

Rationally Designed Drug Discovery and Development of Dynamin Inhibitors for Epilepsy

Bio-Link presents a unique drug discovery program based on modulation of the GTPase dynamin for the treatment of epilepsy and other disease indications. Researchers at the Children's Medical Research Institute (CMRI) and the University of Newcastle (UoN) in Australia have shown that inhibition of dynamin can prevent synaptic vesicle endocytosis, leading to the potential to modulate vesicle recycling that is important for uncontrolled synaptic transmission associated with seizures. The safety of modulating dynamin is supported by early acute and maximum tolerated dose, pathology and toxicology data utilising dynamin inhibitors and through clinical experience with approved CNS drugs that potentially modulate dynamin through off target effects.

Fundamental understanding of dynamin and endocytosis biology, rational drug design and proprietary screening assays are being used in conjunction with in vivo testing in chronic and acute models at the Royal Melbourne Hospital and NINDS/NIH Anti-Convulsant Screening Program to develop potent and selective dynamin inhibitor molecules. To date, extensive medicinal chemistry, including in vitro and in-cell structure activity relationship (SAR) data, has led to the identification of three chemical series that exhibit promising potency as potential sources of lead candidates for pre-clinical and clinical development.

Supported by a portfolio of intellectual property and know-how, collaborations between fundamental neurobiologists, medicinal chemists, in vivo biologists and clinicians, and legal certainty for partnering and licensing of IP, Bio-Link is focused on partnering the Program with a biopharmaceutical company interested to develop first-in-class compounds for epilepsy. The novel and rationally designed mechanism of action through targeting dynamin has the potential to address the large unmet medical need and market for patients with refractory epilepsy and those suffering side effects from existing therapies.

Parties interested to explore partnering for preclinical and clinical development of dynamin inhibitor drug candidates for epilepsy are encouraged to contact Bio-Link.

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