

# ACTR-IB (A-15): sc-31298

## BACKGROUND

Members of the transforming growth factor  $\beta$  superfamily bind to a pair of transmembrane proteins, known as receptor types I and II, which contain serine/threonine kinases and associate to form a signaling complex. Activin has been shown to bind a heteromeric noncovalent complex, which consists of a type I receptor, ACTR-IA (also designated ACVRI and ALK-2) or ACTR-IB (also designated ALK-4 and SKR2) and a type II receptor, ACTR-IIA (also designated ACVR2A) or ACTR-IIB (also designated ACVR2B). Both receptor types are highly expressed in brain. The activin receptor family members are thought to mediate distinct effects on gene expression, cell differentiation, and morphogenesis in a dose dependent fashion.

## REFERENCES

1. Attisano, L., et al. 1993. Identification of human activin and TGF  $\beta$  type I receptors that form heteromeric kinase complexes with type II receptors. *Cell* 75: 671-680.
2. Carcamo, J., et al. 1994. Type I receptors specify growth-inhibitory and transcriptional responses to transforming growth factor  $\beta$  and activin. *Mol. Cell. Biol.* 14: 3810-3821.
3. Rosenzweig, B.L., et al. 1995. Cloning and characterization of a human type II receptor for bone morphogenetic proteins. *Proc. Natl. Acad. Sci. USA* 92: 7632-7636.
4. Armes, N.A., et al. 1997. The ALK-2 and ALK-4 activin receptors transduce distinct mesoderm-inducing signals during early *Xenopus* development but do not co-operate to establish thresholds. *Development* 124: 3797-3804.
5. Ebendal, T., et al. 1998. Bone morphogenetic proteins and their receptors: potential functions in the brain. *J. Neurosci. Res.* 51: 139-146.
6. Armes, N.A., et al. 1999. A short loop on the ALK-2 and ALK-4 activin receptors regulates signaling specificity but cannot account for all their effects on early *Xenopus* development. *J. Biol. Chem.* 274: 7929-7935.

## CHROMOSOMAL LOCATION

Genetic locus: ACVR1B (human) mapping to 12q13.13, TGFBR1 (human) mapping to 9q22; Acvr1b (mouse) mapping to 15 F2, Tgfr1 (mouse) mapping to 4 B1.

## SOURCE

ACTR-IB (A-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within a cytoplasmic domain of ACTR-IB of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-31298 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

Store at 4°C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

ACTR-IB (A-15) is recommended for detection of ACTR-IB and TGF $\beta$  type 1 Receptor of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

ACTR-IB (A-15) is also recommended for detection of ACTR-IB and TGF $\beta$  type 1 Receptor in additional species, including equine, canine, bovine, porcine and avian.

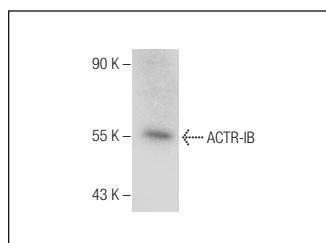
Molecular Weight of ACTR-IB: 55 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227 or mouse brain extract: sc-2253.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941.

## DATA



ACTR-IB (A-15): sc-31298. Western blot analysis of ACTR-IB expression in Hep G2 whole cell lysate.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.