

Neuren advances NNZ-2591 towards IND application

Highlights:

- Encouraging results achieved in multiple sclerosis pre-clinical model
- Like NNZ-2566, NNZ-2591 has demonstrated potential utility across a broad range of neurological conditions
- NNZ-2591 has valuable pharmaceutical attributes, including higher oral bioavailability, improved stability and potential for a solid oral dosage form
- Optimisation of manufacturing process is first step towards IND application to the US FDA for further development of NNZ-2591 in neurological conditions

Melbourne, Australia, 12 August 2014: Neuren announced today that it has initiated activities that will support filing of an Investigational New Drug application (IND) with the US Food and Drug Administration (FDA) and subsequent clinical development of NNZ-2591. Initial IND-enabling activities will focus on optimisation of manufacturing processes and physical attributes.

NNZ-2591 is a patented dipeptide related to IGF-1 and to Neuren's NNZ-2566, which is currently in Phase 2 clinical trials for four different neurological indications. Like NNZ-2566, NNZ-2591 exhibits potent neuroprotective, neurorestorative and pro-cognitive effects which result from inhibition of inflammation and cell death as well as normalization of synaptic plasticity and neuronal signalling. Recent results from studies conducted by scientists at the Walter Reed Army Institute of Research in the United States have reinforced and expanded Neuren's understanding of the mechanisms of action of NNZ-2591.

NNZ-2591 has shown positive results in well-validated preclinical models of cognitive impairment, Fragile X syndrome, traumatic brain injury, stroke, Parkinson's disease and peripheral neuropathy. Encouraging results have now also been achieved in two studies in a model of multiple sclerosis (MS). MS is an autoimmune disease caused by destruction of the myelin sheath that surrounds nerve fibres and facilitates cell signalling in the brain and spinal cord. It is an inflammatory condition that results in impairment of motor function as well as cognitive impairment.

MS can take two forms: relapsing-remitting and progressive which represent approximately 85% and 15% of cases, respectively. The recently completed experiments tested two different dose levels of NNZ-2591 in the experimental autoimmune encephalitis (EAE) model of MS and included both relapsing-remitting and progressive studies.

In the relapsing-remitting model, both dose levels of NNZ-2591 resulted in an average reduction of approximately 30% in neurological impairment compared to vehicle. In the spinal cord and brain, the number of inflammatory foci was reduced by an average of approximately 30% and 48%, respectively.

In the progressive model, which tends to be more resistant to treatment, the higher dose level of NNZ-2566 resulted in an average reduction of approximately 30% in neurological impairment

compared to vehicle. Testing of the effect of treatment on demyelination in the spinal cord and brain was inconclusive in both studies, due to low levels evidenced during the study.

In addition to preclinical evidence of strong therapeutic potential in a range of applications and an apparently promising safety profile, NNZ-2591 has a number of pharmacological attributes that make it an attractive candidate for further development. These include excellent oral bioavailability (approximately 100%), likely suitability for development of a solid oral dosage form and potential for improved stability compared to other peptide-like compounds.

Neuren Executive Chairman Richard Treagus commented “Whilst Neuren’s near-term focus remains the current Phase 2 clinical trials of NNZ-2566 in four different indications, the attractive pharmaceutical properties and pre-clinical efficacy of NNZ-2591 make a compelling proposition to advance its development behind NNZ-2566”.

About Neuren

Neuren Pharmaceuticals (Neuren) is a publicly listed biopharmaceutical company focusing on the development of new therapies for brain injury, neurodevelopmental and neurodegenerative disorders. The novel drugs target chronic conditions such as Rett Syndrome and Fragile X Syndrome as well as acute neurological injuries. Neuren presently has a clinical stage molecule, NNZ-2566, in four Phase 2 clinical trials, as well as NNZ-2591 in pre-clinical development.

Forward-looking Statements

This ASX-announcement contains forward-looking statements that are subject to risks and uncertainties. Such statements involve known and unknown risks and important factors that may cause the actual results, performance or achievements of Neuren to be materially different from the statements in this announcement.

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