Noopept

Molecular Formula: C17H22N2O4

Molecular Weight: 318.4 g/mol | Sequence: benzylcarbonyl-Pro-Gly-OEt

DESCRIPTION:

Noopept works by increasing acetylcholine signaling in the brain. Concurrently, increasing the expression of the NGF and BDNF protects the brain from glutamate toxicity. When there is high glutamate, it overexcites the nerve cells and kills them fast in a mechanism called excitotoxicity. It also increases inhibitory neurotransmission in the brain. Noopept is one of many nootropics that are developed based on piracetam's structure. The main benefit that Noopept has over piracetam] is that you can take small doses and get the full effect. It, however, has a short half-life of about 5-10 minutes in rodents, according to research. So this means that there are no traces an hour after administer. However, the one-hour test will indicate a rise in one of the Noopept metabolites called cycloprolylglycine (cPG]. This is the substance that is thought to offer nootropic long-term effects. This same metabolite is a product of IGF-1.

PROTOCOL:

Content & Potency: 10mg capsule provided in a quantity of 30 capsules
Suggested dosage: Take one capsule once daily for 30 days

CLINICAL RESEARCH:

Molecular Mechanism Underlying the Action of Substituted Pro-Gly Dipeptide Noopept

This study was performed in order to reveal the effect of Noopept (ethyl ester of N-phenylacetyl-L'Prolylglycine, GVS-111) on the DNA-binding activity of transcriptional factors (TF) in HEK293 cells transiently transfected with luciferase reporter constructs containing sequences for CREB, NFAT, NF-κB, p53, STAT1, GAS, VDR, HSF1, and HIF-1. Noopept (10 μM) was shown to increase the DNA-binding activity of HIF-1 only, while lacking the ability to affect that of CREB, NFAT, NF-κB, p53, STAT1, GAS, VDR, and HSF1. Noopept provoked an additional increase in the DNA-binding activity of HIF-1 when applied in conditions of CoCl2-induced HIF- 1 stabilization. The degree of this HIF-positive effect of Noopept was shown to be concentration-dependent. Piracetam (1 mM) failed to significantly affect any of the TF under study. The results of molecular docking showed that Noopept (L-isomer), as well as its metabolite, L-isomer of N-phenyl-acetyl prolyl, unlike its pharmacologically ineffective D-isomer, is able to bind to the active site of prolyl hydroxylase 2. Taking into account the important role of the genes activated by HIF-1 in the formation of an adaptive response to hypoxia, data on the ability of Noopept to provoke a selective increase in the DNA-binding activity of HIF-1 explain the wide spectrum of neurochemical and pharmacological effects of Noopept revealed before. The obtained data allow one to propose the HIF-positive effect as the primary mechanism of the activity of this Pro-Gly-containing dipeptide.

Vakhitova, Y. V., Sadovnikov, S. V., Borisevich, S. S., Ostrovskaya, R. U., A Gudasheva, T., & Seredenin, S. B. (2016). Molecular Mechanism Underlying the Action of Substituted Pro-Gly Dipeptide Noopept. Acta naturae, 8(1), 82–89.