Recombinant Human DNER Fc Chimera

Catalog Number: 3646-DN

DESCRIPTION

Source

Mouse myeloma cell line, NS0-derived

Human DNER (Arg29 - His637) Accession # NP_620711	IEGRMD	Human IgG_1 (Pro100 - Lys330)

N-terminus C-terminus

N-terminal Sequence Analysis	Arg29
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	90.9 kDa (monomer)

SPECIFICATIONS

SDS-PAGE	135-160 kDa, reducing conditions
Activity	Measured by its ability to inhibit Pleiotrophin-induced neurite outgrowth of E16-E18 rat embryonic cortical neurons. When 4 x 10^4 neurons/well are added to 96-well plate containing serial dilutions of recombinant human DNER Fc chimera and immobilized recombinant human Pleiotrophin/PTN (1 µg/mL) (Catalog # 252-PL), neurite outgrowth is significantly inhibited in a dose dependent manner. The ED_{50} for this effect is 0.4 - 1.6 µg/mL.
Endotoxin Level	<0.10 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 200 µg/mL in 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

DNER (Delta/Notch-like EGF-related receptor), also known as BET (brain-specific EGF-like transmembrane protein), is a type I transmembrane glycoprotein of the Notch/Delta family (1, 2). In the mouse, DNER has been detected as 90, 120 and 150 kDa forms which are probably variably glycosylated (1, 2). DNER is specifically expressed on nonaxonal areas of post-mitotic neurons, especially Purkinje cells, but also cortical and hippocampal pyramidal neurons and immature cerebellar granule cells (1 - 5). After expression on the cell surface, DNER is removed from axonal membranes, but remains on somatodendritic membranes (1, 3, 6). A portion of DNER is found within endosomes (1, 3, 6). Human DNER cDNA encodes 737 amino acids (aa) that include a 25 aa signal sequence, a 615 aa extracellular domain (ECD) containing ten distinct Delta/Notch-like EGF-like repeats, a 21 aa transmembrane sequence, and a 76 aa cytoplasmic domain. The human DNER ECD shares 89%, 89% and 88% aa sequence identity with mouse, rat and bovine DNER, respectively. DNER is a Notch ligand, but is considered a non-classical ligand because it lacks the usual DSL Notch binding motif (5, 7). Instead, Notch interacts with the two EGF-like repeats closest to the N-terminus of DNER (5). Mice lacking DNER show impaired cerebellar functions and delayed Purkinje cell-mediated maturation of Notch-expressing Bergmann glia during cerebellar development (4, 5). DNER associates with protein tyrosine phosphatase ζ (PTPζ), which is the receptor of pleiotrophin (PTN). PTPζ-PTN-DNER signaling has been implicated in the regulation of neuritogenesis (3). Expression of DNER in glioblastoma stem-like cells inhibits formation of neurospheres *in vitro*, while in vivo it induces differentiation and inhibits growth of xenografts, thus acting as a tumor suppressor (7). Expression of DNER in adipose-derived human mesenchymal stem cells and mouse auditory hair cells have also been shown (8, 9).

References:

1. Eiraku, M. *et al.* (2002) J. Biol. Chem. **277**:25400.
2. Nishizumi, H. *et al.* (2002) NeuroReport **13**:909.
3. Fukazawa, N. *et al.* (2008) Mol. Cell. Biol. **28**:4494.
4. Tohgo, A. *et al.* (2005) Mol. Cell. Neurosci. **31**:326.
5. Eiraku, M. *et al.* (2005) Nat. Neurosci. **8**:873.
6. Kurisu, J. *et al.* (2010) J. Neurochem. **113**:1598.
7. Sun, P. *et al.* (2009) Stem Cells **27**:1473.
8. Park, J-R. *et al.* (2010) Cell Prolif. **43**:19.
9. Hartman, B.H. *et al.* (2010) J. Assoc. Res. Otolaryngol. **11**:187.

bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 Canada TEL 855 668 8722 China TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449