

Erratum: Alpha-2 Adrenergic Receptors and Attention-Deficit/Hyperactivity Disorder

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In the above referenced article, several revisions are warranted regarding the hypothesized mechanism of action of the α -2 adrenergic receptor agonists in treating patients with attention-deficit/hyperactivity disorder (ADHD). Throughout the article, we noted that the clinical effects of α -2 adrenergic receptor agonists were likely mediated through presynaptic stimulation of these receptors. Preclinical work in both rodents and primates, however, suggests that the

clinical effects of these agents are likely to be related to postsynaptic stimulation of α -2 adrenergic receptors in the prefrontal cortex [1, 2]. Moreover, rather than facilitating dopamine and noradrenaline neurotransmission, it is likely that α -2 adrenergic receptor agonists exert their action by directly mimicking noradrenaline action at the receptor site [3].

Although the precise molecular mechanism of action for this class of drugs (or other classes, for that matter) in reducing the requisite symptoms of ADHD is not known conclusively and is likely to vary across patients, the above information represents a more current and comprehensive description of what is known about α -2 receptor agonists.

The online version of the original article can be found at <http://dx.doi.org/10.1007/s11920-010-0136-4>.

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References

1. Arnsten AFT, Goldman-Rakic PS: Alpha-2 adrenergic mechanisms in prefrontal cortex associated with cognitive decline in aged nonhuman primates. *Science* 1985, 230:1273–1276.
2. U'Prichard DC, Bechtel WD, Rouot BM, Snyder SH: Multiple apparent alpha-noradrenergic receptor binding sites in rat brain: effect of 6-hydroxydopamine. *Mol Pharmacol* 1979, 16:47–60.
3. Wang M, Ramos B, Paspalas C, et al.: Alpha2A-adrenoceptor stimulation strengthens working memory networks by inhibiting cAMP-HCN channel signaling in prefrontal cortex. *Cell* 2007, 129:397–410.