

Nona Biosciences

Category:

Best Startup

Company Name:

Nona Biosciences

Turnover and/or Funding:

In 2022, we recorded a revenue of USD9.7 million, primarily driven by a strategic platform licensing agreement with Moderna for our HCAb Harbour Mice® technology and a molecule license fee from Yingen Biotechnology Co., Ltd. Those deals validated the commercial potential of our antibody discovery platforms and accelerated our business expansion.

In 2023, our revenue increased to USD63.3 million, representing a 566% annual increase. This high-speed growth was mainly anchored by USD51.0 million license-out deal to Seagen (now Pfizer), alongside accelerating contributions from the newly established technology service business.

In 2024, our revenue reached USD36.8 million, mainly including upfront payment from licensing to AstraZeneca. Besides, the platform-based research revenue was USD8.3 million, representing a year-over-year increase of 159% and reflecting remarkable growth in recurring service income.

This performance demonstrates our ability to generate sustained revenue through technology innovation, technology license and technology service. Besides, we have created strategic cooperation with many clients including large multi-national corporations.

Sub-Category:

Biotechnology

Corporate history (creation, key milestones, main funding,...)Information on Condition / Disease and need for solution / product (prevalence, existing treatments / solutions):

Nona Biosciences was founded in 2022 as a wholly owned subsidiary of Harbour

BioMed. Nona empowers global therapeutic innovation leveraging industrial leading technology platforms to provide one-stop solutions of integrated antibody discovery and development for biotech and pharmaceutical companies from Idea to IND (I to I).

We are building the builders (small biotech entrepreneurs and large pharmaceutical clients) of biological therapeutics and enable others, including large multi-national corporations and small biotech companies to successfully develop innovative biological therapeutics, including bispecific antibodies and Multispecific antibodies, chimeric antigen receptor T cells (CART), antibody drug conjugates (ADC), Radionuclide Drug Conjugates (RDC), and mRNA-LNP Therapeutics.

We leverage our proprietary and patent protected Harbour Mice®, including H2L2 Harbour Mice® and HCAb Harbour Mice®, to achieve such goals and objectives with quality and speed. Both H2L2 and HCAb Harbour Mice® are fully human immunoglobulin transgenic mouse platforms that produce fully human antibodies for therapeutic purpose. Heavy-chain only antibodies (HCAb) from HCAb Harbour Mice® are much smaller than conventional antibodies that are uniquely suited for complex modalities of bispecific antibodies and Multispecific antibodies, CART, ADC, RDC, mRNA-LNP, and Blood Brain-Barrier (BBB) penetration for central neuroscience (CNS) therapeutics.

Our technology platforms could be applied in all sorts of therapeutics areas with unmet medical needs and in needs of novel and innovative therapeutic approaches, including traditional oncology, immunology, immuno-oncology, CNS diseases (Alzheimer's Disease, Parkinson's Disease, Huntington's Disease, Frontal Temporal Dementia, Amyotrophic Lateral Sclerosis, etc), endocrinology, metabolic diseases, and rare genetic diseases, etc.

Over the past several years, we have successfully developed multiple biological therapeutics leveraging our technology platforms and licensed these assets either to multinational corporations such as AbbVie, AstraZeneca, and Pfizer for further clinical development or small biotech companies and venture capitalists to launch startup companies like Winward Bio.

We continue to expand our technology innovation, technology license and technology service to enable MNCs and BioTechs to develop more innovative and next generation of biological therapeutics.

History of the development of the solution/product (Intellectual Property, preclinical and clinical datas, development collaborations):

Harbour Mice Technology platforms are proprietary and patent protected globally.

In 2019, we developed Anti-CTLA4 HCAb Porustobart (HBM4003) from HCAb Harbour Mice entered into Phase 1 clinical trials. Currently, it is in Phase 2 clinical trials.

In 2020, we developed Anti-SARS-CoV-2 monoclonal antibody clone 47D11 from H2L2 Harbour Mice® and licensed the global rights to AbbVie as ABBV-47D11. AbbVie completed Phase 1 clinical trial.

In 2022, we developed HBM7022 (CLDN18.2 x CD3 Bispecific Antibody) from HCAb Harbour Mice® and licensed the global rights to AstraZeneca as AZD5683, currently in global Phase 1 and 2 clinical trials.

In 2023, we developed HBM9033 (MSLN-ADC) from H2L2 Harbour Mice® and licensed the global rights to Seagen/Pfizer as PF-08052666 (SGN-MesoC2), currently in global Phase 1 clinical trials.

