

Research builds on genetic link to autism and schizophrenia

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A genetic link between schizophrenia and autism is enabling researchers to study the effectiveness of drugs used to treat both illnesses.

Dr Steve Clapcote from the University of Leeds's Faculty of Biological Sciences will be analysing behaviour displayed by mice with a genetic mutation linked to [schizophrenia](#) and autism and seeing how [antipsychotic drugs](#) affect their behavioural abnormalities.

"We don't fully understand how the drugs used to treat schizophrenia and some symptoms of autism work," explained Dr Clapcote. "If we can show they can affect mice with this particular genetic mutation, then it gives us a clue to better understand the illnesses and opens up the possibility of more targeted treatments with fewer side effects."

A number of autism and schizophrenia patients have been found to have mutations of neurexin 1a, a protein which helps to form and maintain nerve signals in the brain. Scientists in the USA recently discovered that mice with the same genetic mutation display behavioural abnormalities which are consistent with schizophrenia and autism.

Dr Clapcote is planning to build on these initial findings to provide further evidence for a genetic link to the conditions. He also aims to assess the impact on the mice of antipsychotic drugs used to treat schizophrenia and some symptoms of autism.

"The genetic studies so far are suggesting a common cause for both

schizophrenia and autism, which is something our studies will help to establish," said Dr Clapcote. "However, these illnesses are complex, involving not only inheritance, but other factors such as environment and experience. It's possible the genetic mutation might create a predisposition, making people more likely to develop autism or schizophrenia."

The mice will be run through a series of tests designed to assess behaviour related to autism and/or schizophrenia: [hyperactivity](#), sensitivity to psychostimulants, attention levels, memory, [social interaction](#) and learning. Dr Clapcote will also look at verbal communication - using bat recorders to 'listen' to the interaction between the mice which takes place beyond the range of human hearing.

"Behaviour is the final output of the nervous system and the means by which autism and schizophrenia are diagnosed, which is why our research focuses on behaviour," said Dr Clapcote. "Schizophrenia and autism patients both display lower levels of verbal communication and we hope to see this mirrored in the mice we're working with."

The two-year project has been funded by a £250,000 grant from the Medical Research Council. If the research proves successful, Dr Clapcote plans to investigate a proposed link between neurexin 1a and nicotine dependence, as a possible explanation for why a large percentage of schizophrenia patients become dependent on tobacco.

Provided by University of Leeds

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