

Gene study points towards therapies for common brain disorders

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Scientists have pinpointed the cells that are likely to trigger common brain disorders, including Alzheimer's disease, Multiple Sclerosis and intellectual disabilities.

It is the first time researchers have been able to identify the particular cell types that malfunction in a wide range of [brain diseases](#).

Scientists say the findings offer a roadmap for the development of new therapies to target the conditions.

The researchers from the University of Edinburgh's Centre for Clinical Brain Sciences used advanced gene analysis techniques to investigate which genes were switched on in specific types of [brain cells](#).

They then compared this information with genes that are known to be linked to each of the most common [brain](#) conditions—Alzheimer's disease, anxiety disorders, autism, intellectual disability, [multiple sclerosis](#), schizophrenia and epilepsy.

Their findings reveal that for some conditions, the support cells rather than the neurons that transmit messages in the brain are most likely to be the first affected.

Alzheimer's disease, for example, is characterised by damage to the neurons. Previous efforts to treat the condition have focused on trying to repair this damage.

The study found that a different cell type—called microglial cells—are responsible for triggering Alzheimer's and that damage to the neurons is a secondary symptom of disease progression.

Researchers say that developing medicines that target [microglial cells](#) could offer hope for treating the illness.

The approach could also be used to find new treatment targets for other diseases that have a genetic basis, the researchers say.

Dr Nathan Skene, who carried out the study with Professor Seth Grant, said: "The brain is the most complex organ made up from a tangle of many cell types and sorting out which of these cells go wrong in disease is of critical importance to developing new medicines."

Professor Seth Grant said: "We are in the midst of scientific revolution where advanced molecular methods are disentangling the Gordian Knot of the brain and completely unexpected new pathways to solving diseases are emerging. There is a pressing need to exploit the remarkable insights from the study."

The study is published today in the journal *Frontiers in Neuroscience*. It was funded by the Wellcome Trust and the European Union.

More information: *Frontiers in Neuroscience*,
[dx.doi.org/10.3389/fnins.2016.00016](https://doi.org/10.3389/fnins.2016.00016)

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