**DNA find sheds light on human brain**

**Brain cells alter their genetic make-up during a person’s lifetime, scientists have found.**

The discovery could shed light on neurological diseases.

**Retrotransposons**

This research completely overturns the belief that the genetic make-up of brain cells remains static throughout life and provides us with new information about how the brain works.

**Dr Geoff Faulkner**

***The Roslin Institute***

University researchers have identified genes - known as retrotransposons - responsible for thousands of tiny changes in the DNA of brain tissue.

The scientists from The Roslin Institute found that the genes were particularly active in areas of the brain linked to cell renewal.

Mapping the locations of these retrotransposons in the human genome could help identify mutations that impact on brain function and that may cause diseases to develop.

**Cellular differences**

The study shows for the first time that brain cells are genetically different to other cells in the body and are also genetically distinct from each other.

Scientists are now researching whether brain tumour formation and neurodegenerative diseases, such as Alzheimer’s, are associated with a change in retrotransposon activity.

The research is published in the journal Nature

If we can understand better how these subtle genetic changes occur we could shed light on how brain cells regenerate, how processes like memory formation may have a genetic basis and possibly link the activity of these genes to brain diseases.

**Dr Geoff Faulkner**

***The Roslin Institute***

**Collaboration**

The research was carried out in collaboration with scientists from the Netherlands, Italy, Australia, Japan and the United States.

It was funded by the Wellcome Trust, the Biotechnology and Biological Sciences Research Council and the Australian National Health and Medical Research Council.

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