

# The emergence of a new dopamine hypothesis of schizophrenia

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*Biological Psychiatry* presents a special issue, "The Dopamine Hypothesis of Schizophrenia", dedicated to recent advances in understanding the role of dopamine signaling in schizophrenia. The issue, organized by Anissa Abi-Dargham, MD, of Stony Brook University, New York, and a deputy editor of *Biological Psychiatry*, compiles seven reviews that summarize current knowledge and provide new insights.

The dopamine hypothesis of schizophrenia has been revised numerous times since clinical observations first implicated the neurotransmitter decades ago, and dopamine alterations are some of the most well-established research findings in schizophrenia.

"Unlike any other neurobiological hypothesis of the disease, the dopamine hypothesis has confirmatory evidence from in vivo studies in patients and from pharmacological therapies," Abi-Dargham said. Despite this, researchers have yet to fully understand when and how dopamine alterations arise in the brain, or their relationship with the diversity of symptoms in the disease.

"This issue highlights the complexity of the findings in patients with the disorder, and raises the possibility that dopamine alterations can lead to a vast array of consequences on the circuitry, on learning and behavior that can explain the vast array of symptom clusters," Abi-Dargham said.

The body of work collated in the issue ranges from human studies to animal models. Neuroimaging, genetic, and molecular imaging studies have helped elucidate the regional differences of dopamine dysfunction throughout the brain, and detailed timing of dopamine alterations in relation to development, symptom onset, and other neurobiological alterations in the disease. Animal models have allowed researchers to further refine and test the hypothesis, and explore mechanisms behind the dysregulation.

Clarifying the role of dopamine signaling in schizophrenia also shows promise for improving treatment for the disorder. "We include here some examples of exciting new targeted therapeutic approaches that are currently under development," Abi-Dargham said.

Although the dopamine system has long been pegged as the culprit for psychotic symptoms in [schizophrenia](#), a review in this issue using a computational approach to integrate experimental findings provides an explanation for how dopamine dysfunction could lead to the range of symptoms present in the disorder.

The [therapeutic approaches](#) proposed in the issue aim to find new strategies for targeting dopamine signaling to improve the limitations of current antipsychotic drugs, which only treat [psychotic symptoms](#) and come with a host of major side effects, by targeting new pathways and tapping into dopamine's role in other regions of the brain.

**More information:** The special issue is "Dopamine Hypothesis of Schizophrenia," *Biological Psychiatry*, volume 81, issue 1 (2017) [www.sobp.org/journal](http://www.sobp.org/journal)

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