permitted to be given or delivered to the Holder by the Company shall be delivered in accordance with the notice provisions of the Purchase Agreement.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Stock or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company and the Holder.

m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

****

(Signature Page Follows)

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

HCW BIOLOGICS INC.

By:_____
Name:
Title:

NOTICE OF EXERCISE

TO: HCW BIOLOGICS INC.

(1) The undersigned hereby elects to purchase _____ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

[ ] in lawful money of the United States; or

[ ] if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

_____

The Warrant Shares shall be delivered to the following DWAC Account Number:

_____

_____

_____

(4) Accredited Investor. The undersigned is an "accredited investor" as defined in Regulation D promulgated under the Securities Act of 1933, as amended.

[SIGNATURE OF HOLDER]

Name of Investing Entity: _____
Signature of Authorized Signatory of Investing Entity: _____
Name of Authorized Signatory: _____
Title of Authorized Signatory: _____
Date: _____

EXHIBIT B

ASSIGNMENT FORM

(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to purchase shares.)

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name:

(Please Print)

Address:

(Please Print)

Phone Number: _____

Email Address: _____

Dated: _____ __, _____

Holder's Signature:

Holder's Address:

Exhibit 10.14

WY Biotech Co. Ltd.
1115-1118 Tower A
No. 500 Yunjin Road
Xuhui, Shanghai
China

HCW Biologics Inc.
2929 North Commerce Parkway
Miramar, FL 33025
USA
Attn: Dr. Hing Wong, CEO

March 17, 2025

Dear Dr. Wong,

HCW Biologics Inc. ("HCWB") and WY Biotech Co. Ltd. ("WY") signed the License, Research and Co-Development Agreement ("Agreement") on November 17, 2024. After the Agreement was signed, our designated CDMO made a change, as the follows.

As I informed you on the phone, after the Agreement was signed, Kawin Technologies Ltd., our CDMO, had decided not to honor the (non-binding) Term Sheet it had signed with WY. As a result, we are unable to sign the final collaboration and development service agreement with Kawin. The technology transfer and CMC development plan will be delayed, until we have this CDMO issue solved. We are confident that we will be able to have issue resolved by June 13, 2025, and continue our Agreement.

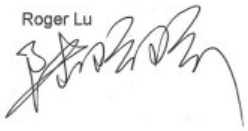
We are in an unexpected situation. Therefore, we propose to defer the upfront payments to June 13, 2025, payable by July 13, 2025. Please accept our proposal to keep our Agreement effective, continuous and live. If, in the worst case scenario, the CDMO issue will continue beyond June 13, 2025, either party may decide to terminate the Agreement by written notice by 5 pm Eastern Standard Time US on June 13, 2025.

As we discussed, WY agrees that HCWB's "Completion of Technology Transfer", which triggers HCWB's right to receive the final payment of the $7 million upfront payment under the Agreement, will mean that HCWB has delivered to WY its written notice and report detailing the Licensed Manufacturing Know-How required for technology transfer and reporting on the characterization of the improved high-production Cell Line HCW11-006 ("Technology Transfer Report"). HCWB will deliver the report on or before May 13, 2025. Unless either party elects to terminate as provided in the preceding paragraph, HCWB will have earned the full $7 million upfront payment on June 13, 2025. WY will provide confirmation of wire sent to HCWB on or before July 13, 2025.

Except for the above changes, unless terminated as provided above, the Agreement remains in full force and effect. We appreciate the opportunity to collaborate with HCWB and look forward to hearing from you as soon as possible.

Sincerely,

Roger Lu



March 19, 2025

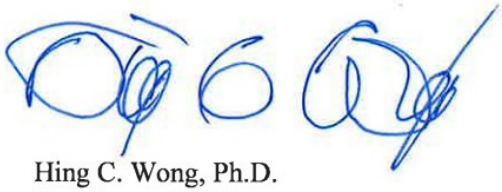
WY Biotech Co., Ltd.
1115-1118 Tower A
No. 500 Yunjin Road
Xuhui, Shanghai
China

Dear Mr. Lu,

We received your letter of March 17, 2025 ("Letter Agreement").

