

BACKGROUND

The R-Spondin (RSpo) family of secreted proteins is implicated in the activation and regulation of Wnt signaling pathway. The RSpo family is comprised of 4 members (RSpo1-4) that share overall ~60% sequence homology and similar domain organization. All RSpo proteins contain two furin-like cysteine-rich domains at the N-terminus followed by a thrombospondin domain and a basic charged C-terminal tail. Numerous studies have implicated RSpo proteins in the canonical Wnt signaling pathway. It was demonstrated that all four RSpo members induce proliferation of crypt epithelial cells resulting in enlargement of mouse gastrointestinal tract. Moreover, RSpo proteins can stabilize the levels of cytosolic β -catenin and dramatically synergize with Wnt3A, suggesting a potential role for RSpo proteins in modulating the Wnt signaling pathway.¹

The precise mechanism by which each member regulates the Wnt pathway is poorly understood. It was shown that RSpo proteins interact with FZD8 and LRP6 receptors. However, these studies did not demonstrate whether these interactions are required for the activation of the Wnt signaling pathway by RSpo proteins. Recently, It has been demonstrated that RSpo1 activity is dependent on the presence of Wnt ligands and that RSpo1 regulates the Wnt signaling by antagonizing Dickkopf (DKK)1-mediated LRP6 internalization. Moreover, all four members regulate the Wnt pathway by a common mechanism. In addition, it was shown that the furin domain of RSpo protein is sufficient to synergize with Wnt3A and antagonize DKK1 function.² Recently, it was demonstrated that that human R-spondin1 (hRspo1) is a high affinity ligand for the Wnt co-receptor LRP6 ($K_d = 1.2$ nM). hRspo1 induces glycogen synthase kinase 3-dependent phosphorylation and activation of LRP6. DKK1, an LRP6 antagonist, inhibits hRspo1-induced LRP6 phosphorylation. Moreover, hRspo1 synergizes with Frizzled5 and induces the phosphorylation of Dishevelled, a cytoplasmic component downstream of Frizzled function.³

References:

1. Kim, K.H. et al: Cell Cycle 5:23-26, 2006
2. Kim, K.A. et al: Mol. Cell. Biol. 19:2588-96, 2008
3. Wei, Q. et al: J. Biol. Chem. 282:15903-11, 2007

TECHNICAL INFORMATION

Source:

R-spondin1 Antibody is a mouse monoclonal antibody raised against purified recombinant human R-spondin1 protein expressed in 293 cells.

Specificity and Sensitivity:

This antibody detects R-spondin1 proteins without cross-reactivity with other family members.

Storage Buffer: PBS and 30% glycerol

Storage:

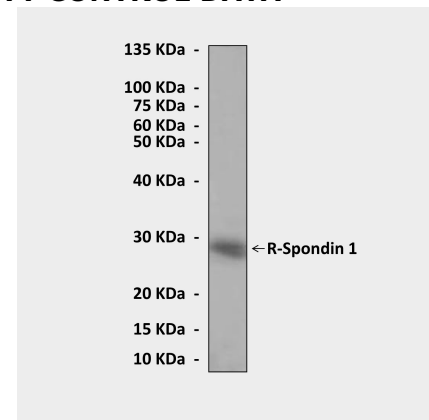
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

Application:	*Dilution:
WB	1:1000
IP	1:50
IHC	n/d
ICC	n/d
FACS	n/d

**Optimal dilutions must be determined by end user.*

QUALITY CONTROL DATA



Western Blot detection of R-spondin1 proteins expressed by 293 cells using R-spondin1 Antibody.

