Media Release  
Tuesday 27 October 2009

Novel targets for schizophrenia drug development

microRNA specialist, Dr Murray Cairns, from the Schizophrenia Research Institute’s centre at the University of Newcastle, has made great steps of discovery in the molecular biology of schizophrenia by finding further evidence that miRNA could be involved in the development of the disorder.

miRNAs are exceptionally small pieces of RNA derived from non-coding genetic material. Their only function is to control the activity of other genes. Despite their size, these small molecules have a powerful influence, with a single microRNA having the capacity to subtly affect thousands of genes. They are very important in the development of the brain and are also involved in neural function and plasticity, which underpins the brains ability to learn and adapt to challenges.

In a recent study published in *Molecular Psychiatry*, Dr Cairns discovered widespread changes in microRNA production and expression throughout several regions of brains of people with schizophrenia. These elevated levels of miRNA would regulate the expression of many genes implicated in the illness. The magnitude of miRNA changes and their wide sphere of influence is another important step towards understanding the basis of a pathological influence in the development of schizophrenia.

The evidence supports the idea that schizophrenia could occur because of change in the regulation of many genes rather than specific gene mutations. Importantly, microRNA could be novel targets for drug development.

About the Disease

- Schizophrenia is the third leading cause of disability in young people
- One in every hundred young people will develop schizophrenia
- 30 percent attempt suicide
- Schizophrenia can arise in any family
- It costs over AUD$2 billion p.a. in direct health costs and loss of productivity
- There is no cure and improved treatments are urgently needed

About the Schizophrenia Research Institute

The Schizophrenia Research Institute is the only national medical research institute solely dedicated to discovering the ways to prevent and cure schizophrenia.

Established in 1996 as Australia’s first virtual medical research Institute, the organisation conducts and supports schizophrenia research in hospitals, universities and research institutes across the country and internationally. With over 60 employees and 140 scientific affiliates, the Institute drives a proactive research agenda, has invested over $25 million and has had numerous successes to date.

In 2007, the Institute launched the Australian Schizophrenia Research Bank, the largest ever national brain research project in schizophrenia, which is collecting wide-ranging data on patients with schizophrenia and controls for use in research programs.

The Institute is NHMRC accredited and is funded by government grants (NSW Health & NHMRC), corporate and private donations. A registered charity throughout Australia, further donations can be given at www.schizophreniaresearch.org.au or by phoning (02) 9295 8688.

For further information please contact Helen Connealy on 02 9295 8692