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Store at -20C  
#3712

## TGF- $\beta$ Receptor I Antibody

For Research Use Only. Not for Use in Diagnostic Procedures.

<b>Applications:</b> W	<b>Reactivity:</b> H R Mi	<b>Sensitivity:</b> Endogenous	<b>MW (kDa):</b> 52	<b>Source/Isotype:</b> Rabbit	<b>UniProt ID:</b> #P36897	<b>Entrez-Gene Id:</b> 7046
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### Product Usage Information

#### Application

Western Blotting

#### Dilution

1:1000

### Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100  $\mu$ g/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

### Specificity/Sensitivity

TGF- $\beta$  Receptor I Antibody detects endogenous levels of total TGF- $\beta$  receptor I protein independent of phosphorylation.

### Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the central intracellular region of human TGF- $\beta$  receptor I. Antibodies are purified by protein A and peptide affinity chromatography.

### Background

Transforming growth factor- $\beta$  (TGF- $\beta$ ) proteins belong to the TGF- $\beta$  superfamily of cytokines that play a critical role in regulating cell proliferation and differentiation, developmental patterning and morphogenesis, and disease pathogenesis (1-3). TGF- $\beta$  ligands elicit signaling through three cell surface receptors: type I (RI), type II (RII), and type III (RIII) TGF- $\beta$  receptors. Type I and type II receptors are serine/threonine kinases that form a heteromeric complex following ligand binding to the type II receptor. In response to ligand binding, the type II receptors form a stable complex with the type I receptor, triggering phosphorylation and activation of the type I receptor (4). This results in the recruitment of receptor-mediated SMADs (SMAD2, SMAD3), which are phosphorylated by the type I kinase in an SSXS domain in the C-terminus. This leads to recruitment of the co-SMAD (SMAD4), and subsequent translocation of this heteromeric SMAD complex to the nucleus, where it regulates transcription of target genes (5-7). The type III receptor, also known as betaglycan, is a transmembrane proteoglycan with a large extracellular domain that binds TGF- $\beta$  with high affinity but lacks a cytoplasmic signaling domain. Expression of the type III receptor can regulate TGF- $\beta$  signaling through presentation of the ligand to the signaling complex (8).

### Background References

1. Massagué, J. et al. (2000) *Cell* 103, 295-309.
2. de Caestecker, M.P. et al. (2000) *J Natl Cancer Inst* 92, 1388-402.
3. Derynck, R. et al. (2001) *Nat Genet* 29, 117-29.
4. Derynck, R. and Feng, X.H. (1997) *Biochim Biophys Acta* 1333, F105-50.
5. Miyazono, K. et al. (2000) *Adv Immunol* 75, 115-57.
6. Massagué, J. (2000) *Nat Rev Mol Cell Biol* 1, 169-78.
7. Derynck, R. et al. (1998) *Cell* 95, 737-40.
8. López-Casillas, F. et al. (1991) *Cell* 67, 785-95.

### Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

### Western Blot Buffer

**IMPORTANT:** For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

### Applications Key

**W:** Western Blotting

### Cross-Reactivity Key

**H:** Human **R:** Rat **Mi:** Mink

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