SANTA CRUZ BIOTECHNOLOGY, INC.

AT_1 (1E10-1A9): sc-81671

BACKGROUND

Angiotensin II (Ang II) is an important physiological effector of blood pressure and volume regulation through vasoconstriction, aldosterone release, sodium uptake and thirst stimulation. Although Ang II interacts with two types of cell surface receptors, AT_1 and AT_2, most of the major cardiovascular effects seem to be mediated through AT_1. Molecular cloning of the AT_1 protein has shown it to be a member of the G protein-associated seven transmembrane protein receptor family. Ang II treatment of cells results in activation of several signal transduction pathways as evidenced by tyrosine phosphorylation of several proteins and induction of others. PLC γ is phosphorylated after 30 seconds of treatment with Angiotensin II, indicating this as an early signal transduction event. Ang II treatment also stimulates phosphorylation of Shc, FAK and MAP kinases and induces MKP-1, indicating stimulation of growth factor pathways. Ang II stimulation through AT_1 has been shown to activate the JAK/Stat pathway involving a direct interaction between JAK2 and AT_1 as demonstrated by coimmunprecipitation. The AT_1 receptor has no cytoplasmic kinase domain, but is able to function as a substrate for Src kinases and has several putative phosphorylation sites.

REFERENCES

1. Murphy, T.J., et al. 1991. Isolation of a cDNA encoding the vascular type-1 Angiotensin II receptor. Nature 351: 233-236.
2. Tsuda, T., et al. 1991. Vasoconstrictor-induced protein-tyrosine phosphorylation in cultured vascular smooth muscle cells. FEBS Lett. 285: 44-48.
3. Duff, J.L., et al. 1993. Angiotensin II induces 3CH134, a protein-tyrosine phosphatase, in vascular smooth muscle cells. J. Biol. Chem. 268: 26037-26040.
4. Timmermans, P.B., et al. 1993. Angiotensin II receptors and Angiotensin II receptor antagonists. Pharmacol. Rev. 45: 205-251.
5. Marrero, M.B., et al. 1994. Angiotensin II stimulates tyrosine phosphorylation of phospholipase C-γ 1 in vascular smooth muscle cells. J. Biol. Chem. 269: 10935-10939.
6. Schorb, W., et al. 1994. Angiotensin II-induced protein tyrosine phosphorylation in neonatal rat cardiac fibroblasts. J. Biol. Chem. 269: 19626-19632.

CHROMOSOMAL LOCATION

Genetic locus: AGTR1 (human) mapping to 3q24; Agtr1b (mouse) mapping to 3 A2.

SOURCE

AT_1 (1E10-1A9) is a mouse monoclonal antibody raised against a GST fusion protein corresponding to amino acids 297-356 of AT_1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

AT_1 (1E10-1A9) is recommended for detection of AT_1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); also recommended for detection of AT_1 expressed on transfected CHO cells and rat smooth muscle cells.

Suitable for use as control antibody for AT_1 siRNA (h): sc-29750, AT_1 siRNA (m): sc-29751, AT_1 siRNA (r): sc-155992, AT_1 shRNA Plasmid (h): sc-29750-SH, AT_1 shRNA Plasmid (m): sc-29751-SH, AT_1 shRNA Plasmid (r): sc-155992-SH, AT_1 shRNA (h) Lentiviral Particles: sc-29750-V, AT_1 shRNA (m) Lentiviral Particles: sc-29751-V and AT_1 shRNA (r) Lentiviral Particles: sc-155992-V.

Molecular Weight of AT_1: 43 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, THP-1 cell lysate: sc-2238 or HuT 78 whole cell lysate: sc-2208.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

SELECT PRODUCT CITATIONS

1. Willenberg, H.S., et al. 2010. Sporadic solitary aldosterone- and cortisol-co-secreting adenomas: endocrine, histological and genetic findings in a subtype of primary aldosteronism. Hypertens. Res. 33: 467-472.
2. Collett, J.A., et al. 2013. Renal angiotensin II type 1 receptor expression and associated hypertension in rats with minimal SHR nuclear genome. Physiol. Rep. 1: e00104.
3. Ehrig, J.C., et al. 2014. Cardiotonic steroids induce anti-angiogenic and anti-proliferative profiles in first trimester extravillous cytotrophoblast cells. Placenta 35: 932-936.
4. Huang, C.Y., et al. 2018. Mitochondrial ROS-induced ERK1/2 activation and HSF2-mediated AT_1 R upregulation are required for doxorubicin-induced cardiotoxicity. J. Cell. Physiol. 233: 463-475.

STORAGE

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