# Recombinant Human R-Spondin 4

Catalog Number: 4575-RS/CF

## DESCRIPTION

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| **Source** | Chinese Hamster Ovary cell line, CHO-derived<br>Met1-Pro234<br>Accession # Q2I0M5 |
| **N-terminal Sequence Analysis** | Ala19 |
| **Predicted Molecular Mass** | 24.1 kDa (monomer) |

## SPECIFICATIONS

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| **SDS-PAGE** | 30-36 kDa, reducing conditions |
| **Activity** | Measured by its ability to induce Topflash reporter activity in HEK293T human embryonic kidney cells.<br>The $ED_{50}$ for this effect is 10-60 ng/mL in the presence of 10 ng/mL Recombinant Mouse Wnt-3a (Catalog # 1324-WN). |
| **Endotoxin Level** | <0.01 EU per 1 µg of the protein by the LAL method. |
| **Purity** | >90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining. |
| **Formulation** | Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details. |

## PREPARATION AND STORAGE

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| **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.**<br>● 12 months from date of receipt, -20 to -70 °C as supplied.<br>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>● 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 vary in activity (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, human R-Spondin 4 (228 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 199-228). Mature human R-Spondin 4 shares 81%, 81%, 84%, 84% and 86% aa identity with mouse, rat, equine, canine and bovine R-Spondin 4, respectively. Of two potential isoforms, one lacks the TSP-1 domain, while another terminates at aa 224 (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:**


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