

Phenothiazine Derivatives for the Treatment of autism and syndrom fragile X

CSIC has synthesized group of phenothiazine derivative compounds having activity in the interaction of Ric8 and NCS-I proteins which are involved in the synaptogenesis process. Therefore, these compounds have application in diseases of the central nervous system that have abnormalities in synapses such as autism and Fragile X. Pharmaceutical companies interested in a patent licence are sought for.

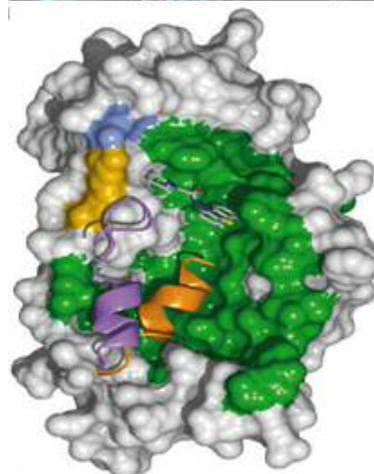
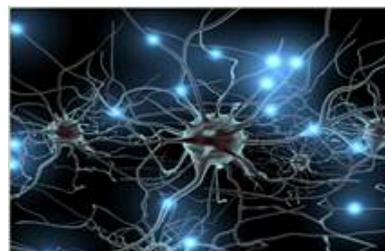
An offer for Patent Licensing

Modulating the number of synapses

Synaptogenesis or synapse formation is an important process in neurodevelopment. A balance between excitatory and inhibitory synapses must exist for proper development of neural circuits. When mutations in genes regulating this balance appear, there is a development of neurodevelopmental disorders that result in diseases like autism, epilepsy, fragile X syndrome or schizophrenia.

In the regulation of the number of synapses and neurotransmitter release probability, the complex between the neuronal calcium sensor I (NCS-I) and the guanilos exchange factor Ric8 has a key role, so it can be considered as a therapeutic target for the treatment of diseases in which the synapse is altered.

There have been developed compounds derivatives of phenothiazine that act on this therapeutic target and, therefore, may be a new tool to act on autism and fragile X among other pathologies of the central nervous system syndrome, finding a beneficial effect in modulating synapses in in vitro and in vivo models.



Main applications and advantages

- The compounds developed are potential drugs for different synaptopathies acting in an alternative therapeutic target.
- Selected compounds have shown efficacy in *in vivo* models.
- They are able to cross the blood brain barrier, therefore they can be used in diseases such as schizophrenia, autism or fragile X syndrome.

Patent Status

Patent granted in Spain and filled in EU and USA.

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