

The Neurobiology of Schizophrenia



Schizophrenia is a severe mental disorder characterized by positive and negative symptoms and cognitive impairment.^{1,2}

These symptom domains have been associated with alterations in several neurotransmitter pathways, including dopaminergic pathways.¹

Symptom Domains in Schizophrenia¹

Positive symptoms: Delusions, hallucinations, and thought disorders, most recognizable during periods of acute psychosis.

Cognitive impairment: Disruptions in learning, memory, attention, and executive functioning.

Negative symptoms: Includes avolition, alogia, anhedonia, social withdrawal, and blunted affect.

Alterations in Dopaminergic Pathways in Schizophrenia^{3,4}

Cognitive impairment: Underactivity in the prefrontal cortex

Negative symptoms: Underactivity in parts of the limbic system and ventral striatum

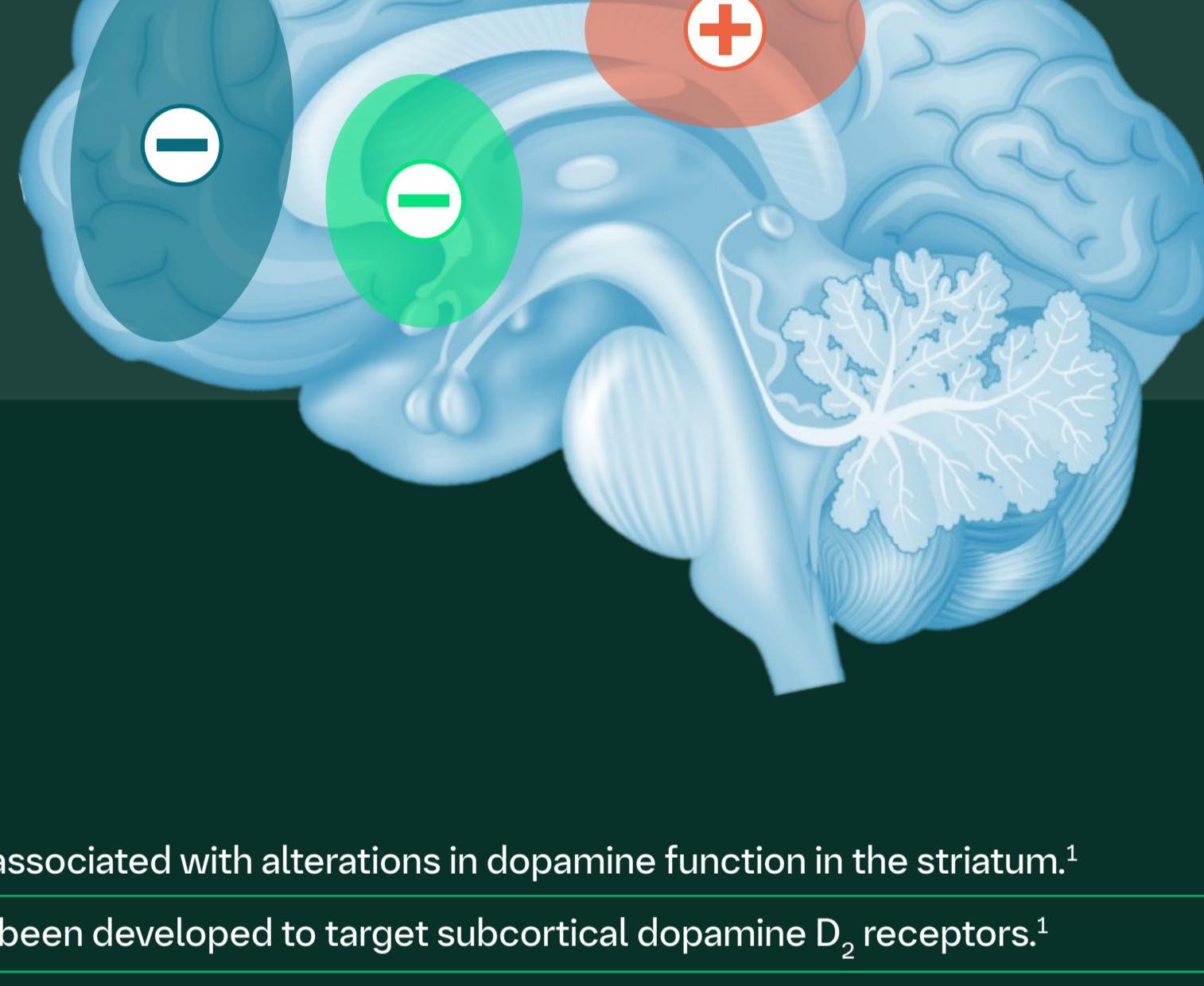
Positive symptoms: Overactivity in the associative striatum⁵



