Ross River virus battle breakthrough

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Dr Lara Herrero, lead researcher, who has discovered a “life-changing” therapy to treat people with the crippling mosquito-borne Ross river virus. Credit: Griffith University

Research conducted by Griffith University and Melbourne-based company Paradigm Biopharmaceuticals Limited (ASX: PAR) has uncovered a potential new therapeutic treatment in the global battle against mosquito-borne alphavirus infections, including the debilitating Ross River Virus (RRV) and Chikungunya Virus (CHIKV).

Currently RRV and CHIKV sufferers are only offered symptomatic management in the form of either non-steroidal anti-inflammatories or corticosteroids, which in some cases may actually exacerbate the condition.

These therapeutics may offer some short-term symptomatic relief but their use often results in detrimental side-effects while failing to treat the underlying disease. Researchers at Griffith University may have discovered a breakthrough in the treatment of mosquito-transmitted viral diseases like RRV and CHIKV.

Pre-clinical experiments conducted by researchers at Griffith University's Institute for Glycomics on the Gold Coast have demonstrated world-first results showing that the historic drug, pentosan polysulfate sodium (PPS), can successfully treat both the acute and chronic disease manifestations symptoms of alphavirus infections in the animal model.

Early human patient trials

Several human patients have also been treated with PPS under the Therapeutic Goods Administration Special Access Scheme. These patients, who previously were severely debilitated and had difficulty with daily activities, have reported remarkable improvements in their physical capabilities and general well-being. In these RRV patients treated with PPS the results demonstrate the drug was well tolerated and produced strong signals of clinical effects.

Queensland man Jon Chaseling said treatment with PPS had dramatically changes his life.

"I suffered the effects of Ross River Fever for years. Most days I found it nearly impossible to do something as simple as walking down a flight of stairs," said Mr Chaseling.

"I avoided shaking hands with people because of the pain it caused. Even the weight of the bedclothes at night was agonising.

"Since undergoing a course of treatment with PPS, I find I'm far more mobile and in much less pain. It's literally changed my life."

Lead researcher, Dr Lara Herrero, became interested in alphaviruses after becoming infected with Ross River virus in Western Australia in 2004.

Alphavirus infection

"Alphavirus infection is characterised by crippling musculoskeletal pain, inflammation and swelling in the joints, often leading to the destruction of cartilage," she said.

"Currently there's only symptomatic relief available to RRV and CHIKV sufferers with the use of either non-steroidal anti-inflammatories or corticosteroids, both which can have detrimental side-effects and in some cases may actually exacerbate the condition.

"But when PPS was used to treat the viral disease in the mouse model, we observed a significant reduction in musculoskeletal damage. These data point to PPS being a well-tolerated anti-inflammatory therapy and also a disease modifying drug by protecting the joint cartilage".

"We're extremely encouraged by the preclinical results and five clinical cases but our next step is to confirm these results in a Phase 2 clinical trial" said Mr Paul Rennie, CEO of Paradigm Biopharmaceuticals.

Griffith University and Paradigm Biopharmaceuticals have entered into a commercialisation agreement under which Paradigm will fund and undertake the necessary clinical trials. If the trials are successful Griffith University will receive a royalty on Paradigm's sale of the drug to treat viral arthritis.

Provided by Griffith University

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