POTENTIAL ANTIDEPRESSANT ACTIVITY OF SIGMA LIGANDS

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Despite many years’ studies of antidepressant drugs (ADs), their mechanism of action still remains unclear. Recently, it has been postulated that substances capable of reducing neurotransmission at the NMDA complex may represent a new class of ADs. Since several ADs have a high affinity for σ receptors, the σ binding site may be a relevant mechanism in antidepressant action. Moreover, σ ligands are able to modulate the activity of the central neurotransmitter systems, including noradrenergic, serotonergic, dopaminergic and glutamatergic (NMDA) ones, which are seemingly important for the mechanism of action of known ADs. The existence of at least two different subtypes of σ receptors, denoted σ₁ and σ₂ is now widely accepted. The selective agonists of both σ receptor subtypes are available at present. In particular, a potential antidepressant activity of σ₁ receptor agonists has been postulated, since the antidepressive-like actions of these compounds have been shown in animal models. This article reviews the findings related to potential antidepressant activity of new, selective σ ligands.

Key words: sigma receptors, selective sigma ligands, antidepressant activity, animal models