



News Release

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Gene study unlocks brain secrets

Scientists have identified five key genes that impact the size of structures in the brain, a study in *Nature* reveals. The international team, including University of Edinburgh researchers, says the findings increase knowledge of the causes of variability in brain development.

The study may also help scientists to determine the genetic processes that underlie neuropsychiatric diseases. Around 300 scientists from 193 institutes studied the genetic data and MRI scans from more than 30,000 individuals.

The project, named ENIGMA (Enhancing Neuro Imaging Genetics through Meta-Analysis), is helping scientists to improve understanding of the brain's structure and its development. The latest results show that five genetic changes are linked with changes in the size of different brain regions.

Alterations in several regions of the brain associated with attention, memory and emotion, are already known to be linked with abnormal behaviour and disease.

"By identifying these genetic variants, we may help to identify the mechanisms of these abnormalities and move toward better treatments," says Professor Ian Deary of the Centre for Cognitive Ageing and Cognitive Epidemiology.

One of the genetic variants identified influences the size of the hippocampus, a key region involved in forming and storing memory.

"These changes may provide us with clues to the causes of memory problems and help us to better understand the brain mechanisms of cognition and cognitive ageing," says Dr Mark Bastin, Reader in Brain Imaging at the University's Centre for Clinical Brain Sciences.

Scientists say that by developing a clearer picture of 'normal' development, they may improve understanding of what goes wrong when brain disease occurs.

Professor Andrew McIntosh, of the University's Division of Psychiatry, said: "It is too expensive for any one institute to collect enough scans and genetic data to make this study possible.

"By working with centres across the globe, we can tackle these problems together and better our understanding of the brain."

The University is a world-leading University ranked number three in the UK by the recent Research Excellence Framework, and number one in Scotland, for Psychiatry, Psychology and Neuroscience.

The study was supported in the UK by the Medical Research Council, Wellcome Trust and Age UK.

Ranked among the top universities in the world