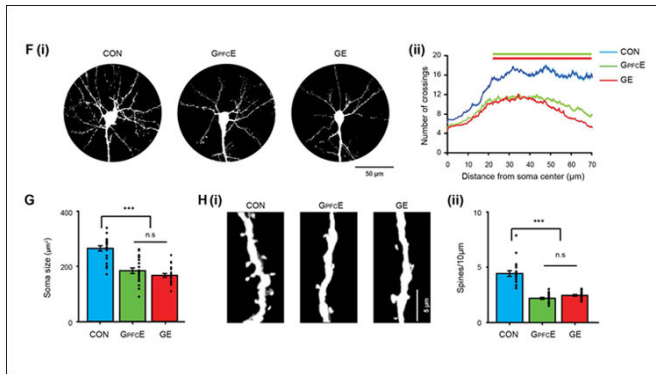


Prefrontal cortex development and mental illness

7 January 2019



More information: Transient knock-down of prefrontal DISC1 in immune-challenged mice causes abnormal long-range coupling and cognitive dysfunction throughout development, *JNeurosci* (2019). DOI: [10.1523/JNEUROSCI.2170-18.2018](https://doi.org/10.1523/JNEUROSCI.2170-18.2018)

Provided by Society for Neuroscience

Transient DISC1 knock-down confined to pyramidal neurons in PFC by sitedirected in utero electroporation. Credit: Xu et al., *JNeurosci* (2019)

Faulty wiring of the prefrontal cortex during development leads to abnormal brain activity and cognitive impairments related to mental illness, according to a mouse study published in *JNeurosci*.

Eliminating a molecule called Disrupted-in-Schizophrenia 1 (DISC1) from the entire brain has been previously shown to alter connectivity between the [prefrontal cortex](#) and the hippocampus and impair the cognitive abilities this circuit supports in mice exposed to an environmental stressor.

Ileana Hanganu-Opatz and colleagues now show similar deficits arise from disrupting DISC1 in a specific group of prefrontal cortex neurons in mouse embryos whose mothers were infected with a virus.

These findings uncover a [molecular mechanism](#) by which abnormal development of the prefrontal cortex and maternal stress interact to produce brain and behavior impairments reminiscent of schizophrenia, bipolar, and depressive disorders.

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