

## DESCRIPTION

<b>Species Reactivity</b>	Mouse
<b>Specificity</b>	Detects mouse R-Spondin 1 in direct ELISAs and Western blots. In direct ELISAs, approximately 60% cross-reactivity with recombinant human R-Spondin 1 is observed and less than 5% cross-reactivity with recombinant mouse (rm) R-Spondin 3 and rmR-Spondin 4 is observed.
<b>Source</b>	Polyclonal Goat IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant mouse R-Spondin 1 (R&D Systems, Catalog # 3474-RS) Ser21-Gly209 Accession # Q9Z132
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 µm filtered solution in PBS.

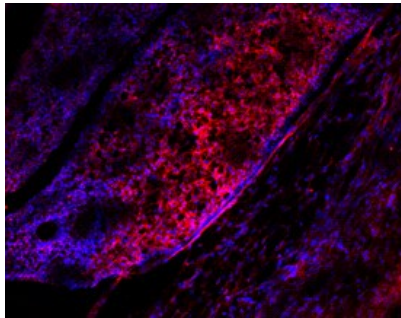
## APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	<b>Recommended Concentration</b>	<b>Sample</b>
<b>Western Blot</b>	0.1 µg/mL	Recombinant Mouse R-Spondin 1 (Catalog # 3474-RS)
<b>Immunohistochemistry</b>	5-15 µg/mL	See Below

## DATA

### Immunohistochemistry



**R-Spondin 1 in Mouse Ovary.**  
R-Spondin 1 was detected in immersion fixed frozen sections of E13.5 mouse ovary using Goat Anti-Mouse R-Spondin 1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF3474) at 10 µg/mL overnight at 4 °C. Tissue was stained using the NorthernLights™ 557-conjugated Anti-Goat IgG Secondary Antibody (red; Catalog # NL001) and counterstained with DAPI (blue). View our protocol for [Fluorescent IHC Staining of Frozen Tissue Sections](#).

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.2 mg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**BACKGROUND**

R-Spondin 1 (RSPO1, Roof plate-specific Spondin 1), also known as cysteine-rich and single thrombospondin domain containing protein 3 (Cristin 3), is a 27 kDa secreted protein that belongs to the R-Spondin family (1, 2). R-Spondins share around 40% aa identity. All regulate Wnt/ $\beta$ -catenin signaling, but have distinct expression patterns (1 - 3). Like other R-spondins, R-Spondin 1 contains two adjacent cysteine-rich furin-like domains (amino acids (aa) 34 - 135) 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, 4). A putative nuclear localization signal at the C-terminus may allow some expression in the nucleus (5). R-Spondin 1 contains one potential N-glycosylation site. Over aa 21 - 209, mouse R-Spondin 1 shares 98%, 94%, 94%, 93%, 92% and 88% aa identity with rat, human, horse, cow, goat and dog RSPO-1, respectively. R-Spondin 1 is expressed in early development at the roof plate boundary and is thought to contribute to dorsal neural tube development (3, 5). In humans, rare disruptions of the R-Spondin 1 gene are associated with tendencies for XX sex reversal (phenotypic male) or hermaphroditism, indicating a role for R-Spondin 1 in gender-specific differentiation (6, 7). Disruption is also associated with palmoplantar keratosis (6, 7). Postnatally, R-Spondin 1 is expressed by neuroendocrine cells in the intestine, adrenal gland and pancreas, and by epithelia in kidney and prostate (8). Injection of recombinant R-Spondin 1 in mice causes activation of  $\beta$ -catenin and proliferation of intestinal crypt epithelial cells, and ameliorates experimental colitis (8, 9). R-Spondin 1 appears to regulate Wnt/ $\beta$ -catenin by competing with the Wnt antagonist DKK-1 for binding to the Wnt co-receptor, Kremen (10). This competition reduces internalization of DKK-1/LRP-6/Kremen complexes (10). Reports differ on whether R-Spondin 1 binds LRP-6 directly (10 - 12).

**References:**

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