

Technology Offer

New Key Drug Target for Psychiatric Disorders

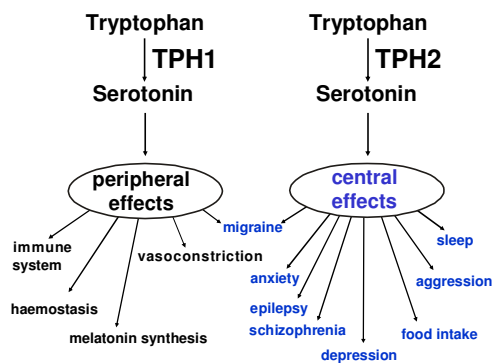
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The Challenge

Tryptophan hydroxylase (TPH) is the rate-limiting enzyme in the synthesis of the neurotransmitter serotonin. Serotonin is causally involved in numerous central nervous facets of mood control and in regulating sleep, anxiety, alcoholism, drug abuse, food intake and sexual behaviour and in vascular tone and motility regulation in peripheral tissues. Therefore, regulatory substances of serotonin metabolism play an important role in diseases like depression or migraine. However, depending on their systemic effect, such pharmaceuticals, like the 'selective serotonin reuptake inhibitors' (SSRI antidepressant) showed severe side effects, e.g. by interfering with blood coagulation.

Assuming that only one isoform of this enzyme exists in all tissues, TPH was never thought to be a strong target for drug discovery until now.

The Technology



A novel isoform of Tryptophan Hydroxylase (TPH2) was identified, cloned and sequenced. This novel isoform of the enzyme is exclusively expressed in brain. Despite a high degree of homology between the amino acids sequences of TPH1 and TPH2, there is a strong evidence for an *in vivo* differential regulation of both enzymes.

TPH2 might foster drug

development in which the CNS form of TPH can be modulated with little or no peripheral effects.

Commercial Opportunity

- Drug Target: specific therapeutic approaches open up for exclusively affecting central nervous system serotonin actions
- Therapeutic Component: influencing endogenous TPH2-levels for balancing serotonin production
- Diagnostic: measuring expression of TPH2 for diagnostic purposes

Patent situation

Patent Applications in Europe and US are pending.

Further Reading

Walther D.J. et al., Science 2003, Vol 299, p. 76

Walther D.J. & Bader, M., Biochemical Pharmacology 2003, Vol 66, pp 1673-80

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