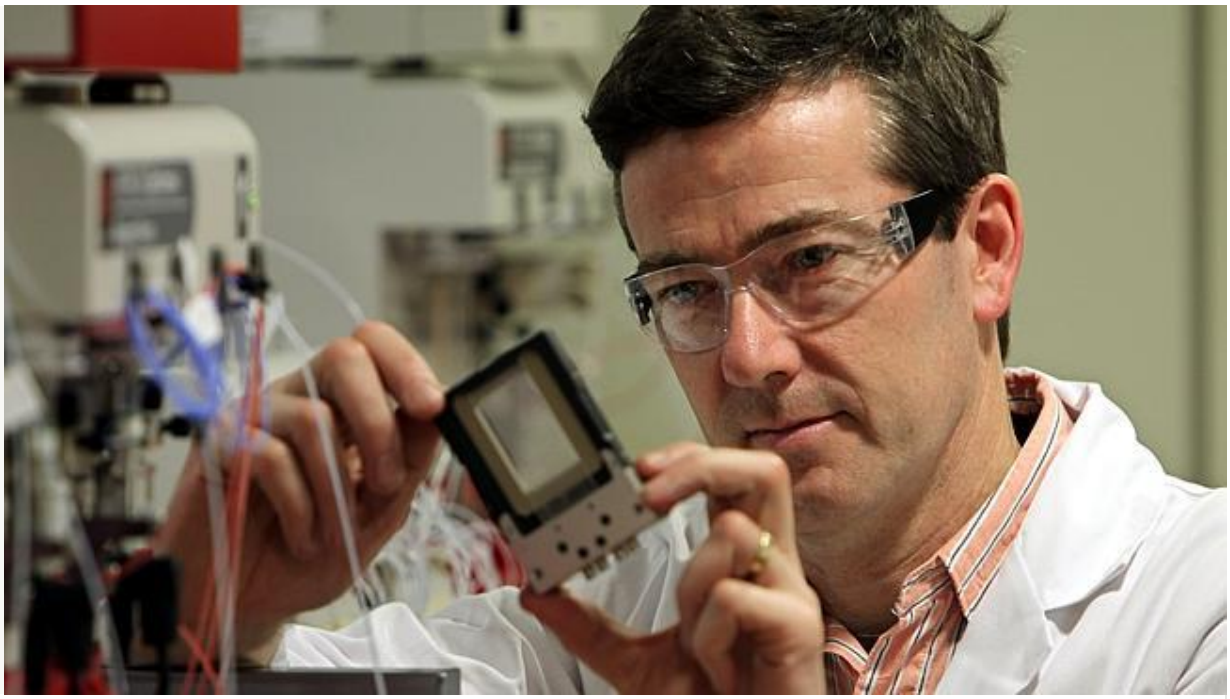
LIFESTYLE

Australian researchers make breakthrough in cancer and epilepsy treatments

- SUE DUNLEVY NATIONAL HEALTH REPORTER
- NEWS CORP AUSTRALIA NETWORK
- JULY 31, 2014 7:45PM



Seeking funding ... Professor Adam McCluskey from the University of Newcastle.

AUSTRALIAN scientists could be trialling breakthrough treatments for cancer and epilepsy in five years after finding a way to block a protein that decides what gets through cell walls.

A series of compounds known as dynamin inhibitors being tested in the laboratory show promise for halting the uncontrolled cell growth that takes place in cancer.

If the team can get another $5 million worth of funding they also hope to be able to turn the compounds into a candidate drug for epilepsy ready for human trials within five years.

