

## DESCRIPTION

<b>Species Reactivity</b>	Rat
<b>Specificity</b>	Detects rat Endoglin/CD105 in direct ELISAs and Western blots. In direct ELISAs, approximately 75% cross reactivity with recombinant mouse Endoglin is observed and approximately 50% cross reactivity with recombinant human Endoglin is observed.
<b>Source</b>	Polyclonal Goat IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	Mouse myeloma cell line NS0-derived recombinant rat Endoglin/CD105 Met1-Gly578 Accession # Q6Q3E8
<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 either lyophilized or as a 0.2 µm filtered solution in PBS.

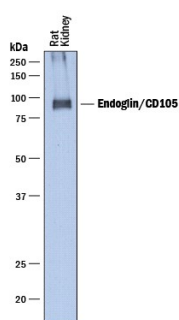
## APPLICATIONS

**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>	1 µg/mL	See Below
<b>Immunocytochemistry</b>	5-15 µg/mL	See Below
<b>Immunohistochemistry</b>	5-15 µg/mL	See Below
<b>Immunoprecipitation</b>	4 µg/mL	See Below

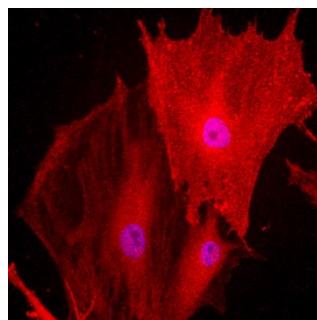
## DATA

### Western Blot



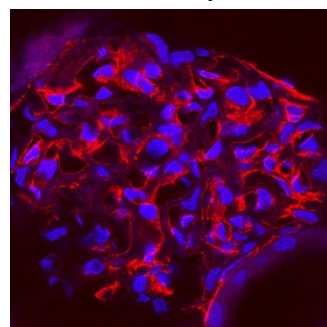
**Detection of Rat Endoglin/CD105 by Western Blot.** Western blot shows lysates of rat kidney tissue. PVDF membrane was probed with 1 µg/mL of Goat Anti-Rat Endoglin/CD105 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF6440) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF017). A specific band was detected for Endoglin/CD105 at approximately 90 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

### Immunocytochemistry



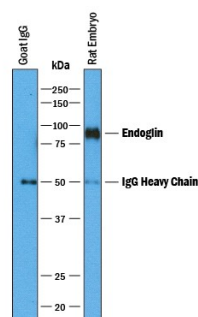
**Endoglin/CD105 in Rat Mesenchymal Stem Cells.** Endoglin/CD105 was detected in immersion fixed undifferentiated rat mesenchymal stem cells using Goat Anti-Rat Endoglin/CD105 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF6440) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Goat IgG Secondary Antibody (red; Catalog # NL001) and counterstained with DAPI (blue). Specific staining was localized to the transmembrane. View our protocol for [Fluorescent ICC Staining of Stem Cells on Coverslips](#).

### Immunohistochemistry



**Endoglin/CD105 in Rat Kidney.** Endoglin/CD105 was detected in perfusion fixed frozen sections of rat kidney using Goat Anti-Rat Endoglin/CD105 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF6440) at 1 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). Specific staining was localized to endothelial cells in glomeruli. View our protocol for [Fluorescent IHC Staining of Frozen Tissue Sections](#).

### Immunoprecipitation



**Immunoprecipitation of Rat Endoglin/CD105.** Endoglin/CD105 was immunoprecipitated from 400 µg of rat embryo tissue lysates using 4 µg of Goat Anti-Rat Endoglin/CD105 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF6440) coated on 4 wells of a 96 well plate (Corning Costar EIA/RIA). Rat embryo tissue lysates or control buffer were added to the wells and incubated for 2 hours at room temperature. Immunoprecipitated Endoglin/CD105 was detected by Western blot under reducing conditions using 1 µg/mL Goat Anti-Rat Endoglin/CD105 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF6440) and [Immunoblot Buffer Group 1](#). View our recommended buffer recipes for Immunoprecipitation.

## 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>	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <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

Endoglin (CD105) is a 90 kDa type I transmembrane glycoprotein of the zona pellucida (ZP) family of proteins. Endoglin and betaglycan/TβRIII are type III receptors for TGF-β superfamily ligands, sharing 71% aa identity with the transmembrane (TM) and cytoplasmic domains. Endoglin is highly expressed on proliferating vascular endothelial cells, chondrocytes, and syncytiotrophoblasts of term placenta, with lower amounts on hematopoietic, mesenchymal and neural crest stem cells, activated monocytes, and lymphoid and myeloid leukemic cells. Rat Endoglin cDNA encodes 650 amino acids (aa) including a 25 aa signal sequence, a 553 aa extracellular domain (ECD) with an orphan domain and a two-part ZP domain, a TM domain and a 51 aa cytoplasmic domain. In human and mouse, an isoform with a 14 aa cytoplasmic domain (S-endoglin) can oppose effects of long (L) Endoglin. In rat, a potential isoform with a 100 aa cytoplasmic tail (49 aa inserted after aa 610) diverges at the same aa as S-endoglin. The rat Endoglin ECD shares 84%, 70%, 68%, 64%, and 62% aa identity with mouse, human, canine, porcine, and bovine Endoglin, respectively. Endoglin homodimers interact with TGF-β1 and TGF-β3 (but not TGF-β2), but only after binding TβRII. Similarly, they interact with activin-A and BMP-7 via activin type IIA or B receptors, and with BMP-2 via BMPR-1A/ALK-3 or BMPR-1B/ALK-6. BMP-9, however, is reported to bind Endoglin directly. Endoglin modifies ligand-induced signaling in multiple ways. For example, expression of Endoglin can inhibit TGF-β1 signals but enhance BMP7 signals in the same myoblast cell line. In endothelial cells, Endoglin inhibits TβRI/ALK-5, but enhances ALK-1-mediated activation. Deletion of mouse Endoglin causes lethal vascular and cardiovascular defects, and human Endoglin haploinsufficiency can cause the vascular disorder, hereditary hemorrhagic telangiectasia type I. These abnormalities confirm the essential function of Endoglin in differentiation of smooth muscle, angiogenesis, and neovascularization. In preeclampsia of pregnancy, high levels of proteolytically generated soluble Endoglin and VEGF R1 (sFLT1), along with low placental growth factor (PIGF), are pathogenic due to anti-angiogenic activity.