

EP3 (R-18): sc-16019

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 is expressed in renal vessels, thick ascending limb and collecting duct. EP₃ 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: S88-94.
2. Ichikawa, A. 1998. Molecular biology of prostaglandin E receptors—expression of multi-function by PGE receptor subtypes and isoforms. *Nippon Rinsho* 56: 1813-1818.

CHROMOSOMAL LOCATION

Genetic locus: PTGER3 (human) mapping to 1p31.1; Ptger3 (mouse) mapping to 3 H4.

SOURCE

EP3 (R-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of EP3 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-16019 P, (100 µg 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.

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.

APPLICATIONS

EP3 (R-18) is recommended for detection of all EP3 isoforms of mouse, rat and 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).

EP3 (R-18) is also recommended for detection of all EP3 isoforms in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for EP3 siRNA (h): sc-35314, EP3 siRNA (m): sc-35315, EP3 siRNA (r): sc-270388, EP3 shRNA Plasmid (h): sc-35314-SH, EP3 shRNA Plasmid (m): sc-35315-SH, EP3 shRNA Plasmid (r): sc-270388-SH, EP3 shRNA (h) Lentiviral Particles: sc-35314-V, EP3 shRNA (m) Lentiviral Particles: sc-35315-V and EP3 shRNA (r) Lentiviral Particles: sc-270388-V.

Molecular Weight of EP3: 62 kDa.

Positive Controls: JAR cell lysate: sc-2276, HeLa whole cell lysate: sc-2200 or rat kidney extract: sc-2394.

SELECT PRODUCT CITATIONS

1. Muller-Decker, K., et al. 2002. Transgenic cyclooxygenase-2 overexpression sensitizes mouse skin for carcinogenesis. *Proc. Natl. Acad. Sci. USA* 99: 12483-12488.
2. Muller-Decker, K., et al. 2003. Expression of cyclooxygenase isozymes during morphogenesis and cycling of pelage hair follicles in mouse skin: precocious onset of the first catagen phase and alopecia upon cyclooxygenase-2 overexpression. *J. Invest. Dermatol.* 121: 661-668.
3. Ying, S., et al. 2004. Expression of prostaglandin E₂ receptor subtypes on cells in sputum from patients with asthma and controls: effect of allergen inhalational challenge. *J. Allergy Clin. Immunol.* 114: 1309-1316.
4. Muller-Decker, K., et al. 2005. Cystic duct dilatations and proliferative epithelial lesions in mouse mammary glands upon keratin 5 promoter-driven overexpression of cyclooxygenase-2. *Am. J. Pathol.* 166: 575-584.
5. Grasa, L., et al. 2006. PGE₂ receptors and their intracellular mechanisms in rabbit small intestine. *Prostaglandins Other Lipid Mediat.* 79: 206-217.
6. 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.
7. Ponglowhapan, S., et al. 2010. Expression of prostaglandin E₂ receptor subtypes in the canine lower urinary tract varies according to the gonadal status and gender. *Theriogenology* 74: 1450-1466.
8. Myren, M., et al. 2012. Prostaglandin E₂ receptor expression in the rat trigeminal-vascular system and other brain structures involved in pain. *Neurosci. Lett.* 506: 64-69.
9. Yilmaz, S., et al. 2013. Mesenchymal stem cell: does it work in an experimental model with acute respiratory distress syndrome? *Stem Cell Rev.* 9: 80-92.