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Norepinephrine Transporter cDNA and Cell Line

Applications

Cloning and studying of the norepinephrine transporter.

Technical Summary

This invention is the first cDNA clone encoding a norepinephrine transporter. The cDNA allows high-level expression of the transporter in non-neuronal eukaryotic and prokaryotic systems suitable for isolation of the protein. This invention has applications in the research and drug development regarding behavioral disorders and makes it possible to perform high-level structure analysis of norepinephrine uptake. This will allow for a precise study of the manner by which anti-depressants, cocaine, and amphetamine interact with the transporter. Mutagenesis of the transporter is possible for analysis of residues important for binding drugs and norepinephrine uptake and regulation. The cDNA or parts of the molecule, in normal or mutated form, could also be transferred into the germ line of transgenic animals to establish animal models for disorders relating to norepinephrine uptake, secretion, or metabolism. Given the wide spectrum of disorders for which norepinephrine-specific anti-depressants are now prescribed, including obsessive-compulsive disorder, depression, as well as eating, sleeping and panic disorders, such animal models might have a profound influence on the design of therapeutic strategies.

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