HCW Biologics Inc. agrees to the terms of your Letter Agreement. HCWB trusts that WY Biotech Co., Ltd. will be able to solve its CDMO issue by June 13, 2025.

Sincerely,



Hing C. Wong, Ph.D.
Founder and CEO
HCW Biologics Inc.

Exhibit 10.15

WY Biotech Co. Ltd.
1115-1118 Tower A
No. 500 Yunjin Road
Xuhui, Shanghai
China

HCW Biologics Inc.
2929 North Commerce Parkway
Miramar, FL 33025
USA

May 30, 2025

Dear Nicole,

Thank you for the further information and explanation. Upon review, WY hereby confirms that we have received and accepted HCW's Technology Transfer Report as received on May 13, 2025. WY also confirms and certifies that HCW has fulfilled its responsibilities and obligations in connection with the Technology Transfer, therefore the Completion of Technology Transfer has been fulfilled pursuant to the Agreement of November 17, 2024 ("Agreement"), and the Letter Agreement of March 17, 2025 ("Letter"). WY will not be terminating the Agreement on or before June 13, 2025 and hereby waives the early termination provision of the Letter. Therefore, as a result of WY's acceptance of the Completion of Technology Transfer, WY is financially obligated to HCW, as detailed in the Agreement, including the $7 million dollars in upfront payment. The Agreement and its amendments, and Letter Agreement of March 17, 2025 remain valid.

I look forward to moving to the next stage.

Best,

Roger Lu, CEO

Exhibit 10.16

WY Biotech Co. Ltd.
1115-1118 Tower A
No. 500 Yunjin Road
Xuhui, Shanghai
China

HCW Biologics Inc.
2929 North Commerce Parkway
Miramar, FL 33025
USA
Attn: Dr. Hing Wong, CEO

July 13, 2025

Re: Second Letter Agreement to License, Research and Co-Development Agreement

Dear Dr. Wong,

HCW Biologics Inc. ("HCWB") and WY Biotech Co. Ltd. ("WY") signed the License, Research and Co-Development Agreement ("Agreement") on November 17, 2024. On March 17, 2025, by a letter agreement, HCWB and WY agreed to defer the upfront payment of $7 million US dollars to June 13, 2025 and that WY would provide confirmation of the wire sent to HCWB on or before July 13, 2025.

On May 13, 2025, HCWB provided WY with the HCWB Technology Transfer Report. On May 30, 2025, WY confirmed receipt of the HCWB Technology Transfer Report, and certified that HCWB has fulfilled its responsibilities and obligations in connection with the Technology Transfer. WY also confirmed that it would not be terminating the Agreement on or before July 13, 2025 and certified WY was financially obligated to HCWB, as detailed in the Agreement, including the $7 million US dollars in upfront payment.

WY is now finalizing agreements with its CDMO and investors and has requested an additional extension of time in which to pay the US$7 million US dollars upfront payment to HCWB. After a discussion, WY and HCWB hereby agree to extend the payment such that WY will provide confirmation of the $7 million US dollars wire sent to HCWB on or before September 30, 2025.

Except for the above changes, the Agreement and the March 17, 2025 letter remains in full force and effect. We appreciate the opportunity to collaborate with HCWB and look forward to hearing from you as soon as possible.

Sincerely,

Roger Lu
WY Biotech Co. Ltd.

Agreed and accepted by HCW Biologics Inc.

Hing C. Wong
HCW Biologics Inc.

Exhibit 10.17

May 29, 2025

Exclusive License Agreement 12-month Suspension

HCW Biologics Inc. ("HCW") and Wugen, Inc. ("Wugen") hereby mutually agree to a 12-month suspension (herein "12-month Suspension") of Wugen's obligations under the Exclusive License Agreement ("License") dated December 24, 2020, between HCW and Wugen. Wugen and HCW agree to maintain the License for the 12-month Suspension period, which will begin on May 30, 2025. HCW agrees to suspend Wugen's clinical trial due diligence obligations during the 12- month suspension. Wugen agrees to waive the License exclusivity and grants HCW the exclusive right to seek alternative licensees for HCW9201 and/or HCW9206 for all ex vivo rights, including commercialization, during the 12-month Suspension period.

