

## EP1 (M-121): sc-98388

### BACKGROUND

Prostaglandin E<sub>2</sub>, a member of the autacoid family of lipid mediators, is a major renal cyclooxygenase product of arachidonic acid metabolism. Prostaglandin E<sub>2</sub> binds to four G protein-coupled E-prostanoid receptors, designated EP1, EP2, EP3 and EP4. The expression and function of the prostaglandin E<sub>2</sub> receptors have been highly characterized in kidney. EP1, which is predominantly expressed in the collecting duct, couples to G<sub>q</sub> proteins to inhibit sodium absorption and increase in intracellular calcium, which act as second messengers. EP2 is coupled to G<sub>s</sub> 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<sub>i</sub> 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<sub>s</sub> proteins, which stimulate adenylyl cyclase and regulate glomerular tone and renal Renin release.

### REFERENCES

- Breyer, M.D., et al. 1998. Regulation of renal function by prostaglandin E receptors. *Kidney Int. Suppl.* 67: S88-94.
- Ichikawa, A. 1998. Molecular biology of prostaglandin E receptors-expression of multi-function by PGE receptor subtypes and isoforms. *Nippon Rinsho* 56: 1813-1818.
- 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.
- Thiemermann, C., et al. 2000. Selective activation of E-type prostanoid<sub>3</sub>-receptors reduces myocardial infarct size. A novel insight into the cardio-protective effects of prostaglandins. *Pharmacol. Ther.* 87: 61-67.
- 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.
- 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: PTGER1 (human) mapping to 19p13.12; Ptger1 (mouse) mapping to 8 C2.

### SOURCE

EP1 (M-121) is a rabbit polyclonal antibody raised against amino acids 220-311 mapping within an internal region of EP1 of mouse origin.

### PRODUCT

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

### APPLICATIONS

EP1 (M-121) is recommended for detection of EP1 of mouse, rat and, to a lesser extent, 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

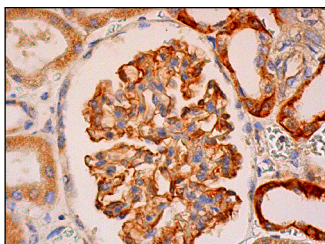
Suitable for use as control antibody for EP1 siRNA (h): sc-40169, EP1 siRNA (m): sc-40170, EP1 siRNA (r): sc-270387, EP1 shRNA Plasmid (h): sc-40169-SH, EP1 shRNA Plasmid (m): sc-40170-SH, EP1 shRNA Plasmid (r): sc-270387-SH, EP1 shRNA (h) Lentiviral Particles: sc-40169-V, EP1 shRNA (m) Lentiviral Particles: sc-40170-V and EP1 shRNA (r) Lentiviral Particles: sc-270387-V.

Molecular Weight of EP1: 42 kDa.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

### DATA



EP1 (M-121): sc-98388. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing membrane staining of cells in glomeruli and cytoplasmic and membrane staining of cells in tubules.

### 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.