In 2023, we developed HBM7008 (B7H4 x 4-1BB Bispecific Antibody) from both H2L2 Harbour Mice® and HCAb Harbour Mice® and licensed the US rights to Cullinan Oncology as CLN-418. Cullinan completed Phase 1 clinical trial.

In 2024, we developed another monoclonal antibody with unique features and out licensed the global rights to AstraZeneca for further development for oncology indications.

In 2025, we developed HBM9013 (Anti-CRH Monoclonal Antibody) for rare genetic disease congenital adrenal hyperplasia (CAH) and polycystic ovarian syndrome (PCOS) and licensed to a well-known and publicly traded biotech company for further clinical development.

In 2025, the parent company Harbour BioMed Entered into Global Strategic Collaboration with AstraZeneca to Discover and Develop Next-Generation Therapeutic Antibodies.

Why this drug or device is innovative, the broad implications for future research, and/or how it will improve the human condition:

Our competitive advantages are three folds: technology platforms, talented and highly experienced scientists in drug discovery and development, and flexible business models.

Technology Platforms

Our proprietary Harbour Mice®, including both H2L2 Harbour Mice® and HCAb Harbour Mice®, provide unrivaled access to fully human antibodies without ever needing to be

humanized. Our fully human heavy chain only antibodies (HCAb) from HCAb Harbour Mice® are especially suited for innovative therapeutics of Multispecific antibodies, CART, ADC, RDC, mRNA-LNP, and Blood Brain-Barrier (BBB) penetration for central neuroscience (CNS) therapeutics.

In addition, we continue to innovate more proprietary technology, such as A Direct CAR-Function-Based Library Screening Platform and Cleavable Linker Payload uCLiP® for ADC, etc.

Our aspiration and mantra are Technology Innovation, Technology License, and Technology Services.

Talent and Experience

Our discovery scientists are highly experienced in the biologics discovery and development. We would never be content with just identifying antibodies. We always strive for identifying antibodies that could actually be developed into true therapeutics with desirable biophysical characteristics. We provide our recommendations and listen to our clients to address the needs of each individual projects.

Business Models

We provide flexible business models uniquely fit the needs of large multi-national corporations and small biotech companies, including technology licensing and technology services, with flexible terms of upfronts, milestones, and royalties. Our goal is to enable others to succeed in identifying and advancing innovative therapeutics to clinical trials.

Please provide appropriate references (PubMed, Abstract, Website):

Reference 1

Proc Natl Acad Sci U S A. 2006 Oct 10;103(41):15130-5.
Generation of heavy-chain-only antibodies in mice

Reference 2

Nat. Commun. 2020 May 4;11(1):2251.
A human monoclonal antibody blocking SARS-CoV-2 infection

Reference 3

Sci Adv. 2021 Jun 2;7(23):eabf5632.
Structural insights into the cross-neutralization of SARS-CoV and SARS-CoV-2 by the human monoclonal antibody 47D11

Reference 4

Proc Natl Acad Sci U S A. 2022 Aug 9;119(32):e2200879119.

An anti-CTLA-4 heavy chain-only antibody with enhanced Treg depletion shows excellent preclinical efficacy and safety profile

1. Cancer Res. 2025;85 (8_Supplement_1): 324.

PF-08052666 (SGN-MesoC2; HBM9033), a first-in-class topoisomerase 1 inhibitor-based ADC targeting MSLN, demonstrates potent antitumor activity in preclinical models of ovarian, lung, and colorectal cancers

2. Clin Cancer Res. 2025 May 16.

Porustobart (HBM4003) plus toripalimab as second-line therapy in patients with advanced hepatocellular carcinoma: a multicenter, open-label, phase I study

3. J Immunother Cancer. 2024 Oct 4;12(10):e009662.

Toripalimab in combination with HBM4003, an anti-CTLA-4 heavy chain-only antibody, in advanced melanoma and other solid tumors: an open-label phase I trial

4. JAMA Neurol. 2024 Mar 4;81(4):336-345.

Batoclimab vs Placebo for Generalized Myasthenia Gravis: A Randomized Clinical Trial

5. Front. Chem. Biol. 2024; 3:1408621.

Generation and preclinical evaluation of a human heavy-chain-only antibody recognizing the membrane-bound tumor-associated antigen mesothelin

6. Nat Commun. 2024 Mar 14;15(1):2319.

Filamentous fungus-produced human monoclonal antibody provides protection against SARS-CoV-2 in hamster and non-human primate models

7. Toxicon X. 2024 Feb 16;21:100185.

High throughput identification of human monoclonal antibodies and heavy-chain-only antibodies to treat snakebite

