

General Information

Synonyms	Cristin 3; HRspo1; roof plate-specific spondin; RSPO1; RSpondin 1; R-Spondin 1
Accession #	Q2MKA7
Source	Human embryonic kidney cell, HEK293-derived human R-Spondin 1 protein
	Ser21-Ala263
Predicted Molecular weight	25.6 kDa

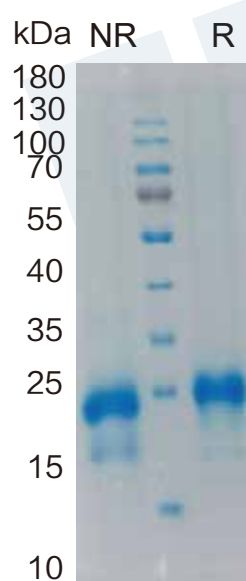
Components and Storage

Formulation	Solution protein. Dissolved in sterile PBS buffer. This solution can be diluted into other aqueous buffers. Centrifuge the vial prior to opening.
Storage and Stability	Avoid repeated freeze-thaw cycles. It is recommended that the protein be aliquoted for optimal storage. 12 months from date of receipt, -20 to -70 ° C as supplied.
Shipping	Shipping with dry ice

Quality

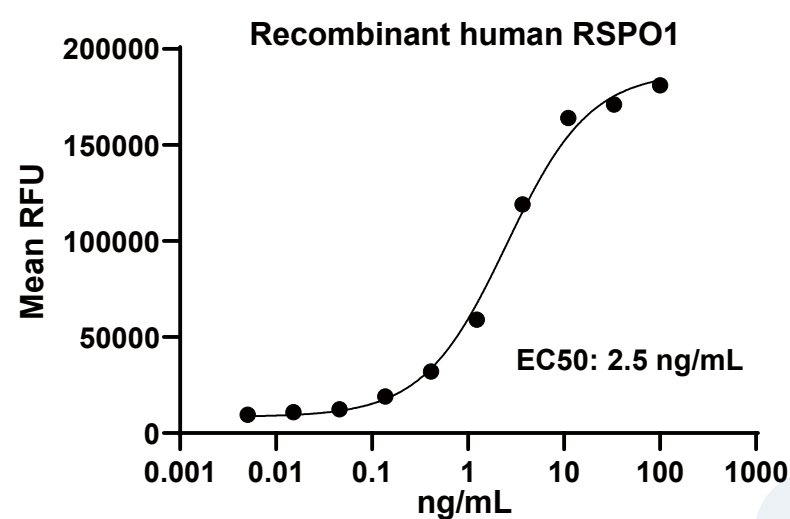
Purity	> 95%, determined by SDS-PAGE
Endotoxin Level	<0.010 EU per 1 ug of the protein by the LAL method
Activity	Measured by its ability to induce Topflash reporter activity in HEK293T human embryonic kidney cells. The EC50 for this effect is 1-10 ng/mL in the presence of 5 ng/mL Recombinant Mouse Wnt-3a (Catalog # 1324-WN).

SDS-PAGE



2 ug/lane protein was resolved with SDS-PAGE under non-reducing (NR) and reducing (R) conditions and visualized by Coomassie Blue staining.

Bioactivity



Recombinant human R-Spondin 1 (Catalog # HF-2027) induce Topflash reporter activity in human embryonic kidney cells (HEK293T).

Background

R-Spondin 1 (RSPO1), also known as cysteine-rich and single thrombospondin domain containing protein 3 (Cristin 3), is a 27 kDa secreted protein that shares ~40% amino acid (aa) identity with three other R-Spondin family members (1, 2). All R-Spondins regulate Wnt/ beta-Catenin signaling but have distinct expression patterns (1-3). Human R-Spondin 1 (aa21-263) shares 89%, 87%, 92%, 91%, 91% and 89% aa identity with mouse, rat, horse, dog, goat, and cow RSPO-1, respectively. R-Spondin 1 competes with the Wnt antagonist DKK-1 for binding to the Wnt co-receptors, Kremen and LRP-6, reducing their DKK-1-mediated internalization (4). However, reports are mixed on whether R-Spondin 1 binds LRP-6 directly (4-6). R-Spondin 1 is expressed in early development at the roof plate boundary and is thought to contribute to dorsal neural tube development (3, 7). Interest in R-Spondin 1 as a cell culture supplement has grown with the expansion of the organoid field. R-Spondin 1 is widely used in organoid cell culture workflows as a vital component that promotes both growth and survival of 3D organoids (8). Structurally similar to other R-Spondins, R-Spondin 1 contains two adjacent cysteine-rich furin-like domains (aa 34-135) with one potential N-glycosylation site, followed by a thrombospondin (TSP-1) motif (aa 147-207) and a region rich in basic residues (aa 211-263). Only the furin-like domains are needed for beta-catenin stabilization (2, 9). A putative nuclear localization signal at the C-terminus may allow some expression in the nucleus (10). Potential isoforms of 200 and 236 aa have an alternate, shorter N-terminus or are missing aa 146-208, respectively (11).

Reference

1. Chen, J.-Z. et al. (2002) Mol. Biol. Rep. 29:287.	6. Wei, Q. et al. (2007) J. Biol. Chem. 282:15903.
2. Kim, K.-A. et al. (2006) Cell Cycle 5:23.	7. Kamata, T. et al. (2004) Biochim. Biophys. Acta 1676:51.
3. Nam, J.-S. et al. (2007) Gene Expr. Patterns 7:306.	8. Drost and Clevers. (2018) Nature Reviews Cancer 18:407.
4. Binnerts, M.E. et al. (2007) Proc. Natl. Acad. Sci. USA 104:14700.	9. Kazanskaya, O. et al. (2004) Dev. Cell 7:525.
5. Nam, J.-S. et al. (2006) J. Biol. Chem. 281:13247.	10. Tomaselli, S. et al. (2008) Hum. Mutat. 29:220.

Contact us



Global www.epotobiotech.com service@epotobiotech.com

China No.10 Xinghuo Road, Pukou District, Nanjing China

TEL:+86 18652072210