Nicotine alters neurotransmission in habit-forming brain region

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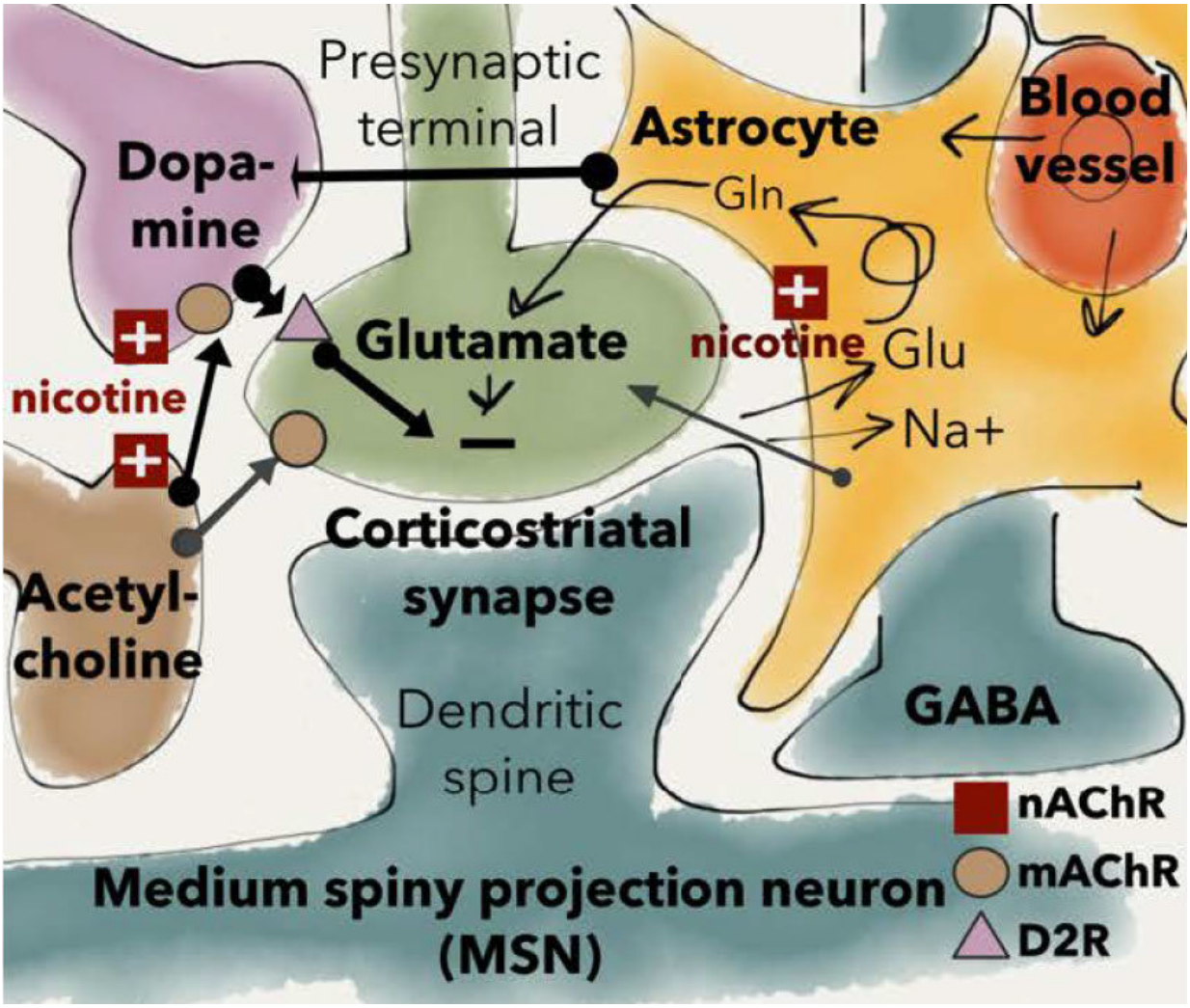

A study of rat brain slices published in JNeurosci demonstrates how nicotine interacts with cells that regulate the output of a brain region involved in habit formation. The research could inform efforts to help people quit smoking and avoid relapse. Credit: Licheri et al., *JNeurosci* (2018)

A study of rat brain slices published in *JNeurosci* demonstrates how nicotine interacts with cells that regulate the output of a brain region involved in habit formation. The research could inform efforts to help people quit smoking and avoid relapse.

The addictive qualities of nicotine have been attributed to the brain's reward system. However, recent research suggests that a shift of activity from the ventral to the dorsal striatum, which parallels the transition of an intentional behavior into a more automatic habit, may have an important role in the development of nicotine addiction.

Louise Adermark and colleagues found that nicotine reduces dorsal striatal output, an effect that persists even after the drug has been cleared from the brain. These changes in neuronal activity may underlie the urge to smoke as well as make it difficult to break the habit. This advance in our understanding of nicotine addiction may help to decrease smoking prevalence.

More information: Complex control of striatal neurotransmission by nicotinic acetylcholine receptors via excitatory inputs onto medium spiny neurons, *JNeurosci* (2018). DOI: 10.1523/JNEUROSCI.0071-18.2018

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