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1. Description

Products	Human R-Spondin 1, research grade. Recombinant human roof plate-specific spondin 1.						
	<table border="1"> <thead> <tr> <th>Content in µg</th><th>Order no.</th></tr> </thead> <tbody> <tr> <td>10</td><td>130-133-545</td></tr> <tr> <td>25</td><td>130-133-546</td></tr> </tbody> </table>	Content in µg	Order no.	10	130-133-545	25	130-133-546
Content in µg	Order no.						
10	130-133-545						
25	130-133-546						
Biological activity	The ED ₅₀ is ≤3 µg/mL corresponding to an activity of ≥0.3×10 ³ U/mg. Note: The ED ₅₀ is determined by alkaline phosphatase assay using mouse C2C12 cells according to Lu, W. <i>et al.</i> ¹						
Primary structure	Single glycosylated polypeptide chain (238 amino acid residues).						
Molecular mass	26.3 kDa (calculated).						
Source	Produced in HEK293 cells.						
Product format	Lyophilized from a filtered (0.2 µm) buffer solution.						
Stabilizer	Mannitol and trehalose.						
Purity	>95% as determined by SDS-PAGE analysis.						
Endotoxin level	Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.						
Storage	Lyophilized Human R-Spondin 1, research grade should be stored at -20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at -20 °C or below. Avoid repeated freeze-thaw cycles.						
Reconstitution	It is recommended to reconstitute lyophilized Human R-Spondin 1, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 100 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.						

1.1 Background information

R-Spondin-1, also known as Rspondin-1, is a growth factor belonging to the R-Spondin family. R-Spondins are four proteins that support adult stem cell proliferation, and act as Wnt modulators

by signaling through the canonical Wnt/β-catenin pathway as agonists. LGR4, LGR5, and LGR6 have been identified as receptors for all four R-Spondins. R-Spondin 1 is expressed in the nervous system during development and in endocrine tissues, especially in the gonads. It potentiates the signaling of Wnt-4 and antagonizes DKK-1 activity, and is crucial for the formation of female phenotype by opposing male phenotype development. R-Spondin 1 is also involved in the control of keratin formation, in the induction of cell proliferation in mucosal tissues, and in the inhibition of pro-inflammatory processes.

1.2 Applications

Human R-Spondin 1 can be used for a variety of applications including:

- Stimulation of adult stem cell proliferation *in vitro* and *in vivo*.
- Investigation of embryonic development and tissue differentiation.
- Study of the canonical Wnt/β-catenin signaling pathway.

Optimal concentration for a specific application should be determined by a dose-response experiment.

2. References

1. Lu, W. *et al.* (2008) R-spondin1 synergizes with Wnt3A in inducing osteoblast differentiation and osteoprotegerin expression. *FEBS Lett.* 582 (5): 643–650.

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