HCW and Wugen agree to the following terms in connection with a 12-month Suspension of the License:

1. Termination Term
   a. The License will terminate automatically at end of the 12-month Suspension period unless Wugen resumes the FTE payments and initiates or resumes the clinical trial for WU-NK-101 in Phase 1b/2 memory NK cell for adoptive transfer by May 31, 2026.
   b. HCW has the right to terminate the License during the 12-month Suspension period if HCW enters into a letter of intent or agreement with a third party for a license of either HCW9201 and/or HCW9206.

2. FTE Payment Term and cash obligations: During the 12-month Suspension, Wugen is not required to pay the $250,000 FTE cost and the cost is fully waived during this period. If the License is not fully terminated, but instead resumes at the end of the 12-month Suspension period, Wugen will resume the $250,000/year FTE costs, paid quarterly.

   For avoidance of doubt, Wugen will have no cash obligations for the License during 12- month Suspension, except for obligations accrued prior to May 01, 2025, including but not limited to intellectual property maintenance, FTE costs, pass- through expenses of any kind.

3. Inventory: If the License is terminated, HCW, or a party designated by HCW, will have the right, but not the obligation, to purchase Wugen's accumulated GMP-grade inventory of HCW9201/HCW9206/HCW9101.
4. Research and Clinical Data
   a. HCW shall be permitted to rely upon Wugen's published pre-clinical and clinical data for marketing of HCW9206 and/or HCW9201 for NK cell therapy.
   b. HCW will continue to perform the stability assays for HCW9206, HCW9201, and HCW9101 GMP materials. Wugen will be available to HCW for limited technical support during the 12-month Suspension.

By signing below, you acknowledge and agree that the above terms shall amend and be incorporated into the Exclusive License Agreement.

Agreed and Accepted:

Signed by:
Hing Wong, PhD, Founder & CEO
Signer Name: Hing Wong, PhD, Founder & CEO
Signing Reason: I approve this document
Signing Time: May 30, 2025 | 1:10 PM PDT
D63692933D1C4E8FAEC4269F5C1A6EA3

HCW Biologics Inc.
Hing C. Wong, CEO
Date Signed: May 30, 2025 | 1:12 PM PDT

Signed by:
Kumar Srinivasan, President & CEO
Signer Name: Kumar Srinivasan, President & CEO
Signing Reason: I approve this document
Signing Time: May 30, 2025 | 12:46 PM PDT
CD8A920FDF3C4E38AD0B29BDD9EECB1D

Wugen, Inc.
Kumar Srinivasan, CEO
Date Signed: May 30, 2025 | 1:12 PM PDT

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Hing C. Wong, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of HCW Biologics Inc. for the quarter ended June 30, 2025;

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 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; and

   d) 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; and

5. The registrant's other certifying officer 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; and

   b) 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.

/s/ Hing C. Wong

Hing C. Wong
Founder and Chief Executive Officer
(Principal Executive Officer)

Date: August 18, 2025

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER PURSUANT TO RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Rebecca Byam, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of HCW Biologics Inc. for the quarter ended June 30, 2025;

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 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; and

   d) 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; and

5. The registrant's other certifying officer 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; and

   b) 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.

/s/ Rebecca Byam
Rebecca Byam
Chief Financial Officer
(Principal Financial Officer)

Date: August 18, 2025

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of HCW Biologics Inc. (the "Company") on Form 10-Q for the period ended June 30, 2025 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: August 18, 2025

/s/ Hing C. Wong

By:

Hing C. Wong
Founder and Chief Executive Officer
(Principle Executive Officer)

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of HCW Biologics Inc. (the "Company") on Form 10-Q for the period ended June 30, 2025 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: August 18, 2025

/s/ Rebecca Byam

By:

Rebecca Byam
Chief Financial Officer
(Principal Financial Officer)