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SCHIZOPHRENIA Factsheet

March 2019

What is nitric oxide?

Nitric oxide (NO) is a gas that acts as a signalling molecule in the CNS. It mediates cellular communication via cyclic GMP second messenger systems, activating guanylate cyclase, and its actions influence neurotransmitter release, learning and memory systems, and it also plays a key role in neurodevelopment. NO is produced endogenously by the conversion of L-arginine into L-citrulline by nitric oxide synthase (NOS) enzyme. There are three NOS isoforms, inducible NOS (iNOS), which is released in response to pathogens, as well as endothelial (eNOS) and neuronal (nNOS), which are expressed constitutively. NO is a highly reactive free radical, and is rapidly converted into other forms. NO reacts with molecular oxygen and accumulates in the plasma as nitrate NO_3^- and nitrite NO_2^- , which can contribute to oxidative stress. Disturbances in NO formation or release could interfere with the known functions of NO activity, including neural maturation and synapse formation, which could have relevance for possible neurodevelopmental aetiology of schizophrenia.

What is the evidence for nitric oxide?

Moderate quality evidence suggests a reduction in NO metabolites in first episode and untreated schizophrenia, which may reverse over time or with antipsychotic treatment.

For more information see the technical table



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NeuRA (Neuroscience Research Australia) is one of the largest independent medical and clinical research institutes in Australia and an international leader in neurological research.

Diseases of the brain and nervous system pose the greatest health, economic and social burden of any disease group because they are chronic, debilitating and have no known cures.

Medical research is the cornerstone of efforts to advance the health and wellbeing of families and the community. Our dedicated scientists are focussed on transforming their research into significant and practical benefits for all patients.

While we hope you find this information useful, it is always important to discuss any questions about schizophrenia or its treatment with your doctor or other health care provider.

HOW YOUR SUPPORT HELPS

We are able to make significant advances due to the generosity of countless people. Your donation allows us to continue to work towards transforming lives. For information on how you can support our research, phone **1300 888 019** or make a secure donation at neura.edu.au/donate/schizophrenia.