

EP4 (C-4): sc-55596



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.

CHROMOSOMAL LOCATION

Genetic locus: PTGER4 (human) mapping to 5p13.1; Ptger4 (mouse) mapping to 15 A1.

SOURCE

EP4 (C-4) is a mouse monoclonal antibody raised against amino acids 329-488 of EP4 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

EP4 (C-4) is available conjugated to agarose (sc-55596 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-55596 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-55596 PE), fluorescein (sc-55596 FITC), Alexa Fluor® 488 (sc-55596 AF488), Alexa Fluor® 546 (sc-55596 AF546), Alexa Fluor® 594 (sc-55596 AF594) or Alexa Fluor® 647 (sc-55596 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-55596 AF680) or Alexa Fluor® 790 (sc-55596 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

EP4 (C-4) is recommended for detection of EP4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

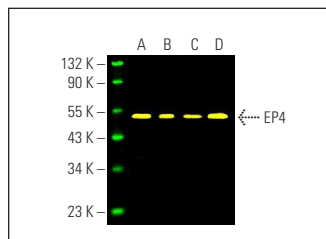
Suitable for use as control antibody for EP4 siRNA (h): sc-40173, EP4 siRNA (m): sc-40174, EP4 siRNA (r): sc-270389, EP4 shRNA Plasmid (h): sc-40173-SH, EP4 shRNA Plasmid (m): sc-40174-SH, EP4 shRNA Plasmid (r): sc-270389-SH, EP4 shRNA (h) Lentiviral Particles: sc-40173-V, EP4 shRNA (m) Lentiviral Particles: sc-40174-V and EP4 shRNA (r) Lentiviral Particles: sc-270389-V.

Molecular Weight of EP4: 53 kDa.

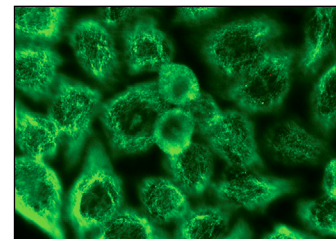
STORAGE

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

DATA



EP4 (C-4) Alexa Fluor® 488: sc-55596 AF488. Direct fluorescent western blot analysis of EP4 expression in Jurkat (A), Ramos (B), HISM (C) and MOLT-4 (D) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker MW Tag-Alexa Fluor® 680: sc-516730.



EP4 (C-4): sc-55596. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane staining.

SELECT PRODUCT CITATIONS

- Jin, G., et al. 2011. 2-hydroxyglutarate production, but not dominant negative function, is conferred by glioma-derived NADP-dependent isocitrate dehydrogenase mutations. *PLoS ONE* 6: e16812.
- 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.
- Jin, D., et al. 2014. Prostaglandin signalling regulates ciliogenesis by modulating intraflagellar transport. *Nat. Cell Biol.* 16: 841-851.
- Digiacomio, G., et al. 2015. Prostaglandin E₂ transactivates the colony-stimulating factor-1 receptor and synergizes with colony-stimulating factor-1 in the induction of macrophage migration via the mitogen-activated protein kinase ERK1/2. *FASEB J.* 29: 2545-2554.
- Tönisen, F., et al. 2017. EP4 receptor promotes invadopodia and invasion in human breast cancer. *Eur. J. Cell Biol.* 96: 218-226.
- Zhang, B., et al. 2018. Prostaglandin E₂ is required for BMP4-induced mesoderm differentiation of human embryonic stem cells. *Stem Cell Reports* 10: 905-919.
- Tang, H., et al. 2019. Inhibition of Cox-2 and EGFR by melafolone improves anti-PD-1 therapy through vascular normalization and PD-L1 downregulation in lung cancer. *J. Pharmacol. Exp. Ther.* 368: 401-413.
- Huang, Y., et al. 2020. Immune stimulation effect of PBDEs via prostaglandin pathway in pantropical spotted dolphin: an *in vitro* study. *Chemosphere* 254: 126717.

RESEARCH USE

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

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