

Jeans for Genes Day toolkit

By Life Scientist Staff | Posted in [Genetics](#) on 01 August, 2014

In 21 years more than \$61 million has been raised by the [Jeans for Genes Day](#) effort to support research at [Children's Medical Research Institute](#) (CMRI), such as neurobiologist Professor Phil Robinson's pharmacological research.

The first Friday in August marks a national day when people wear their denim jeans in support of raising funds for research.

Robinson and colleagues have developed a dynamin modulator toolkit, which makes available new pharmacological protocols for use by medical researchers, biochemists and other scientists.

"We have worked for almost 15 years with Professor Adam McCluskey's team at the University of Newcastle," said Robinson. "The tools we have designed are for use by cell biologists and researchers to better understand endocytosis."

Endocytosis, the process via which materials move into a cell via membrane vesicles, plays a key role in many cells of the body. Robinson's main interest is the nervous system, where the synaptic vesicles involved in nerve communication pinch off from the cell membrane via endocytosis.

The compounds in the toolkits Robinson and colleagues have developed block these processes. They have already published a series on clathrin, one of two key proteins that control endocytosis - clathrin controls the beginning of the process.

The latest toolkit contains inhibitors that target dynamin, the second key protein that controls the end of the endocytotic process. Dynamin is involved in the pinching off of invaginating vesicles from the cell membrane, allowing them enter the cell cytoplasm.

"The set of three compounds we recently published on are to help people figure out how to make the compounds, fine-tune them and develop them to be more active and safe for use in humans," explained Robinson, adding that he is using the compounds to work out how to turn down endocytosis and reduce synaptic transmission in epilepsy.

"They work in animals for a short time, although they do have some off-target effects. We want to develop them further so that they last half a day or a day."

Robinson said the compounds work equally well for infectious disease, especially viruses, and act as a front-line of defence in blocking these infectious agents from accessing cells.

The long-term goal is to develop compounds that can be put into a clinical trial to test for use in humans.

"It's incredibly hard to get funding to do drug discovery research in Australia," Robinson said. "Without Jeans for Genes Day we would not have had a hope of doing this work. The funds have underwritten this work."

The research was recently published in the journal *Nature Protocols*.

- See more at: <http://lifescientist.com.au/content/molecular-biology/news/jeans-for-genes-day-toolkit-557996812#sthash.DYoAwhzz.dpuf>