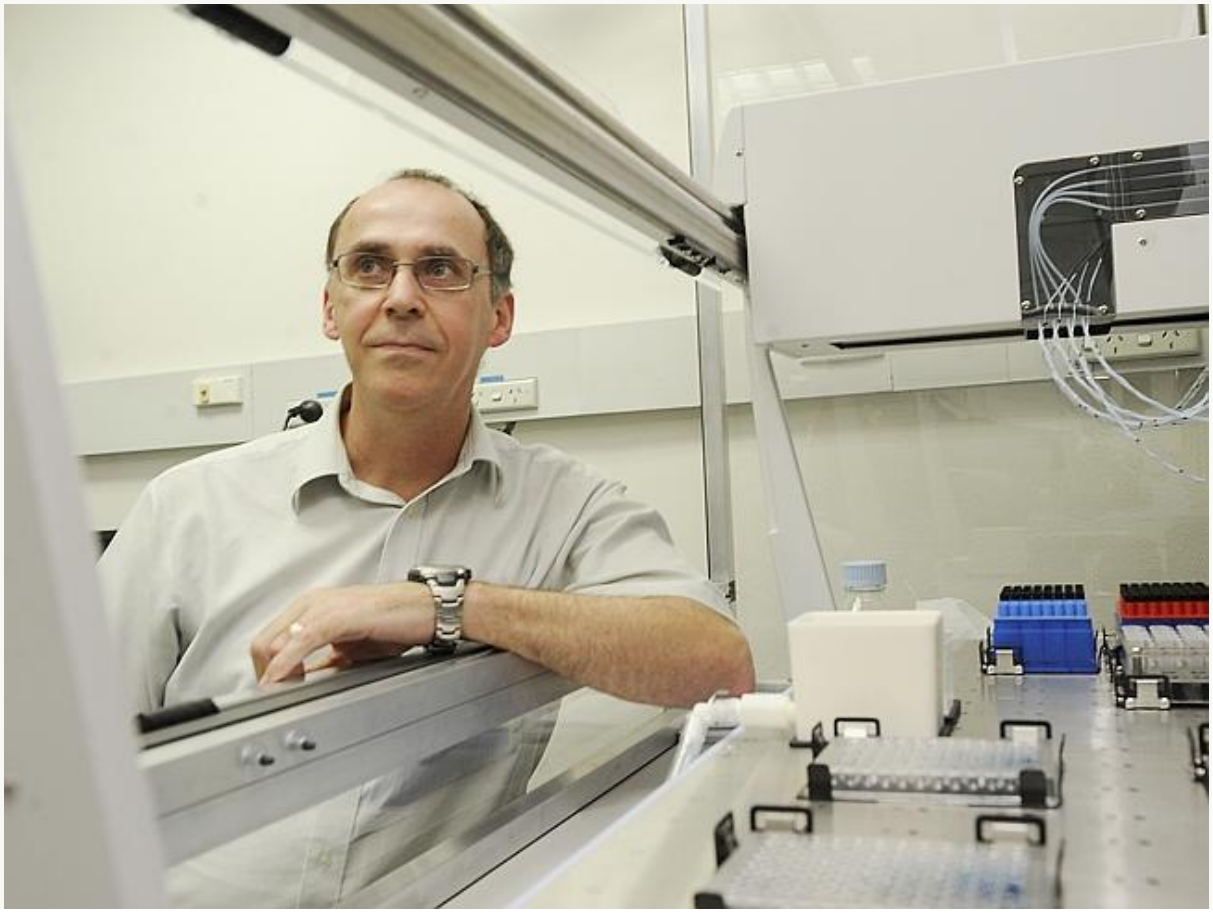
More than 200,000 Australians suffer from epilepsy which causes seizures and in up to 40 per cent of cases the medicines available are unable to control the problem.

Seventeen year old Riley Dorman has up to 300 minor seizures a day. He'll never be able to drive, finds it hard to concentrate at school and although he's tried 11 different medicines none have worked.

Riley's mother Ruth says the family has its fingers crossed the work on dynamin inhibitors will help her son; the other option is medicinal marijuana.

"Any opportunity that presents itself we're happy to give it a go," she said.

A longitudinal study has found half those who suffer from the condition experience discrimination and depression.



Protein breakthrough ... Professor Phil Robinson at the Children's Medical Research Institute. Picture: John Appleyard

The research by Professor Phil Robinson at the Children's Medical Research Institute and medicinal chemist, Professor Adam McCluskey at the University of Newcastle has been funded by Genes for Jeans.

They are studying a protein called dynamin that acts as a guardian of the cell wall and plays a role in the process of deciding whether viruses and infections can breach the cell.

Dynamin is produced in the brain and also participates in over-firing of brain signals, a phenomenon seen in patients with epilepsy.

Professor Robinson believes that by controlling dynamin it might be possible to control the release of neurotransmitters that cause epileptic fits.

So far the research has led to the development of over 7,000 compounds that are candidates for blocking or controlling dynamin; only several hundred of them work.

He now needs the money to test the most promising versions of the compounds in animals to establish their safety before human trials can start.

The research teams believe these compounds will be useful in treating epilepsy, infectious diseases and cancer.

“Not all cancers, but a large number depend on endocytosis (the process that decides what gets in a cell or is kept out) to maintain uncontrolled cell growth,” Professor Robinson says.

“Dynamin has a second role in allowing cancer cells to divide forever,” he said.

“What we’re trying to do now is show which of the compounds are safe in animals so we can show it stops cancer in animals,” he said.