Recombinant Mouse R-Spondin 4

Catalog Number: 4106-RS/CF

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived Ala19-Gln228 Accession # Q8BJ73
N-terminal Sequence Analysis	Ala19
Predicted Molecular Mass	23.9 kDa

SPECIFICATIONS

SDS-PAGE	32 kDa, reducing conditions
Activity	Measured by its ability to induce Topflash reporter activity in HEK293T human embryonic kidney cells. The ED_{50} for this effect is 5-20 ng/mL in the presence of 10 ng/mL Recombinant Mouse Wnt-3a (Catalog # 1324-WN).
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, 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

R-Spondin 4 (RSPO4, roof plate-specific spondin 4), also called cysteine-rich and single thrombospondin domain containing-4 (Cristin 4), is an ~33 kDa secreted heparin-binding protein that shares ~35% amino acid (aa) identity with three other R-Spondin family members (1-3). All are positive modulators of Wnt/β-catenin signaling, but R-Spondin 4 may be somewhat weaker than other R-Spondins (2). R-Spondins regulate Wnt/β-catenin by competing with the Wnt antagonist DKK-1 for binding to the Wnt co-receptors LRP-6 and Kremen, reducing their DKK-1-mediated internalization (1, 4). Like other R-Spondins, mouse R-Spondin 4 (234 aa) contains a signal sequence (aa 1-19), two adjacent cysteine-rich furin-like domains (aa 85-128) with one potential tyrosine phosphorylation site (aa 114), followed by a thrombospondin (TSP-1) motif (aa 137-197) and a region rich in basic residues (aa 199-234). The furin-like domains are sufficient for β-catenin stabilization (2). Mature mouse R-Spondin 4 shares 81%, 97%, 79%, 77% and 76% aa identity with human, rat, bovine, equine and canine R-Spondin 4, respectively. There is one potential isoform where Arg substitutes for the C-terminal 82 amino acids (5). Each R-Spondin has a distinct expression pattern (6). In the mouse, R-Spondin 4 mRNA is found during development of limb bud mesenchyme, nail beds, heart and teeth (6-8). In humans, mutations of R-Spondin 4 have been found to cause anonychia, a condition in which fingernails and toenails are absent (8-10).

References:

1. Nam, J.-S. *et al.* (2006) J. Biol. Chem. **281**:13247.
2. Kim, K.-A. *et al.* (2008) Mol. Biol. Cell **19**:2588.
3. Hendrickx, M. and L. Leyns (2008) Develop. Growth Differ. **50**:229.
4. Binnerts, M.E. *et al.* (2007) Proc. Natl. Acad. Sci. USA **104**:14700.
5. Entrez Accession # Q8BJ73, Isoform 2.
6. Nam, J.-S. *et al.* (2007) Gene Expr. Patterns **7**:306.
7. Pemberton, T.J. *et al.* (2007) Dev. Dyn. **236**:2245.
8. Ishii, Y. *et al.* (2008) J. Invest. Dermatol. **128**:867.
9. Blaydon, D.C. *et al.* (2006) Nat. Genet. **38**:1245.
10. Bergmann, C. *et al.* (2006) Am. J. Hum. Genet. **79**:1105.

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