

DESCRIPTION

Source Mouse myeloma cell line, NS0-derived
Glu31-Lys419 with a C-terminal 6-His tag
Accession # Q86VH5

N-terminal Sequence Analysis Glu31

Predicted Molecular Mass 45.2 kDa

SPECIFICATIONS

SDS-PAGE 50-60 kDa, reducing conditions

Activity Measured by its ability to enhance neurite outgrowth of E16-E18 rat embryonic cortical neurons.
Able to significantly enhance neurite outgrowth when immobilized as a 3 µL droplet containing 60-250 ng on a nitrocellulose-coated microplate.

Endotoxin Level <0.01 EU per 1 µg of the protein by the LAL method.

Purity >90%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 µg/mL in sterile PBS.

Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Human LRRTM3 (leucine-rich repeat transmembrane neuronal 3) is a 63 kDa (predicted) type I transmembrane protein, and one of four members of the LRRTM family of proteins within the leucine-rich repeat (LRR) superfamily (1). There are two isoforms of LRRTM3. Isoform 1 is synthesized as a precursor with a 30 amino acid (aa) signal sequence, a 389 aa extracellular region, a 21 aa transmembrane region, and a 141 aa cytoplasmic region. In isoform 2, aa 513 is changed from isoleucine to valine, and aa 514 to 581 are missing, producing a cytoplasmic region of only 74 aa. The extracellular region of both isoforms contains one N-linked glycosylation site, a leucine-rich repeat N-terminal domain bordered by four conserved cysteines, and 10 LRRs flanked by cysteine-rich domains (1). The cytoplasmic region of both isoforms contains several tyrosine, serine, and threonine residues that have the potential to be phosphorylated, and thus to be involved in signal transduction (1). The C-terminal of isoform 2 also contains a conserved glutamic acid-cysteine-glutamic acid-valine sequence for potential interaction with PDZ proteins (1 - 2). Mature human LRRTM3 (isoform 1) is 98% identical to mouse LRRTM3. In the mouse, beginning at 8.5 dpc, strong levels of LRRTM3 can be detected in the neural progenitors of the neural plate that will develop into the rostral neural tube, the forebrain, a stripe in the hindbrain, and the region of the presomitic mesoderm/somite boundary (2). By 15 dpc, LRRTM3 is expressed broadly and accumulates thereafter (3). In the adult, LRRTM3 is expressed almost exclusively in the brain with high expression in the cortical laminae and dentate gyrus, as well as detectable levels in the hypothalamus and amygdala (3). Functionally, LRRTM3 may be involved in the formation of the CNS and maintenance of CNS structure and function in the adult brain (1). In addition, LRRTM3 has been shown to promote processing of amyloid-precursor protein by BACE1, and is a positional candidate gene for late-onset Alzheimer's disease (3).

References:

1. Lauren, J. *et al.* (2003) *Genomics* **81**:411.
2. Haines, B.P. and P.W.J. Rigby (2007) *Gene Expr. Patterns* **7**:23.
3. Majercak, J. *et al.* (2006) *Proc. Natl. Acad. U.S.A.* **103**:17967.