In This Issue

Volume 92, Number 2, July 15, 2022

A brief summary of the articles appearing in this issue of *Biological Psychiatry*.

mGluR5 Receptor and Stress Resilience

The metabotropic glutamate receptor 5 (mGluR5) has been associated with stress-related psychiatric disorders. However, the role of mGluR5 signaling in corticolimbic circuitry in relation to depression-like behaviors is not well understood. Using a mouse model of chronic stress, **Kim *et al.*** (pages 104–115) implicate mGluR5 signaling in the medial prefrontal cortex and ventral hippocampus in resilience to the behavioral impact of stress, suggesting a potential protective role for the symptoms of stress-related disorders. These findings highlight a circuit-specific role for mGluR5 in stress resilience.

Neuronal Plasticity and Stress Responding

Stress habituation, the progressive decline in response to repeated exposures to stressors, is reduced in posttraumatic stress disorder. In this disorder, it may be an important predictor for the success of behavioral therapy. Here, **Corbett *et al.*** (pages 116–126) found that in the paraventricular thalamic nucleus, the induction of Arc, a molecule implicated in neuroplasticity, promotes habituation to stress by promoting stress-related increases in dendritic spines, tuning thalamocortical projections, and promoting cognitive flexibility.

Effects of Prenatal Cannabis Exposure

Cannabis exposure during pregnancy may confer long-term neuropsychiatric risk on offspring. Here, **Ellis *et al.*** (pages 127–138) investigated behavioral and molecular alterations induced by prenatal Δ^9-tetrahydrocannabinol (THC) exposure in adult male rats and identified *Kmt2a* as a key epigenetic player for these effects. Using genomic sequencing, CRISPR-based cell culture models, and comparisons to clinical datasets, the authors further show that prenatal THC exposure is associated with long-term changes in synaptic plasticity, with *Kmt2a* implicated in these changes. These findings highlight the persistent transcriptional and epigenetic alterations that may occur following prenatal THC exposure.

Crime Exposure and Neonatal Brain Function

Evidence suggests that infant neurodevelopment can be altered by exposure to maternal stress, depression, and adversity. In a longitudinal study, **Brady *et al.*** (pages 139–148) found that maternal exposure to neighborhood crime during pregnancy was related to weaker resting frontolimbic connectivity as assessed with functional magnetic resonance imaging in newborn babies. This relationship was partially mediated by maternal psychosocial stress. These findings suggest that living in a high-crime area may be an intergenerational form of adversity that may alter the development of patterns of brain circuit activity.

Brain Stimulation: Inhibiting Aversive Memory

Aversive memories of extremely stressful events may intrude upon consciousness and impact well-being and functioning in daily life. Using threat conditioning as a laboratory model of aversive memory, **Ojala *et al.*** (pages 149–157) report that continuous theta-burst transcranial magnetic stimulation to the somatosensory cortex in healthy volunteers reduced threat memory, compared with a control stimulation group. These results suggest that noninvasive brain stimulation to the sensory cortex may reduce threat memory, which may provide a new avenue for inhibiting aversive memories.

Stress-Induced Network Effects

Stress is an important risk factor for mood and anxiety disorders. In this work, **Kühnel *et al.*** (pages 158–169) show that stress states produced by a psychosocial stress paradigm can be decoded from dynamic changes in resting cortical functional connectivity, as assessed with functional magnetic resonance imaging. Further, individual profiles of stress-induced changes in activation and connectivity predicted negative emotional biases that have been linked to mood and anxiety disorders.

ISSN: 0006-3223