UNIVERSITY OF LIVERPOOL

Enterprise: Licensing & Ventures

Novel Cyclophilin D inhibitors for the treatment of acute pancreatitis

Introduction

Acute pancreatitis (AP) is a sudden inflammation of the pancreas that can range from a mild, self-limiting illness to a severe, life-threatening condition. The most common causes are gallstones and alcohol consumption, though many cases remain idiopathic. With an incidence of ~56 patients per 100,000 annually in the UK and rising worldwide, AP represents a growing global health burden. Severe cases require prolonged hospitalisation, often in intensive care, and can result in multi-organ failure. Current treatment is limited to supportive care, fluid resuscitation, pain management, and nutritional support, with no approved disease-modifying therapies available.

Researchers at the University of Liverpool, led by Professor Robert Sutton, have developed novel Cyclophilin D inhibitors that target mitochondrial dysfunction, a critical driver of AP pathology. This first-in-class approach offers the potential to directly address the underlying disease mechanism, reduce morbidity and mortality, and significantly ease healthcare system pressures.

Opportunity

- Large unmet medical need in AP (global incidence rising).
- Potential for first-in-class therapy with broad impact across acute care.
- Opportunity for broader application in other mitochondrial-mediated conditions e.g. Acute Kidney disease.

Technology Overview

- Mode of Action: Cyclophilin D inhibitors prevent mitochondrial permeability transition pore (mPTP) opening, protecting pancreatic cells from energy collapse and apoptosis.
- The technology is at TRL 3. In vitro , in vivo proof of concept data available.
- Currently evaluating ADME to modify half life and select lead candidate.
- Engaged with external consultant to generate target product profile and identify commercial roadmap to clinic.

Intellectual property

Composition of matter Patent filed May 2024 covering novel Cyclophilin D inhibitors and their use in treating acute pancreatitis. Entered PCT in 2025 with a highly positive GB search report confirming strong novelty and protection.

Team

The UoL team is lead by Professor Robert Sutton- Internationally recognised surgeon and researcher with over 30 years' leadership in pancreatitis care, research, and global innovation networks.

Next Steps

Looking for co-development and funding opportunities to progress the project; ADME, Pre-clincal safety and toxicology studies.

For further information contact:

Dr Tansi Khodai
t.khodai@liverpool.ac.uk
Senior Enterprise Manager
Enterprise Team