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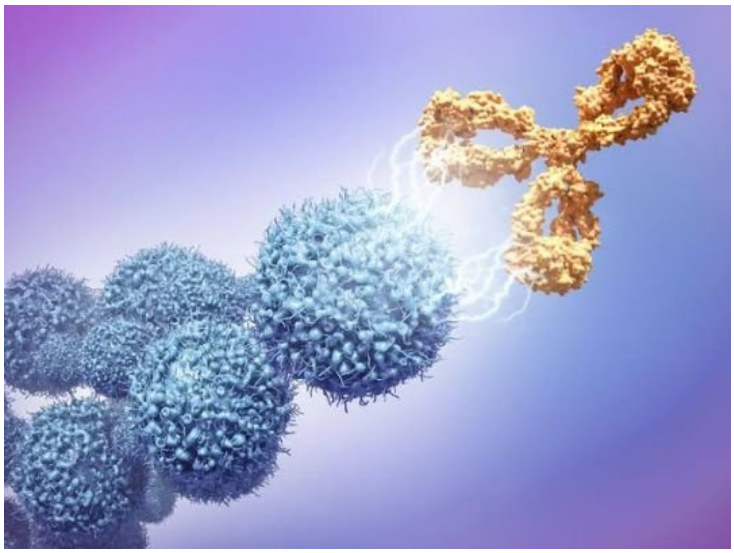
Singapore develops antibody therapeutics for fibrotic and inflammatory Diseases

January 10, 2020 | News

Brings hope to patients with fibro-inflammatory conditions worldwide



The breakthrough discovery of investigational therapies for multiple human diseases by a team of Singapore clinicians, clinician-scientists and scientists from National Heart Centre Singapore (NHCS), SingHealth Duke-NUS AMC and the Singapore-based biotech company Enleofen Bio, along with a newly forged partnership with Boehringer Ingelheim, brings hope to patients with fibro-inflammatory conditions worldwide.

Due to incomplete knowledge of the fibrotic process, there are currently very limited effective therapies to treat many fibro-inflammatory diseases. The discovery of the role of a specific protein – interleukin 11 (IL-11) – in fibrotic diseases of the liver, lung, kidney, eye, skin and heart stimulated the development of bio-therapeutics called neutralising antibodies, to target and block IL-11 to reverse inflammation and improve fibrosis in diseased body organs. The findings of the various pre-clinical studies were published in high impact scientific journals.

Enleofen Bio could receive more than US$ 1 billion per product from Boehringer Ingelheim, which will further develop the therapies for multiple fibrotic human disorders, including non-alcoholic steatohepatitis (NASH) and progressive fibrosing interstitial lung diseases (PF-ILDs). The discovery of a key driver of fibrosis and inflammation in human diseases is now moving rapidly toward the clinic

“More than 225 million people worldwide suffer from heart and kidney failure, which resulted from the hardening of the organ tissues with no treatment. The development of anti-IL-11 therapies will offer hope to patients with end-stage heart, kidney, lung or liver failure, addressing the unmet medical needs of patients worldwide,” shared Professor Terrance Chua, Medical Director, NHCS and Group Chairman Medical Board, SingHealth.

A new strategic partnership between Enleofen Bio and the global pharmaceutical company, Boehringer Ingelheim, has been announced today. This partnership adds large value to the IL11 programme and greatly accelerates the therapies towards the clinic. Boehringer Ingelheim is a global leader in the treatment of fibrotic lung diseases and in therapeutic antibodies. On top

of its continued focus on fibrotic lung diseases, Boehringer Ingelheim is committed to targeting fibrosis and inflammation in multiple new areas, starting with liver disease. Boehringer Ingelheim also brings deep expertise in drug manufacturing and clinical development giving the IL-11 programme the best chance of success.

“We are very excited to engage Boehringer Ingelheim, a leading and innovative pharmaceutical company on this important phase of drug and clinical development. This marks a major biotechnology success in Singapore and we are extremely proud of the clinicians and scientists at NHCS and Duke-NUS,” said Professor Stuart Cook, Tanoto Foundation Professor of Cardiovascular Medicine, Director of Duke-NUS’ Cardiovascular and Metabolic Disorders Programme, and Senior Consultant at the Department of Cardiology, NHCS.

“This collaboration brings together Boehringer Ingelheim’s expertise in drug development and NHCS’ and SingHealth Duke-NUS AMC’s strengths in clinical care and translational research. This is a crucial step in the translational medicine process, and puts us in good stead to bring new anti-IL11 therapies and improve healthcare outcomes for patients in Singapore and beyond,” said Professor Ivy Ng, Group CEO, SingHealth.

“This is yet another example of the impactful research emerging from the Academic Medicine partnership between Duke-NUS and SingHealth, which integrates cutting-edge science with patient care. This new partnership between Enleofen Bio and Boehringer Ingelheim provides great promise for practical and clinical solutions to improve healthcare and patients’ lives,” said Professor Thomas M. Coffman, Dean of Duke-NUS Medical School.

The discovery science and drug target validation were made possible by the research done in the laboratories of National Heart Research Institute of Singapore (NHRIS) of NHCS, DukeNUS Medical School’s Cardiovascular & Metabolic Disorders Programme and SingHealth Duke-NUS AMC. Funding from the National Medical Research Council (NMRC) underpinned the research on IL-11, which was patented over several years of scientific study at SingHealth Duke-NUS AMC.