Recombinant Human Tenascin R

Catalog Number: 3865-TR

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived Glu34-Phe1358, with a C-terminal 6-His tag Accession # Q92752
N-terminal Sequence Analysis	Glu34
Predicted Molecular Mass	146.8 kDa

SPECIFICATIONS

SDS-PAGE	157-180 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. Immobilized rhTenascin R at 5 µg/mL (100 µL/well) can bind rhContactin-1/Fc Chimera with an apparent K_D < 10 nM.
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 and NaCl. 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

Tenascin R (TNR) is an extracellular matrix glycoprotein belonging to the tenascin family of adhesion proteins (1 - 3). TNR is expressed in the central nervous system by oligodendrocytes and selected inhibitory interneurons. It shows highest expression during the postnatal period of active myelination and promotes neurite outgrowth and synaptic functions (1, 2). It is essential for formation of perineuronal nets, the mesh-like network of extracellular matrix (ECM) molecules that surrounds some neurons (4). The 180 kDa, 1327 amino acid (aa) form of human TNR contains a signal sequence, three heptad repeats that mediate coiled-coil trimer formation, five EGF-like repeats, nine fibronectin type III repeats (FN), and a C-terminal Ca^{2+}-binding fibrinogen-related domain. TNR isoform 2 (160 kDa) lacks a portion of FN#6(aa 773 - 862) (3). Mature human TNR isoform 1 shows 94%, 94%, 93%, 93% and 76% aa identity with bovine, mouse, rat, canine and chicken TNR, respectively. Experiments using recombinant TNR fragments indicate that EGF-like domains are counteradhesive for neurons and microglia and contribute to their migration (1, 5 - 7). This region interacts with immunoglobulin superfamily molecules including contactin, phosphacan and voltage-gated sodium channel β subunits. However, the fibronectin domains are adhesive for the lectican family of chondroitin sulfate proteoglycans (brevican, aggrican, versican and neurocan; FN 3 - 5), contactin (FN 2 - 3) and sodium channel β subunits (FN 6 - 8) (6 - 9). These adhesive interactions can compete with each other, but can also contribute to crosslinking of lecticans and contactin with other ECM molecules to form perineuronal nets (9, 10). Post-translational modification of TNR can differ with time and location (11). Notably, glycosylation may include GalNAc-4-SO_4, O-linked sialylated glycans, “brain-type” neutral N-glycans and the HNK-1 carbohydrate epitope that is thought to be involved in regulation of synaptic plasticity (11, 12).

References:

1. Jones, F. S. and P. L. Jones (2000) Dev. Dyn. **218**:235.
2. Dityatev, A. and M. Schachner (2006) Cell Tissue Res. **326**:647.
3. Carnemolla, B. *et al.* (1996) J. Biol. Chem. **271**: 8157.
4. Weber, P. *et al.* (1999) J. Neurosci. **19**:4245.
5. Xiao, Z. C. *et al.* (1997) J. Neurosci. Res. **49**:698.
6. Xiao, Z. C. *et al.* (1999) J. Biol. Chem. **274**:26511.
7. Liao, H. *et al.* (2005) J. Biol. Chem. **280**:8316.
8. Aspberg, A. *et al.* (1997) Proc. Natl. Acad. Sci. USA **94**:10116.
9. Lundell, A. *et al.* (2004) Structure **12**:1495.
10. Zacharias, U. and U. Rauch (2006) J. Cell Sci. **119**:3456.
11. Woodworth, A. *et al.* (2004) J. Biol. Chem. **279**:10413.
12. Zamze, S. *et al.* (1999) Glycobiology **9**:823.

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