8. Front Immunol. 2023 Feb 21;14:1111385.

Avidity engineering of human heavy-chain-only antibodies mitigates neutralization resistance of SARS-CoV-2 variants

9. Immuno-Oncology and Technology . 2022 Dec; 16 (Suppl 1): 100264.

A phase I study of HBM4003, an anti-CTLA-4 heavy chain only monoclonal antibody, in combination with toripalimab in advanced melanoma

10. Front Genome Ed. 2022 Nov 2;4:1030285.

Nanoparticles targeting hematopoietic stem and progenitor cells: Multimodal carriers for the treatment of hematological diseases

11. J Immunother Cancer 2022 Nov 10(Suppl 2): A1410.
HBM1022: an afucosylated anti-CCR8 antibody, depletes specifically tumor infiltrating Tregs and inhibits tumor growth with excellent safety profile in preclinical studies
12. Int Ophthalmol. 2022 Aug;42(8):2459-2472.
TNF- α inhibitor tanfanercept (HBM9036) improves signs and symptoms of dry eye in a phase 2 trial in the controlled adverse environment in China
13. Proc Natl Acad Sci U S A. 2022 Aug 9;119(32):e2200879119.
An anti-CTLA-4 heavy chain-only antibody with enhanced Treg depletion shows excellent preclinical efficacy and safety profile
14. Nat Commun. 2022 May 25;13(1):2921.
Antigenic structure of the human coronavirus OC43 spike reveals exposed and occluded neutralizing epitopes
15. Cell Mol Life Sci. 2022 Jan 20;79(2):82.
WNT/beta-catenin signalling interrupts a senescence-induction cascade in human mesenchymal stem cells that restricts their expansion
16. Methods Mol Biol. 2022:2446:121-141.
A Transgenic Heavy Chain IgG Mouse Platform as a Source of High Affinity Fully Human Single-Domain Antibodies for Therapeutic Applications
17. Clin Transl Sci. 2021 Sep;14(5):1769-1779.
Safety, tolerability, pharmacokinetics, and pharmacodynamics of HBM9161, a novel FcRn inhibitor, in a phase I study for healthy Chinese volunteers
18. Front Immunol. 2021 Aug 4;12:720907.
Therapeutic Response and Possible Biomarkers in Acute Attacks of Neuromyelitis Optica Spectrum Disorders: A Prospective Observational Study
19. J Infect Dis. 2021 Jun 15;223(12):2020-2028.
SARS-CoV-2 Neutralizing Human Antibodies Protect Against Lower Respiratory Tract Disease in a Hamster Model
20. PLoS Biol. 2021 May 7;19(5):e3001209.
Structural basis for SARS-CoV-2 neutralizing antibodies with novel binding epitopes
21. Nat Commun. 2021 Mar 17;12(1):1715.
A conserved immunogenic and vulnerable site on the coronavirus spike protein delineated by cross-reactive monoclonal antibodies
22. Cancer Res. 2021; 81 (13_Supplement): 1603.

Discover potent and functional human antibodies against a new B7-family member target for cancer immunotherapy

23. Nat Commun. 2020 May 4;11(1):2251.

A human monoclonal antibody blocking SARS-CoV-2 infection

24. Elife. 2020 Apr 21;9:e52716.

Multimeric single-domain antibody complexes protect against bunyavirus infections

25. J Immunother Cancer 2020;8(Suppl 3):A426.

HBM1022, a novel anti-CCR8 antibody, depletes tumor-infiltrating regulatory T cells via enhanced ADCC activity, mediates potent anti-tumor activity with Keytruda

26. Emerg Microbes Infect. 2019;8(1):516-530.

Towards a solution to MERS: protective human monoclonal antibodies targeting different domains and functions of the MERS-coronavirus spike glycoprotein

27. Cancer Res. 2019; 79 (13_Supplement): 4098.

A heavy chain only antibody against CTLA4 with outstanding preclinical efficacy and safety profile

28. J Biol Chem. 2018 Apr 20;293(16):5909-5919.

A biparatopic agonistic antibody that mimics fibroblast growth factor 21 ligand activity

29. Front Immunol. 2016 Dec 19;7:619.

Expression Cloning and Production of Human Heavy-Chain-Only Antibodies from Murine Transgenic Plasma Cells

30. Proc Natl Acad Sci U S A. 2011 Sep 27;108(39):16404-9.

Heavy chain-only antibodies and tetravalent bispecific antibody neutralizing Staphylococcus aureus leukotoxins

31. Proc Natl Acad Sci U S A. 2006 Oct 10;103(41):15130-5.

Generation of heavy-chain-only antibodies in mice

References File Document upload:

N/A