SANTA CRUZ BIOTECHNOLOGY, INC.

EP1 (N-20): sc-16011

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Prostaglandin E2, a member of the autacoid family of lipid mediators, is a major renal cyclooxygenase product of arachidonic acid metabolism. Prostaglandin E2 binds to four G protein-coupled E-prostanoid receptors, designated EP1, EP2, EP3 and EP4. The expression and function of the prostaglandin E2 receptors have been highly characterized in kidney. EP1, which is predominantly expressed in the collecting duct, couples to G_q proteins to inhibit sodium absorption and increase in intracellular calcium, which act as second messengers. EP2 is coupled to G_s proteins, which stimulate adenylyl cyclase. EP2 has the lowest expression in kidney, but EP2 knockout mice exhibit salt-sensitive hypertension, which suggests a role for EP2 in salt excretion. EP3, which is expressed in renal vessels, thick ascending limb and collecting duct, has at least six alternative splice variants that couple to G_i proteins to inhibit cAMP, which subsequently inhibit sodium and water transport. In uterus, EP3 induces the contraction of uterine smooth muscles. EP4 is expressed in glomerulus and collecting duct. It couples to G_s proteins, which stimulate adenylyl cyclase and regulate glomerular tone and renal renin release.

REFERENCES

1. Breyer, M.D., et al. 1998. Regulation of renal function by prostaglandin E receptors. Kidney Int. Suppl. 67: S88-S94.
2. Ichikawa, A. 1998. Molecular biology of prostaglandin E receptors-expression of multi-function by prostaglandin E receptor subtypes and isoforms. Nippon Rinsho 56: 1813-1818.
3. Thiemermann, C., et al. 2000. Selective activation of E-type prostanoid$_3$-receptors reduces myocardial infarct size. A novel insight into the cardioprotective effects of prostaglandins. Pharmacol. Ther. 87: 61-67.
4. Muro, S., et al. 2000. Expression of prostaglandin E receptor EP4 subtype in rat adrenal *zona glomerulosa* involvement in aldosterone release. Endocr. J. 47: 429-436.
5. Breyer, M.D., et al. 2000. Prostaglandin E receptors and the kidney. Am. J. Physiol. Renal Physiol. 279: F12-F23.
6. Kotani, M., et al. 2000. Multiple signal transduction pathways through two prostaglandin E receptor EP3 subtype isoforms expressed in human uterus. J. Clin. Endocrinol. Metab. 85: 4315-4322.

CHROMOSOMAL LOCATION

Genetic locus: PTGER1 (human) mapping to 19p13.12.

SOURCE

EP1 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of EP1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-16011 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

EP1 (N-20) is recommended for detection of EP1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

Suitable for use as control antibody for EP1 siRNA (h): sc-40169, EP1 shRNA Plasmid (h): sc-40169-SH and EP1 shRNA (h) Lentiviral Particles: sc-40169-V.

Molecular Weight of EP1: 42 kDa.

Positive Controls: Caki-1 cell lysate: sc-2224.

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™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) 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™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Ying, S., et al. 2004. Expression of prostaglandin E_2 receptor subtypes on cells in sputum from patients with asthma and controls: effect of allergen inhalational challenge. J. Allergy Clin. Immunol. 114: 1309-1316.
2. Grasa, L., et al. 2006. PGE_2 receptors and their intracellular mechanisms in rabbit small intestine. Prostaglandins Other Lipid Mediat. 79: 206-217.
3. Ying, S., et al. 2006. Aspirin-sensitive rhinosinusitis is associated with reduced E-prostanoid 2 receptor expression on nasal mucosal inflammatory cells. J. Allergy Clin. Immunol. 117: 312-318.
4. Kotelevets, L., et al. 2007. A new mRNA splice variant coding for the human EP3-I receptor isoform. Prostaglandins Leukot. Essent. Fatty Acids 77: 195-201.
5. Wu, C.H., et al. 2010. EP4 upregulation of Ras signaling and feedback regulation of Ras in human colon tissues and cancer cells. Arch. Toxicol. 84: 731-740.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.