SANTA CRUZ BIOTECHNOLOGY, INC.

EP3 (5F5): sc-57105

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. Ichikawa, A. 1998. Molecular biology of prostaglandin E receptors—expression of multi-function by PGE receptor subtypes and isoforms. Nippon Rinsho 56: 1813-1818.
2. Breyer, M.D., et al. 1998. Regulation of renal function by prostaglandin E receptors. Kidney Int. Suppl. 67: S88-S94.
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. Breyer, M.D., et al. 2000. Prostaglandin E receptors and the kidney. Am. J. Physiol. Renal Physiol. 279: F12-F23.
5. 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.
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.
7. Breyer, M., et al. 2001. G protein-coupled prostanoid receptors and the kidney. Annu. Rev. Physiol. 63: 579-605.

CHROMOSOMAL LOCATION

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

SOURCE

EP3 (5F5) is a mouse monoclonal antibody raised against recombinant EP3 of human origin.

PRODUCT

Each vial contains 50 µg IgG_{2a} kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

EP3 (5F5) is recommended for detection of EP3 of mouse, rat, human and bovine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

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.

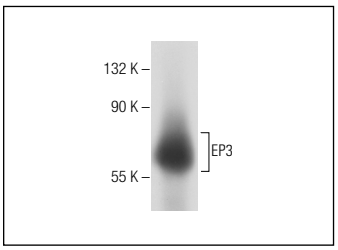
Molecular Weight of EP3: 62 kDa.

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

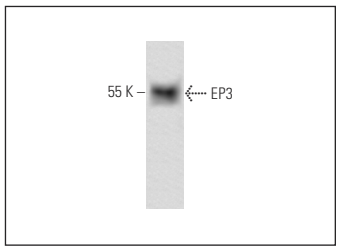
RECOMMENDED SUPPORT REAGENTS

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).

DATA



EP3 (5F5): sc-57105. Western blot analysis of EP3 expression in rat kidney tissue extract.



EP3 (5F5): sc-57105. Western blot analysis of EP3 expression in pig brain tissue extract.

SELECT PRODUCT CITATIONS

1. Petersen, C.H., et al. 2019. Possible predisposition for colorectal carcinogenesis due to altered gene expressions in normal appearing mucosa from patients with colorectal neoplasia. BMC Cancer 19: 643.
2. Mun, S., et al. 2022. Transcriptome profile of membrane and extracellular matrix components in ligament-fibroblastic progenitors and cementoblasts differentiated from human periodontal ligament cells. Genes 13: 659.

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.