Human R-Spondin 1 Alexa Fluor® Plus 405-conjugated Antibody

Antigen Affinity-purified Polyclonal Sheep IgG
Catalog Number: AF4645AFP405
100 µg

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human R-Spondin 1 in direct ELISAs. In direct ELISAs, approximately 6% cross-reactivity with recombinant mouse R-Spondin 1 is observed and less than 1% cross-reactivity with recombinant human (rh) R-Spondin 2, rhR-Spondin 3, and rhR-Spondin 4 is observed.
Source	Polyclonal Sheep IgG
Purification	Antigen Affinity-purified
Immunogen	Chinese hamster ovary cell line CHO-derived human R-Spondin 1 Arg31-Ala263 Accession # Q2MKA7
Conjugate	Alexa Fluor Plus 405 Excitation Wavelength: 404 nm Emission Wavelength: 455 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

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.*

Neutralization	Optimal dilution of this antibody should be experimentally determined.

DATA

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied

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 shares ~40% amino acid (aa) identity with three otherR-Spondin family members (1, 2). All R-Spondins regulate Wnt/β-catenin signaling, but have distinct expression patterns (1-3). Like other R-Spondins, R-Spondin 1 contains two adjacent cysteine-rich furin-like domains (aa 34-135) with one potential N-glycosylation site, 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 β-catenin stabilization (2, 4). A putative nuclear localization signal at the C-terminus may allow some expression in the nucleus (5). Potential isoforms of 200 and 236 aa have an alternate, shorter N-terminus or are missing aa 146-208, respectively (6). Over aa 21-263, human R-Spondin 1 shares 89%, 87%, 92%, 91%, 91% and 89% aa identity with mouse, rat, equine, canine, caprine and bovine R-Spondin 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 (7, 8). Disruption is also associated with palmoplantar keratosis (7, 8). Postnatally, R-Spondin 1 is expressed by neuroendocrine cells in the intestine, adrenal gland and pancreas, and by epithelia in kidney and prostate (9). Injection of recombinant R-Spondin 1 in mice causes activation of β-catenin and proliferation of intestinal crypt epithelial cells, and ameliorates experimental colitis (9, 10). R-Spondin 1 regulates Wnt/β-catenin by competing with the Wnt antagonist DKK-1 for binding to the Wnt co-receptors, Kremen and LRP-6, reducing their DKK-1-mediated internalization (11). Reports differ on whether R-Spondin 1 binds LRP-6 directly (11-13).

References:

1. Chen, J-Z. *et al.* (2002) Mol. Biol. Rep. **29**:287.
2. Kim, K.-A. *et al.* (2006) Cell Cycle **5**:23.
3. Nam, J.-S. *et al.* (2007) Gene Expr. Patterns **7**:306.
4. Kazanskaya, O. *et al.* (2004) Dev. Cell **7**:525.
5. Kamata, T. *et al.* (2004) Biochim. Biophys. Acta **1676**:51.
6. Entrez accession # EAX07331, ABA54598.
7. Tomaselli, S. *et al.* (2008) Hum. Mutat. **29**:220.
8. Parma, P. *et al.* (2006) Nat. Genet. **38**:1304.
9. Kim, K.-A. *et al.* (2005) Science **309**:1256.
10. Zhao, J. *et al.* (2007) Gastroenterology **132**:1331.
11. Binnerts, M.E. *et al.* (2007) Proc. Natl. Acad. Sci. USA **104**:14700.
12. Nam, J.-S. *et al.* (2006) J. Biol. Chem. **281**:13247.
13. Wei, Q. *et al.* (2007) J. Biol. Chem. **282**:15903.

PRODUCT SPECIFIC NOTICES

Bio-Techne®
Global | bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL: 1.612.379.2956
USA | TEL: 800.343.7475 **Canada** | TEL: 855.668.8722 **Europe** | **Middle East** | **Africa** TEL: +44.0.1235.529449
China | info.cn@bio-techne.com TEL: 400.821.3475