Treatment may aim to increase activity



Treatment may aim to reduce activity

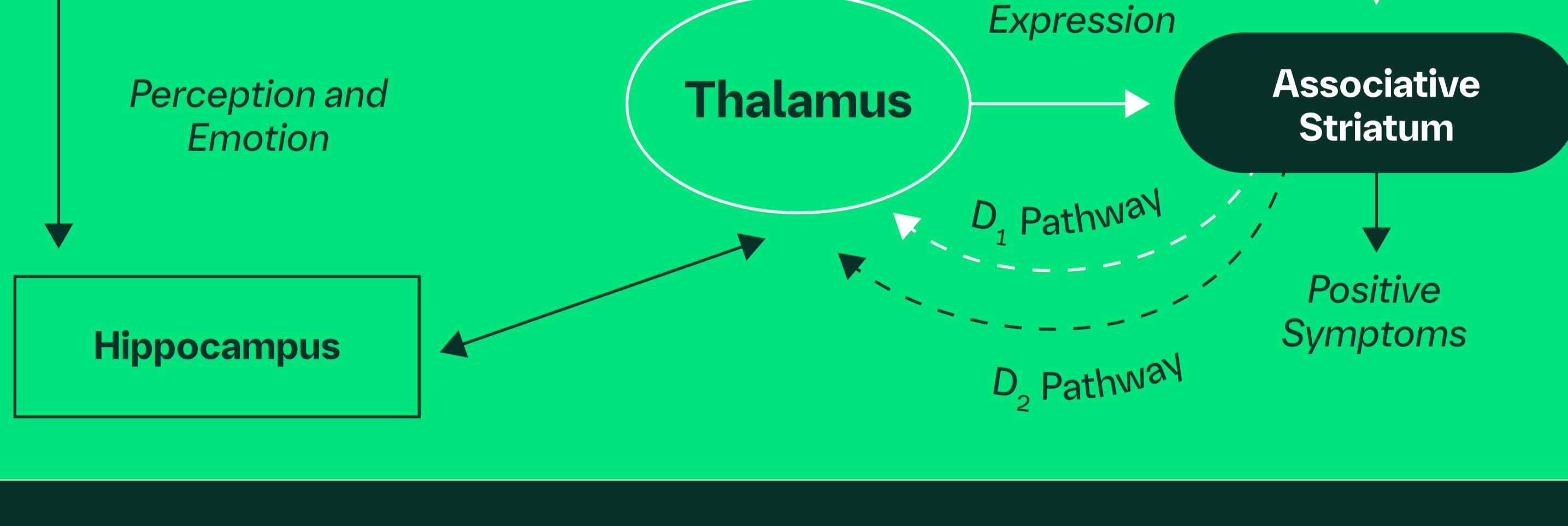


Positive symptoms are strongly associated with alterations in dopamine function in the striatum.¹

Many antipsychotics (APs) have been developed to target subcortical dopamine D₂ receptors.¹

Mechanisms beyond dopamine overactivity have been explored to enhance our understanding of schizophrenia.^{3,4,5}

Several neural circuits are disrupted in different areas of the brain.¹



Structural brain abnormalities, such as reduced gray matter volume, are also observed in individuals with schizophrenia.⁶

References

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