

Product Information

Anti-Transforming Growth Factor- β Soluble Receptor III

produced in goat, affinity isolated antibody

Catalog Number **T1940**

Synonyms: Anti-TGF- β sRIII

Product Description

Anti-Transforming Growth Factor- β Soluble Receptor III is produced in goat using as immunogen a recombinant human soluble TGF- β RIII expressed in NSO cells. The antibody is purified using human TGF- β RIII affinity chromatography.

Anti-TGF- β sRIII recognizes the extracellular domain of human TGF- β RIII by immunoblotting and ELISA.

The family of cytokines to which TGF- β 1 belongs, the transforming growth factor family, has important functions in growth, development, and differentiation.¹

Most mammalian cells express three abundant high affinity TGF receptors, which can bind and be cross-linked to TGF- β : type I (~53 kDa), type II (~65 kDa), and type III (~100-280 kDa) receptors, so designated because of the molecular mass of the cross-linked products analyzed by gel electrophoresis.² TGF β -RI and TGF β -RII, the type I and II receptors, are type I transmembrane proteins with cytosolic domains containing a serine-threonine kinase.³⁻⁷ Both receptors are essential for signal transduction. The TGF- β type III receptor, or betaglycan, is a membrane-bound proteoglycan with a short cytoplasmic tail that has no apparent signaling motif.^{8,9} It binds TGF- β 2 (apparent Kd ~100 pM) with slightly greater affinity than TGF- β 1 or TGF- β 3 (apparent Kd ~300 pM).^{10,11} The main role of betaglycan seems to be in binding and then presenting TGF- β ligand to the signaling receptors TGF β -RI and TGF β -RII.¹² Overexpression of TGF β -RIII in L6 myoblasts leads to a dramatic increase in TGF- β 2 binding to T β -RI and T β -RII.^{8,13}

Following stimulation of cells with a TGF- β -like protein (e.g., TGF- β 1, TGF- β 3, activins, or dpp), the growth factor binds to a type II receptor, which in turn recruits a type I receptor into a heteromeric complex.¹⁴ This is required for the subsequent phosphorylation of the type I receptor in the GS-domain by the type II receptor, which leads to receptor I activation and signal generation.¹⁵ In the case of ligands with low affinity for the type II receptor (e.g., TGF- β 2), accessory receptors such as betaglycan (RIII) may first recruit the ligand and then present it to the signalling complex. The SMAD proteins constitute a unique signaling pathway with key roles in signal transduction by TGF- β and related factors. Pathway-restricted SMADs are phosphorylated and activated by type I receptors in response to stimulation by ligand. Once activated, pathway-restricted SMADs oligomerize with the common-mediator Smad4 and subsequently translocate to the nucleus.^{16,17}

Reagents

Lyophilized from 0.2 μ m-filtered solution in phosphate buffered saline containing carbohydrates.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

To one vial of lyophilized powder, add 1 ml of 0.2 μ m-filtered PBS to produce a 0.25 mg/ml stock solution of antibody. If aseptic technique is used, no further filtration should be needed for use in cell culture environments.

Storage/Stability

Prior to reconstitution, store at -20°C . Reconstituted product may be stored at $2-8^{\circ}\text{C}$ for up to one month. For prolonged storage, freeze in working aliquots at -20°C . Avoid repeated freezing and thawing.

Product Profile

Indirect immunoblotting: a working concentration of 1-2 $\mu\text{g/ml}$ will allow visualization of 0.5 ng/lane of human TGF- β sRIII under non-reducing and reducing conditions.

Indirect ELISA: a working concentration of 0.5-1 $\mu\text{g/ml}$ is determined to detect a limit of 0.06 ng/well of human TGF- β sRIII.

Note: In order to obtain best results in different techniques and preparations, determination of optimal working dilutions by titration test is recommended.

References

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