Dopamine receptor

see Dopamine receptor D2.

Dopamine receptors are a class of G protein-coupled receptors that are prominent in the vertebrate central nervous system (CNS). The neurotransmitter dopamine is the primary endogenous ligand for dopamine receptors.

Dopamine receptors are implicated in many neurological processes, including motivation, pleasure, cognition, memory, learning, and fine motor control, as well as modulation of neuroendocrine signaling. Abnormal dopamine receptor signaling and dopaminergic nerve function is implicated in several neuropsychiatric disorders.

Thus, dopamine receptors are common neurologic drug targets; antipsychotics are often dopamine receptor antagonists while psychostimulants are typically indirect agonists of dopamine receptors.

D1 and D2 receptor signaling regulate motor cortex plasticity, and loss of dopamine results in atypical synaptic adaptations that may contribute to the impairment of motor performance and motor memory observed in Parkinson’s disease (PD) [1].

Guo et al. discovered that dopamine receptor D1 and D2 receptor signaling selectively and distinctly regulated aberrant changes in structural and functional plasticity. The findings suggest that both D1 and D2 receptor signaling regulate motor cortex plasticity, and loss of dopamine results in atypical synaptic adaptations that may contribute to the impairment of motor performance and motor memory observed in PD [2].

Dopamine receptor in glioblastoma

[1], [2]
Guo L, Xiong H, Kim JI, Wu YW, Lalchandani RR, Cui Y, Shu Y, Xu T, Ding JB. Dynamic rewiring of neural circuits in the motor cortex in mouse models of Parkinson's disease. Nat Neurosci. 2015 Aug 3. doi: 10.1038/nn.4082. [Epub ahead of print] PubMed PMID: 26237365.