TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713
INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM
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Human Recombinant R-Spondin-1 (E. coli-expressed), ACF

R-Spondin-1, animal component-free

Catalog #100-1729	100 µg
Catalog #100-1730	2 x 500 µg

Product Description

R-Spondin-1 (RSPO1) is the prototype member of the R-Spondin (RSPO) protein subfamily of a superfamily of thrombospondin type 1 repeat (TSR-1)-containing proteins (Chen et al.; Kazanskaya et al.; Kim et al.). Although unable to initialize signaling, RSPO family members are potent enhancers of WNT signaling (Cruciat & Niehrs; de Lau et al.; Kazanskaya et al.). They are characterized by a TSR-1 domain, a carboxy-terminal region with positively charged amino acids, and two N-terminal furin-like cysteine-rich repeats (Glinka et al.; Kazanskaya et al.). RSPO1 activates β-catenin signaling via the WNT signaling cascade and by indirectly increasing low-density lipoprotein receptor-related protein 6 (LRP6) on the cell surface. It does this by binding leucine-rich repeat-containing G-protein-coupled receptor 5 (LGR5), and competing with WNT antagonist Dickkopf-related protein 1 (DKK-1) for binding to the WNT coreceptors Kremen and LRP6, which reduces DKK-1-mediated internalization of LRP6 (Binnerts et al.). RSPO1 is involved in a wide range of pleiotropic roles during embryogenesis. It is required for the specification of hematopoietic stem cells, and it has been shown to be important in the growth, survival, and migration of ovarian cancer cells (Cruciat & Niehrs; de Lau et al.; Genthe & Clements; Liu et al.).

Product Information

Alternative Names: hRspo1, Roof plate-specific Spondin-1

Accession Number: Q2MKA7

Predicted Molecular Mass: 13 kDa

Species: Human

Product Formulation: Lyophilized from acetonitrile, trifluoroacetic acid.

Source: E. coli

Purity: ≥ 98%

Specifications

Activity: The specific activity is approximately 1 × 10^4 units/mg (EC50 ~ 75.1 ng/mL), as determined by the WNT-responsive firefly luciferase reporter assay in HEK239T cells.

Endotoxin Level: Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.1 EU/µg protein.

Preparation and Storage

Stability and Storage: Store at -20 to -80°C. Stable as supplied for 12 months from date of receipt.

Preparation: Centrifuge vial before opening. Reconstitute the product in 10 mM hydrochloric acid to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.
After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data

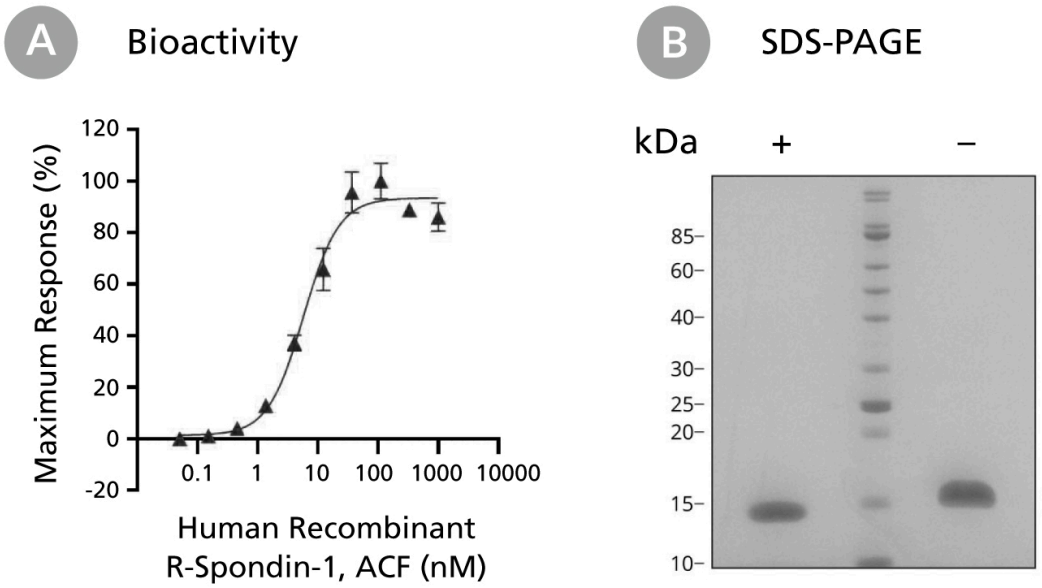

Figure 1. Biological Activity and Molecular Mass of Human Recombinant R-Spondin-1 (E. coli-expressed), ACF

(A) The biological activity of Human Recombinant R-Spondin-1 (E. coli-expressed), ACF was tested by its ability to induce luciferase activity in HEK239T cells transfected with the TOP-FLASH reporter. Luciferase activity was measured after cells were treated with increasing concentration of R-spondin-1 (diluted in DMEM with 0.5% of fetal calf serum), in the presence of Wnt-conditioned medium (1 in 8 dilution). The EC50 is defined as the effective concentration of the growth factor at which Wnt-ß catenin activity is at 50% of maximum. The EC50 in the above example is 5.8 nM (75.1 ng/mL).
(B) 7 µg of Human Recombinant R-Spondin-1 (E. coli-expressed), ACF was resolved with SDS-PAGE under reducing (+) conditions and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant R-Spondin-1 has a predicted molecular mass of 13 kDa in reducing conditions and 16 kDa in non-reducing conditions.

Related Products

For a complete list of cytokines or peptide pools, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

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