

Peptone secures \$2.5M investment to speed up medicine development

In a year that has seen scientists heralded as heroes and the future of protein-based medicine has sat at the coalface of a pandemic, one startup is looking to increase the pharmaceutical industry's chances of developing future medicines quicker than ever before.

The computational physics company, Peptone has built the world's first protein engineering operating system and, thanks to \$2.5M seed round led by Hoxton Ventures and supported by dRx Capital, a venture arm of Novartis Pharma AG, Founders Factory and a number of angel investors including Brent Hoberman, the next-gen supercomputing company is now looking to further develop its groundbreaking technology in order to take on the high-value protein targets and reduce the risk of failure in early stages of drug development.

Peptone is changing the mindset of how big pharma companies approach the process of developing and engineering life-saving proteins, a fundamental building block to modern medicine, by prioritising the past failures of protein research on a large scale. The biotech company is accelerating protein biotechnology research thanks to its Protein Engineering Operating System (PeOS), which uses state of the art computational molecular physics orchestrated by AI.

Peptone's innovative technology sifts through millions of protein feature anomalies in order to assess the likelihood of a new protein failing, before suggesting the best route to resolution. This means that Peptone's AI understands what will not work in order to support the faster and more affordable generation of new lab-based molecules, in a way that the Big Pharma industry has not seen before.

Peptone's team of physicists, structural biologists, computer engineers and mathematicians, led by physicist and founder Dr. Kamil Tamiola, have spent the past three years developing the foundations of PeOS. The company collaborated exclusively with NVIDIA, the global leader in supercomputing technologies and AI-solutions. Peptone's PeOS was developed to handle massively parallel molecular simulations that were orchestrated and supervised by reinforcement learning algorithms. The core functionality of the platform is an automated search for non-obvious protein variants with desirable therapeutic properties and cost-effective manufacturability.

With protein therapeutic holding the promise of treating the most debilitating disorders, Peptone is in talks with key pharmaceutical industry players about future partnerships.

Dr. Kamil Tamiola, CEO and founder of Peptone said, "Our sole focus at Peptone is to embrace experimental failure and, in fact, acknowledge it as an absolutely vital stage in the process of getting the design of protein-based medicines right. Great science is always born out of failure. The reality is that drug discovery in Big Pharma sees only a small fraction of protein based drugs pass the preclinical stages due to their complexity. Pharma, just like any industry, is subject to the 'power law'. A small number of innovative drugs generate disproportional benefits to patients and outsized capital returns. We are working on shifting this failure-to-success ratio in a meticulously predictable and repeatable way using the best computational methods and scalable data science. Only last week one of our clients produced a monoclonal antibody for which our platform suggested seven radical mutations. The said therapeutic protein got vastly improved. The probability of a human researcher being able to engineer this type of change is equal to 1/1,280,000,000. In layman terms you are four times more likely to win the Powerball lottery than to spontaneously find the solution our platform has identified in less than ten days. The business of protein therapeutics is a huge industry and as we grow and further develop our supercomputing capacity we can help make significant progress in the time to market for much sought-after protein-based treatments."

"We are backing Peptone because Kamil and Matt

are mission-driven founders who've made tackling this extremely difficult problem their life's work. They've made excellent progress to date in their early pharma collaborations, and we see in them the potential to build a category defining AI-company for the drug development industry. We're excited to join them on this journey and think we will see a lot of great news from them in the not too distant future." – Hussein Kanji, Partner, Hoxton Ventures

Peptone was one of the first supercomputing companies to join Founders Factory AI-based accelerator programme. The startup was recognised as a finalist in Accenture's HealthTech Innovation Challenge and suggested as one of the 'the most innovative startups in healthcare' by Johnson & Johnson.

"Peptone is building further trust and credibility in science with their ethos of 'fail, rationalise, design' – encouraging Big Pharma to better leverage the knowledge born from the failures in drug creation, and transform them into clinical success. Their innovation comes from using supercomputing and AI to make this applicable time and time again – repeatedly assessing the risk of failure to find the right path. We're excited to be on this journey with Kamil and the team and help them improve the

*future of drug development.” – Henry Lane-Fox,
Founders Factory’s Cofounder and CEO*

Article by MADDYNESS