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# Dopamine Receptors and Their Heteroreceptor Complexes Give Novel Targets for Drug Development

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Deadline for manuscript submissions:
**closed (30 November 2023)**

## Message from the Guest Editors

Dear Colleagues,

Disturbances in dopamine (DA) receptor subtypes D1, D2, D3, and D4 have been shown to play a significant role in the pathophysiology of Parkinson's disease, schizophrenia, cocaine addiction, and other diseases. The therapeutic effects of levodopa and dopamine agonists have been significant but nevertheless considerably limited in Parkinson's disease, which is true also for the treatment of schizophrenia with D2R antagonists. The number of side effects is also substantial, which furthermore limits their use in neurology and psychiatry. The discovery of a considerable number of DA heteroreceptor complexes in the forebrain, such as A2AR-D2R heterocomplexes open the possibility to enhance or reduce the D2R signaling at the postsynaptic or extra-synaptic level. At the presynaptic level, the modulation of the D2R protomer in the A2AR-DR complex can enhance or reduce the release of neurotransmitters such as glutamate. DAR-protein heterocomplexes also exist presynaptically. These mechanisms provide a novel way to improve the treatment of neurological and mental diseases herein discussed, including a reduction in the side effects.

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