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Construction and expression of EGFP-neurexin fusion proteins

Neurexins are synaptic cell surface proteins discovered as receptors for α-latrotoxin which has an effect of triggering neurotransmitter release. Morphological localisation of neurexins have eluded researchers for a long time. HRP-neurexin fusion proteins and antibodies directed against the HRP tag have identified predominantly presynaptic occurrence of neurexins. However, to study the localisation of neurexins in vitro and to test the effect of difference in positions of a tag on the targeting of neurexins, I have carried out a systematic insertion of EGFP at 4 different positions in neurexin-1α and neurexin-1β expression clones. Preliminary transfection results of neurexin-1β with EGFP at the very C-terminus in HEK 293 cells show membrane expression of the neurexin-green fluorescence fusion protein. We believe that the construction of various EGFP constructs will facilitate future studies of neurexin targeting and in vitro such as in transfected hippocampal neurons and in vivo in transgenic mice.