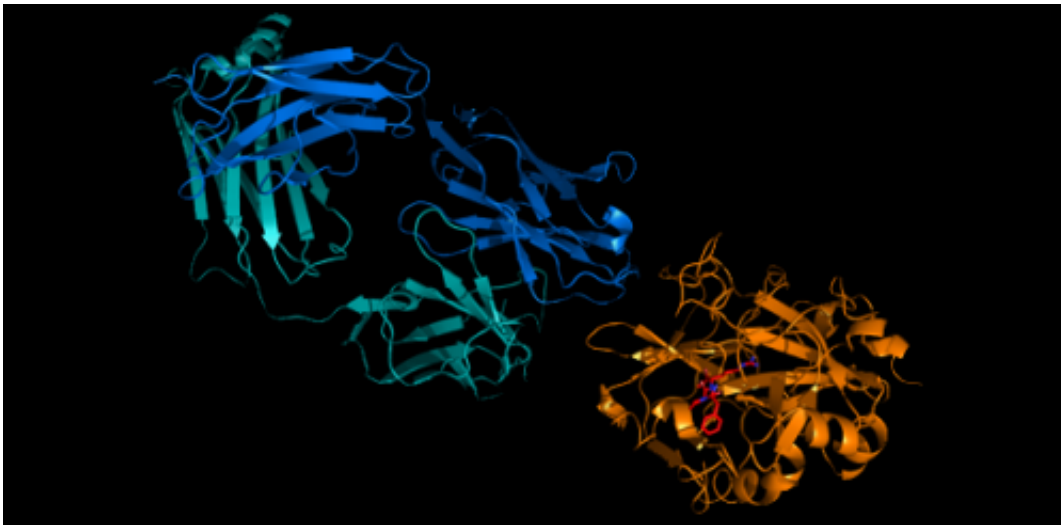


# Towards the 'holy grail' of anticoagulant drugs

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Fab fragment of an antibody bound to thrombin. Credit: Jim Huntington

A new spin-out company from the University of Cambridge and Addenbrooke's Hospital, XO1 Ltd, has raised \$11 million in funding to develop a new anticoagulant drug which has the potential to save millions of lives by preventing heart attacks and strokes without causing bleeding.

The funding, from leading life science investor Index Ventures, will be used to develop ichorcumab, an antibody invented by researchers from the University and Addenbrooke's, which targets thrombin, the enzyme responsible for blood clotting.

"This is the most exciting [drug candidate](#) I have seen in twenty years in the industry," said Dr David Grainger, Venture Partner at Index Ventures and interim Chief Executive of XO1 Ltd. "It has the potential to save millions of lives."

Ichorcumab is a synthetic antibody based on a naturally-occurring antibody found in a patient at Addenbrooke's in 2008. "This patient arrived in A&E with a head injury, and we rapidly discovered a degree of anticoagulation consistent with severe haemophilia," said Dr Trevor Baglin, Consultant Haematologist at Addenbrooke's, part of Cambridge University Hospitals, who treated the patient in question. "We thought it might be fatal. But to our surprise the bleeding stopped quite normally."

The observation led Dr Baglin - and his colleague Professor Jim Huntington at the University's Cambridge Institute of Medical Research - to design a synthetic version of the antibody in the patient's blood that was responsible for this extraordinary anticoagulation.

Anticoagulants, such as warfarin and the newer generation of drugs that directly target thrombin and another coagulation factor (fXa), are widely used to prevent thrombosis - a major cause of heart attacks and strokes. However, as blood clotting is essential to prevent excessive bleeding, the use of these drugs is limited by the bleeding side-effects that they cause. An anticoagulant drug which does not cause bleeding is considered the 'holy grail' in this area of research.

"Undoubtedly higher doses of these anticoagulant drugs could prevent the majority of heart attacks and strokes," Dr Baglin explained. "But we can't give higher doses because the bleeding they would cause would itself be fatal. Ichorcumab has the potential to change all that."

"This antibody can deliver a high degree of anticoagulation without increased [bleeding](#); we've never seen that before," said Professor

Huntington.

The investment, which comes from the \$200 million Life Sciences fund Index launched last year to accelerate new drug discovery, will be used to complete the preclinical development of ichorcumab, and to manufacture substantial quantities of the antibody. "We expect to begin trials in human volunteers within two years," said Dr Grainger.

"This represents the largest investment in a [life science](#) company by Index Ventures to date, underlining the transformative potential we see in this drug candidate," said Kevin Johnson, Partner at Index Ventures.

The company will operate in virtual mode, without offices or labs, using out-sourced drug development expertise from across the globe. "That approach gives us maximum flexibility to deliver high quality development faster and cheaper," said Dr Grainger, who is based at the Babraham Research Campus.

"We are delighted to license this exciting asset to XO1, backed by the experienced Index team," said Andy Walsh of Cambridge Enterprise, the University's commercialisation arm.

Provided by University of Cambridge

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