

Research reveals genetic link to human intelligence

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University of Manchester scientists, working with colleagues in Edinburgh and Australia, have provided the first direct biological evidence for a genetic contribution to people's intelligence.

Previous studies on twins and adopted people suggested that there is a substantial genetic contribution to thinking skills, but this new study – published in the journal Molecular Psychiatry – is the first to find a genetic contribution by testing people's DNA for genetic variations.

The team studied two types of intelligence in more than 3,500 people from Edinburgh, Aberdeen, Newcastle and Manchester. The paper, by Dr Neil Pendleton and colleagues, found that 40% to 50% of people's differences in these abilities could be traced to genetic differences.

The study examined more than half a million genetic markers on every person in the study. The new findings were made possible using a new type of analysis invented by Professor Peter Visscher and colleagues in Brisbane. As well as the findings in people from Scotland and England, the team checked their results in a separate group of people from Norway.

Dr Pendleton, who led the Manchester team in the Centre for Integrated Genomic Research, said: “This is the first reported research to examine the intelligence of healthy older adults and, using a comprehensive genetic survey, we were able to show a substantial genetic contribution in our ability to think.

“The study confirms the earlier findings of the research in twins. However, that research could not show which genes were or were not contributing to cognitive ability. Our work demonstrates that the number of individual genes involved in intelligence is large, which is similar to other human traits, such as height.

“We can now use the findings to better understand how these genes interact with each other and the environment, which has an equally significant contribution. With our collaborators, we will take this work forward to find the biological mechanisms that could maintain our intellectual abilities and wellbeing in late life. ”

The study, in collaboration with Professor Ian Deary at the University of Edinburgh, was funded in Manchester by the Biotechnology and Biological Sciences Research Council.

Provided by University of Manchester

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