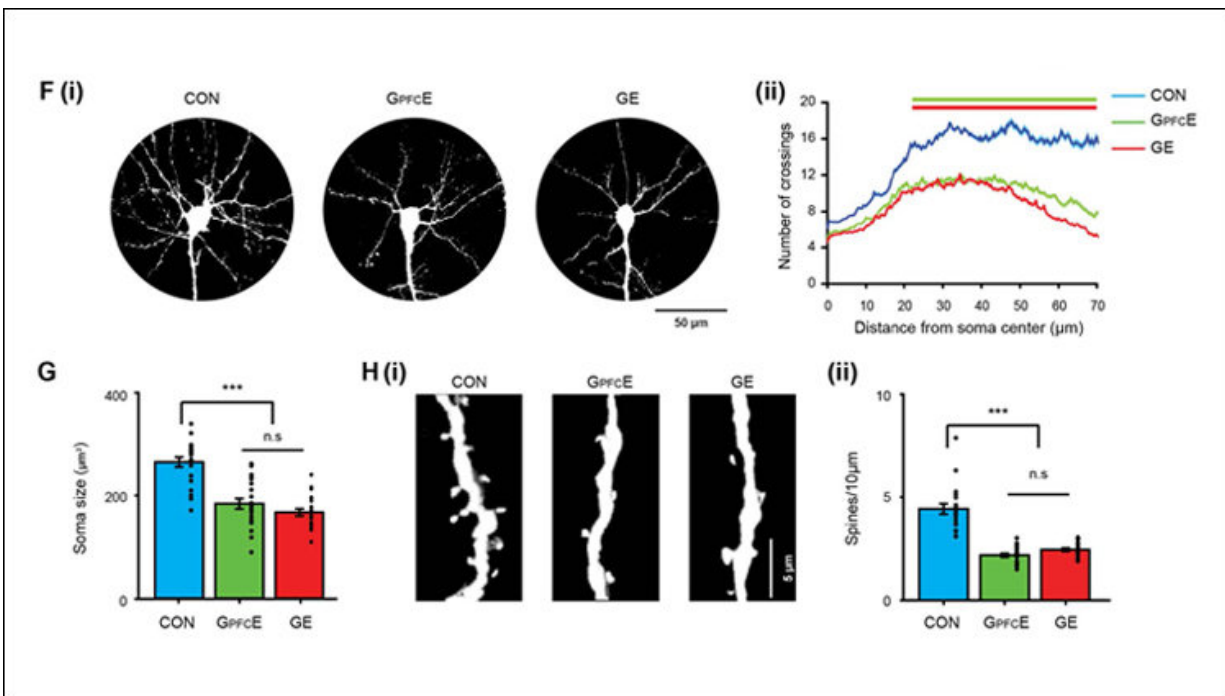


Prefrontal cortex development and mental illness

January 7 2019



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.

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](#)

Provided by Society for Neuroscience

Citation: Prefrontal cortex development and mental illness (2019, January 7) retrieved 18 January 2023 from <https://medicalxpress.com/news/2019-01-prefrontal-cortex-mental-illness.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--