Tetranectin

Tetranectin (TN), composed of three identical and non-covalently linked 20 kDa subunits, is thought to regulate the fibrinolysis and proteolytic procedures

Tetranectin is a secreted homotrimeric protein belonging to the C-type lectin family. Our previous studies found that tetranectin was not only related to, but also played a protective role in Parkinson's disease. In this study, we aim to illustrate the molecular mechanism of the secreted tetranectin.

METHODS: We used exogenous tetranectinto investigate the function and molecular mechanism of secreted tetranectin in a 1-methyl-4-phenylpyridine (MPP+)-induced SH-SY5Y cell model. Cell viability and reactive oxygen species were measured to assess the protective effects of tetranectin against MPP+. Apoptosis was measured in several aspects including Bcl-2/Bax expression, caspase-3/7 activity, Annexin V staining, and nuclear morphology. Autophagy was measured as LC3 expression and autophagy flux. Moreover, we used cell immunofluorescence to detect the transport of tetranectin. Western blotting was performed to measure the phosphorylation level of P70S6K1, and co-immunoprecipitation was applied to confirm the interaction between tetranectin and P70S6K1.

RESULTS: The data showed exogenous tetranectin alleviated MPP+-induced toxicity, high reactive oxygen species levels, apoptosis, and autophagy, and changed the phosphorylation level of P70S6K1. Immunofluorescence images suggested exogenous tetranectin could be taken into SH-SY5Y cells and the co-immunoprecipitation experiment indicated tetranectin interacted with P70S6K1.

CONCLUSION: Exogenous tetranectin protects against MPP+-induced neurotoxicity by promoting P70S6K1 phosphorylation once taken into SH-SY5Y cells [1)].

1)
Xie Q, Liu M, Yan YF, Shen X, Wang ES. Exogenous tetranectin protects against MPP+-induced neurotoxicity by inhibiting apoptosis and autophagy through p70S6K1. World Neurosurg. 2018 Oct 17. pii: S1878-8750(18)32355-6. doi: 10.1016/j.wneu.2018.10.058. [Epub ahead of print] PubMed PMID: 30342268.