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Cell Biology

Mice carrying functional single nucleotide polymorphisms in brain-specific tryptophan hydroxylase(Tph2)

We have developed mice expressing 2 different mutant alleles of the brain-specific tryptophan hydroxylase gene (Tph2). Tryptophan hydroxylase is the rate limiting enzyme involved in the synthesis of serotonin. These mice have significantly reduced levels (up to 80%) of brain serotonin. Serotonin is a neurotransmitter, the regulation of which is involved in numerous psychiatric and behavioral disorders, and the human equivalents of these mutant Tph2 alleles have been found in depressed patients. Serotonin regulation is also the primary target for pharmaceutical compounds used to treat such disorders. These mice can be used to study the impact of serotonin levels and activity and the modulation of this activity with pharmaceutical compounds. A US patent application is pending on this technology.

