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## Brain chemical finding opens door to new schizophrenia drugs



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New research funded by the Medical Research Council (MRC) has shown that people with psychosis with an abnormal relationship between two chemical messengers in the brain. The findings suggest a new approach to preventing psychotic symptoms, which could lead to better drugs for schizophrenia.

Schizophrenia is linked to abnormally high levels of dopamine, a signalling chemical, in a region of the brain called the striatum. Current drugs used to treat schizophrenia block the effects of dopamine in the brain but they are not effective for all patients and can have side effects.

The new research, conducted by MRC-funded scientists at Imperial College London, provides evidence that high levels of dopamine in people with psychotic symptoms occur as a consequence of changes in another brain chemical – glutamate – and therefore drugs that target glutamate signals in the brain might be better suited to prevent psychotic symptoms in people with schizophrenia.

Dr James Stone, from the Centre for Mental Health at Imperial College London and first author of the study, said:

*“Schizophrenia is a devastating illness that destroys the lives of those who are afflicted and those around them. At the moment, the drugs available to help them just aren't adequate. They don't help everybody, and they don't stop some of the most debilitating symptoms.”*

Schizophrenia is one of the most common severe mental health conditions. Sufferers experience symptoms of psychosis – an inability to distinguish between reality and imagination – such as hallucinations and delusions. The condition tends to begin in the late teens or twenties and usually persists for the rest of the person's life.

The researchers carried out brain scans on 16 people with an abnormal mental state for psychosis and 12 healthy volunteers to measure levels of glutamate and dopamine. In healthy volunteers, there was a clear relationship between glutamate and dopamine, but in people with early signs of psychosis there was an abnormal relationship between glutamate levels in the hippocampus area of the brain and dopamine levels in the striatum brain area. This suggests that there is a malfunctioning connection between the hippocampus and the striatum which could potentially be treated by targeting the glutamate signals.

Professor Chris Kennard, chair of the MRC Neuroscience and Mental Health Board, said:

*“Studies like these are helping to unravel the complex mechanisms of psychiatric illness and bring us a step closer to more effective, targeted drugs for patients with schizophrenia. The MRC funds research in*

*in order to bring scientific findings from the lab bench to patient  
more quickly. If we can develop new drugs that prevent psychotic  
symptoms, it would mean a real lifeline for patients with schizop*

*The next step is to confirm these results in a larger group of peo  
There are already a number of promising drug candidates that in  
with glutamate signalling, and scientists hope they will be able t*