



A company spun out of the University of Oxford in 2017, SpyBiotech’s pioneering platform technology enables the creation of vaccines previously judged too difficult to develop. Based on a unique and proprietary protein “superglue”, its technology was designed to be applicable to challenging infectious diseases and pandemics, but has applicability in a wide range of disease areas

OVERVIEW

- Raised **£15M** in funding to date, with major investors including Oxford Sciences Innovation (OSI) and GV, positioning us for clinical development.
- SpyBiotech has exclusive rights from the University of Oxford to apply, commercialise and sub-license the SpyTag/SpyCatcher technology in vaccine development.
- Our lead programme is against HCMV: an area of huge clinical unmet need. SpyBiotech has commenced GMP manufacturing and plans to start human trials for this programme in 2021.
- The Serum Institute of India, one of the world’s largest vaccine manufacturers, has initiated a trial of a novel virus-like particle targeting COVID-19 using SpyBiotech’s technology.
- Serum has a multi-decade track record at developing effective, low cost vaccines at high volumes and supporting vaccination around the world, particularly in developing countries.

TECHNOLOGY

- SpyTag/SpyCatcher protein superglue enables SpyBiotech to avoid many of the challenges of binding antigens to virus-like particles, it was designed to be highly applicable to pandemics and challenging infectious diseases.
- SpyTag/SpyCatcher can be combined with a range of different vaccine delivery platforms. Virus-like particles (VLPs) are one of the safest and most effective ways to create vaccines for diseases where high levels of antibodies are required.
- The platform technology works by splitting a protein from the common bacterium, *Streptococcus pyogenes*, into the SpyTag peptide that can be bound to antigens and its partner protein SpyCatcher that binds to the VLP. The two pieces of the original SpyTag/SpyCatcher protein then bind back together in a spontaneous conjugation forming an unbreakable covalent bond.
- The effect is a protein superglue that is “sticky” - binding the VLP and antigen together in an irreversible way - and extremely versatile.
- Scalability, low cost, high efficacy at low concentrations and ease of transport and assembly, which make it particularly useful in the developing world.

COVID-19 PROGRAMME – ACCELERATING PROOF OF PRINCIPLE

The Serum Institute of India has commenced clinical development of a novel virus-like particle targeting COVID-19 using SpyBiotech’s platform technology. Serum Institute has an exclusive global license for the use of the Hepatitis B surface antigen VLP in COVID-19.

As well as supporting the broader effort to find an effective COVID-19 vaccine, the trial will provide key proof-of-concept to underpin SpyBiotech’s platform development.

The vaccine candidate uses SpyBiotech’s proprietary SpyCatcher/SpyTag protein “superglue” technology to display the coronavirus spike protein on the surface of Hepatitis B surface antigen VLPs.

HBsAg VLPs are a licensed vaccine with excellent safety and immunogenicity data in humans and which are currently manufactured to billions of doses.

Candidate	Discovery	Preclinical	GMP	Phase I	Phase II/III	Marketed	
 SPYVLP101 COVID	[Progress bar: Discovery to Phase I]						Clinic (Phase I/II) - Partnered with the Serum Institute of India
 SPYVLP102 HCMV	[Progress bar: Discovery to Phase I]						GMP manufacture in progress
 SPYVLP103 Viral-indication	[Progress bar: Discovery to Phase I]						Pre clinical
 SPYVECTOR Oncology	[Progress bar: Discovery to Phase I]						Pre clinical

HISTORY

2020

- The Serum Institute of India commenced a trial of a novel virus-like particle targeting COVID-19 using SpyBiotech's platform technology.

2019

- Generated proof of concept data for vaccines to combat two viral diseases with huge unmet medical need and significant commercial potential. The human cytomegalovirus (CMV) candidate reached GMP process development in under 2 years.
- Also generated data on the use of our technology for oncology applications.

2017

- In collaboration with Jenner Institute vaccinologists, Sumi Biswas, Simon Draper and Jing Jin as company co-founders, SpyBiotech was spun out from the University of Oxford with exclusive rights to apply the technology to the field of vaccinology - raising £5 million in seed funding with support from Oxford Sciences Innovation, the capital investor for Oxford University, and GV.

2007

- Co-founder Mark Howarth and his team at Oxford University's Department of Biochemistry began studying the common bacterium *Streptococcus pyogenes* and its utility in proteins. The result was a protein "superglue". The resulting SpyTag/SpyCatcher technology is now being used in over 30 countries by research scientists working with proteins, with over 350 publications .

LEADERSHIP



Sumi Biswas
Co-founder, Chief Executive Officer and Chief Scientific Officer

CEO of SpyBiotech since 2017, Sumi is also an Associate Professor of Vaccinology at the Jenner Institute, Oxford University's world-leading vaccines innovation centre, where two of the vaccine candidates against malaria developed by her investigatory team are currently being taken into human clinical trials.

Sumi studied microbiology at the University of Bangalore, before gaining an MSc in Medical Microbiology at the London School of Hygiene & Tropical Medicine and a DPhil in Clinical Medicine from the University of Oxford.

In 2017 Sumi was named as a rising star in BioBeat's Movers and Shakers list of 50 inspirational women in biotech.



Vien Phan
Finance and Operations Director

Prior to SpyBiotech, Vien served in a variety of corporate strategy and development roles at London Stock Exchange Group between 2008-2018, most recently as Group Head of Strategy. During his tenure, LSEG delivered a 16x market capitalisation growth for shareholders.

Vien holds a Masters degree in Molecular and Cellular Biochemistry from the University of Oxford. He is a qualified Chartered Accountant who started his career at PricewaterhouseCoopers.



Mark Howarth
Co-Founder and Scientific Advisor

The inventor of the SpyTag/SpyCatcher protein superglue platform technology, Mark continues to take an active interest in SpyBiotech as a co-founder of the company. He is Professor of Protein Nanotechnology at Oxford University's Department of Biochemistry, where he has been a principal investigator since 2007.