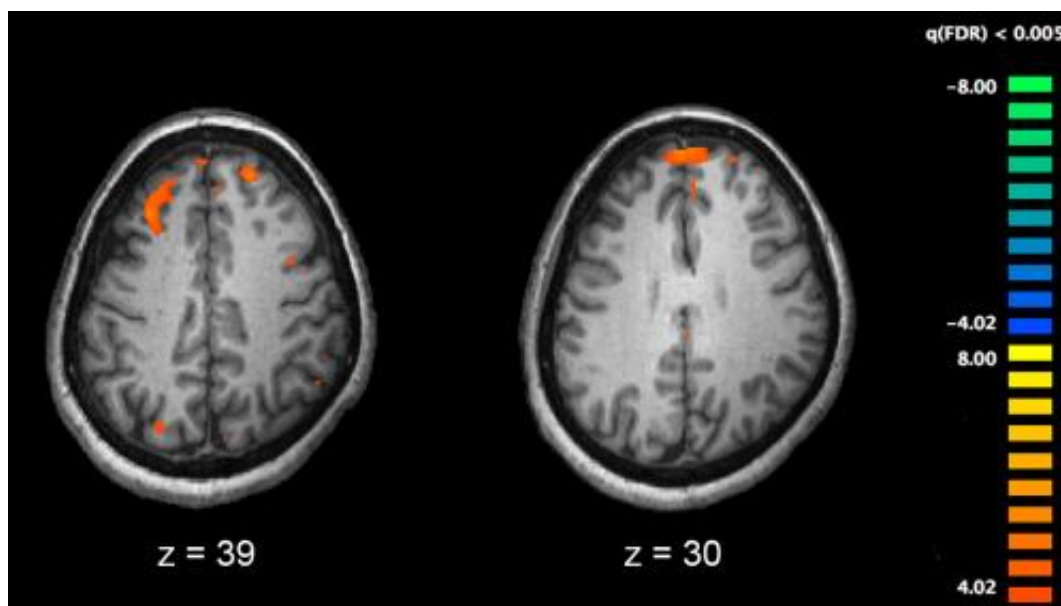


# Study shows link between inflammation in maternal blood and schizophrenia in offspring

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Functional magnetic resonance imaging (fMRI) and other brain imaging technologies allow for the study of differences in brain activity in people diagnosed with schizophrenia. The image shows two levels of the brain, with areas that were more active in healthy controls than in schizophrenia patients shown in orange, during an fMRI study of working memory. Credit: Kim J, Matthews NL, Park S./PLoS One.

Maternal inflammation as indicated by the presence in maternal blood of early gestational C-reactive protein—an established inflammatory

biomarker—appears to be associated with greater risk for schizophrenia in offspring, according to researchers at Columbia University's Mailman School of Public Health, Columbia University Medical Center, and the New York State Psychiatric Institute. The study, "Elevated Maternal C-Reactive Protein and Increased Risk of Schizophrenia in a National Birth Cohort," is published online in the *American Journal of Psychiatry*.

The Columbia researchers with colleagues in Finland conducted an analysis of data from the Finnish Prenatal Study of Schizophrenia, a large, national birth cohort with an extensive bio-bank. They tested for the presence of C-reactive protein in the maternal blood of 777 offspring with [schizophrenia](#) and compared the findings with those from 777 control subjects. Maternal C-reactive protein levels were assessed from archived maternal serum specimens.

They found that increasing maternal C-reactive protein levels were significantly associated with development of schizophrenia in offspring and remained significant after adjusting for potential confounders such as parental history of psychiatric disorders, twin/singleton birth, location of birth, and maternal socioeconomic status. For every 1 mg/L increase in maternal C-reactive [protein](#), the risk of schizophrenia increased by 28%.

"This is the first time that this association has been demonstrated, indicating that an infection or increased inflammation during pregnancy could increase the risk of schizophrenia in the offspring," said Alan Brown, MD, MPH, professor of Epidemiology and Psychiatry and senior author. "Inflammation has been shown to alter brain development in previous studies, and schizophrenia is a neurodevelopmental disorder. Thus, this study provides an important link between inflammation and schizophrenia and may help us to better understand the biological mechanisms that lead to this disorder. To the extent that the increased

inflammation is due to infection, this work may suggest that approaches aimed at preventing infection may have the potential to reduce risk of schizophrenia." There are many other known causes of [inflammation](#), including tissue injury and autoimmune disease, although the researchers did not examine these specific conditions in this study.

Provided by Columbia University's Mailman School of Public Health

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