

## RSPO1/R-spondin-1 Protein, Human (HEK293, His)

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| <b>Cat. No.:</b>         | HY-P72784   |
| <b>Synonyms:</b>         | R-spondin-1; Roof plate-specific spondin-1; RSPO1 |
| <b>Species:</b>          | Human   |
| <b>Source:</b>           | HEK293  |
| <b>Accession:</b>        | Q2MKA7-1 (S21-A263)                               |
| <b>Gene ID:</b>          | 284654  |
| <b>Molecular Weight:</b> | Approximately 40 kDa                              |

### PROPERTIES

|                                |  |
|--------------------------------|--|
| <b>AA Sequence</b>             | <pre> S R G I K G K R Q R   R I S A E G S Q A C   A K G C E L C S E V   N G C L K C S P K L F I L L E R N D I R   Q V G V C L P S C P   P G Y F D A R N P D   M N K C I K C K I E H C E A C F S H N F   C T K C K E G L Y L   H K G R C Y P A C P   E G S S A A N G T M E C S S P A Q C E M   S E W S P W G P C S   K K Q Q L C G F R R   G S E E R T R R V L H A P V G D H A A C   S D T K E T R R C T   V R R V P C P E G Q   K R R K G G Q G R R E N A N R N L A R K   E S K E A G A G S R   R R K G Q Q Q Q Q Q   Q G T V G P L T S A G P A           </pre> |
| <b>Biological Activity</b>     | <p>1.R-Spondin-1 enhances BMP-2-mediated differentiation of MC3T3-E1 cells. The expected ED<sub>50</sub> is 2.232 μg/mL.corresponding to a specific activity is 4.48×10<sup>2</sup> units/mg.</p> <p>2.Measured by its ability to induce Topflash reporter activity in HEK293T human embryonic kidney cells. The ED<sub>50</sub> for this effect is 1-10 ng/mL</p>   |
| <b>Appearance</b>              | Lyophilized powder   |
| <b>Formulation</b>             | Lyophilized from a 0.2 μm filtered solution of PBS.  |
| <b>Endotoxin Level</b>         | <1 EU/μg determined by LAL method.   |
| <b>Reconstitution</b>          | It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH <sub>2</sub> O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).  |
| <b>Storage &amp; Stability</b> | Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.   |
| <b>Shipping</b>                | Room temperature in continental US; may vary elsewhere.  |

### DESCRIPTION

## Background

RSPO1, also known as R-spondin-1, serves as an activator of the canonical Wnt signaling pathway by acting as a ligand for LGR4-6 receptors. Upon binding to LGR4-6 (LGR4, LGR5, or LGR6), the resulting complex associates with phosphorylated LRP6 and frizzled receptors, activated by extracellular Wnt receptors. This interaction triggers the canonical Wnt signaling pathway, leading to an upregulation of target gene expression. Additionally, RSPO1 plays a role in modulating the canonical Wnt/beta-catenin-dependent pathway and non-canonical Wnt signaling by inhibiting ZNRF3, a crucial regulator in the Wnt pathway. Acting as a ligand for frizzled FZD8 and LRP6, RSPO1 also negatively regulates the TGF-beta pathway and has essential functions in ovary determination. Furthermore, RSPO1 regulates Wnt signaling by counteracting DKK1/KREM1-mediated internalization of LRP6 through an interaction with KREM1. The protein interacts with the extracellular domain of FZD8 and LRP6, forms a complex with RNF43, LGR5, and RSPO1, and binds heparin. RSPO1's interactions with ZNRF3 facilitate the membrane clearance of ZNRF3, contributing to its multifaceted role in Wnt pathway regulation.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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