

DEPRESSION AND NICOTINIC RECEPTORS

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Smoking may reduce symptoms of depression and recent studies suggest that nicotinic receptors are linked to depression. It is hypothesized that activity of antidepressants may be mediated, in part, by nicotinic receptors. Our studies were designed to investigate the anti-nicotinic receptor activity of several antidepressants. Binding and functional studies were performed on cells expressing $\alpha 3\beta 4^*$ nicotinic receptors. We have found that desipramine, fluoxetine, doxepin, amitriptyline, bupropion, and maprotiline inhibit nicotinic receptor-mediated functional responses with IC_{50} values in the range of 1-11 micromolar. These inhibitory actions were found to be noncompetitive in nature. These data document anti-nicotinic receptor activity of several classes of antidepressants and support the hypothesis that the therapeutic usefulness of antidepressants may be mediated, to some degree, by nicotinic receptors. These data support the targeting of nicotinic receptors as a new treatment strategy for depression.