Why research on ticks could offer potential COVID-19 breakthrough

Glasgow, Scotland, 11th May 2020: UK-based biotechnology firm ILC Therapeutics is working alongside the University of Oxford to examine the use of Evasins – molecules derived from ticks – as a potential COVID-19 treatment option for patients whose lungs are badly damaged by the virus and face a critical juncture in recovery.

The research being carried out by ILC Therapeutics and University of Oxford indicates that Evasins could have the potential to prevent the progression of Acute Respiratory Distress Syndrome (known as ARDS, and currently the leading cause of COVID-19 fatalities), by acting as a 'fire extinguisher' to put out the Cytokine Storms that attack the lungs.

Cytokine storms are the result of the body's innate immune system going into overdrive and over-producing dangerous chemical messengers called cytokines and chemokines that activate white blood cells like neutrophils and macrophages to attack the lungs in COVID-19 patients. If enough lung tissue is destroyed by these attacks then it is impossible for the lungs to operate and patients die.

Early research indicates that Evasins could rescue the patient from the Cytokine Storm in the body once it is already in progress by 'absorbing' chemokine messengers which cause lung inflammation, making it a late stage treatment option for patients and potentially resulting in a much higher chance of survival and recovery.

ILC Therapeutics has been working with Professor Shoumo Bhattacharya, Professor of Cardiovascular Medicine and BHF Chair at the University of Oxford. The biotech start-up began working with Professor Bhattacharya in November 2019, originally examining Evasins as a potential treatment for various inflammatory respiratory conditions before realising that it could be particularly effective on lung inflammatory responses caused by the innate immune system.

Just a few months later, this decision would prove particularly timely with the emergence of COVID-19. As ILC Therapeutics CEO Dr Alan Walker says, "We didn't go looking for COVID-19, it came looking for us. We are somewhat 'lucky', I suppose, that our research was already exploring ways of controlling the innate immune inflammatory response, meaning that we haven't had to deviate greatly from the work we were doing ahead of COVID-19."

Chief Scientific Officer Professor William Stimson, adds: "This is an area I have researched for many years – I previously worked on SARS and believe that the innate immune system's importance has often been overlooked in favour of the Adaptive Immune System. In the case of COVID-19, Evasins could have the potential to work even in extreme conditions of advanced ARDS by putting out the cytokine and chemokine fire raging in the lungs. This could prevent further damage and potentially save patients' lives at a highly critical stage of the fight against the virus."

Professor Shoumo Bhattacharya has developed Triple Headed Evasins – essentially combining three different types of Evasins so as to maximise the absorption of different chemical messengers called chemokines, which are responsible for inflammation in the lungs and circulatory system.

Professor Bhattacharya adds, “Evasins are designed to evade people’s innate immune response, which acts as an inherent protection mechanism against parasitic attack from ticks and other parasites, allowing these invaders to drink their victim’s blood with impunity. Evasins are designed to turn off the very chemical messengers that play a big part in ARDS. We hope to use something that for millions of years has been used by parasites to attack people to save people instead. Given that Evasins function the same in all mammals, we have the potential to gain insight from animal model data very quickly, which would be very beneficial in seeing how effective this treatment option could be.

“It is hugely promising that there could be a treatment option which may prevent further damage to the lungs and maintain oxygen uptake at a highly critical point in the patient’s journey to recovery.”

Research is being split between BioCity in Glasgow, Scotland and at University of Oxford, with initial clinical work likely to be undertaken at the university. Given that Evasins have the potential to control a number of inflammatory responses in the lung no matter the cause, the treatment option could have implications for other respiratory conditions such as Allergic Asthma as well as COVID-19.

ILC Therapeutics is urgently seeking funds in order to progress as quickly as possible to pre-clinical tests and eventual clinical trials.

-ENDS-

Notes to Editors

For further information please contact Rebecca Durnin on rebecca@mediahouse.co.uk / 07801 821 556 or Ibrahim Khalil on ibrahim@mediahouse.co.uk / 07943 759 042.

About ILC Therapeutics

ILC Therapeutics Ltd is an early stage biotechnology company focused on modulating the Innate Immune System through the development of novel peptide therapeutics for the treatment of Cancer, Atopic Dermatitis, Psoriasis and Allergic Asthma amongst other conditions. More recently however, ILC Therapeutics has discovered that its ongoing research has potential to treat COVID-19.
Interest in NK cell therapy is exploding and NK cells are a type of Innate Lymphoid Cell 1 (ILC-1) modulated by alpha interferons. ILC Therapeutics Ltd’s hybrid, patented interferon alpha has been shown to have a powerful stimulatory effect on NK cells and this is critical to maintaining NK cell activity inside tumours where the cancer is trying to switch them off and escape destruction. ILC Therapeutics’ Hybrid 1 has shown modulatory effects on tissue based ILC-2 networks (Atopic Dermatitis) and ILC-3 networks associated with Psoriasis. This work has now been re-focused to study the effects of interferon alpha on COVID-19.

The company was founded by Prof. W. H. Stimson FRSE, who was the founder of the Department of Immunology at The University of Strathclyde. Bill has been involved in eight start-up/spin-out biotech companies. He has been a long-term consultant to five multinational companies including Akzo Nobel, Rhone-Poulenc and Johnson & Johnson. Bill has published 215 scientific papers and 25 patents and was involved in the use of the first human monoclonal antibodies for cancer therapy.

For more information on ILC Therapeutics, please visit: www.ilctherapeutics.com

Follow ILC Therapeutics on LinkedIn: www.linkedin.com/company/ilctherapeutics/