SANTA CRUZ BIOTECHNOLOGY, INC.

PAR-4 (S-20): sc-8461

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The Power to Question

BACKGROUND

Thrombin receptor (also designated protease-activated receptor-1 or PAR-1), PAR-2, PAR-3 and PAR-4 compose a distinct class of G protein-coupled receptors activated by proteolysis. Cleavage of these receptors by proteases occurs within the amino-terminal extracellular domain. Thrombin, a serine protease involved in platelet aggregation and blood coagulation, activates the thrombin receptor, resulting in elevated intracellular calcium levels in platelets. Thrombin also cleaves PAR-3 *in vitro*, suggesting that PAR-3 may be involved in thrombosis or mitogenesis. Thrombin receptor and PAR-4 appear to account for most thrombin signaling in platelets. Activation of PAR-2 *in vitro* is induced by trypsin, suggesting that PAR-2 is not an alternative Thrombin receptor. Cytokines including TNF-α and IL-1β increase PAR-2 expression, indicating PAR-2 involvement in the acute inflammatory response.

REFERENCES

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2. Lerner, D.J., et al. 1996. Agonist recognition by proteinase-activated receptor 2 and thrombin receptor. Importance of extracellular loop interactions for receptor function. J. Biol. Chem. 271: 13943-13947.
3. Nystedt, S., et al. 1996. The proteinase-activated receptor 2 is induced by inflammatory mediators in human endothelial cells. Comparison with the Thrombin receptor. J. Biol. Chem. 271: 14910-14915.
4. Goldsack, N.R., et al. 1998. Thrombin. Int. J. Biochem. Cell Biol. 30: 641-646.
5. Xu, W.F., et al. 1998. Cloning and characterization of human protease-activated receptor 4. Proc. Natl. Acad. Sci. USA 95: 6642-6646.
6. Sullivan, R., et al. 1998. Analysis of a Ca^{2+}-activated K^+ channel that mediates hyperpolarization via the Thrombin receptor pathway. Am. J. Physiol., Cell Physiol. 275: C1342-C1348.
7. Schmidt, V.A., et al. 1998. The human proteinase-activated receptor-3 (PAR-3) gene. Identification within a Par gene cluster and characterization in vascular endothelial cells and platelets. J. Biol. Chem. 273: 15061-15068.
8. Kahn, M.L., et al. 1999. Protease-activated receptors 1 and 4 mediate activation of human platelets by Thrombin. J. Clin. Invest. 103: 879-887.

CHROMOSOMAL LOCATION

Genetic locus: F2rl3 (mouse) mapping to 8 B3.3.

SOURCE

PAR-4 (S-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of PAR-4 of mouse origin.

STORAGE

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

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-8461 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PAR-4 (S-20) is recommended for detection of PAR-4 of mouse and rat 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 PAR-4 siRNA (m): sc-72069, PAR-4 shRNA Plasmid (m): sc-72069-SH and PAR-4 shRNA (m) Lentiviral Particles: sc-72069-V.

Molecular Weight of PAR-4: 38 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210.

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. Uehara, A., et al. 2003. Neutrophil serine proteinases activate human nonepithelial cells to produce inflammatory cytokines through protease-activated receptor 2. J. Immunol. 170: 5690-5696.
2. Balcaitis, S., et al. 2003. Expression of proteinase-activated receptors in mouse microglial cells. Neuroreport 14: 2373-2377.
3. Pompili, E., et al. 2004. Trimethyltin-induced differential expression of PAR subtypes in reactive astrocytes of the rat hippocampus. Brain Res. Mol. Brain Res. 122: 93-98.
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5. Yun, L.W., et al. 2007. Blockade of protease-activated receptors on T cells correlates with altered proteolysis of CD27 by gingipains of *Porphyromonas gingivalis*. Clin. Exp. Immunol. 150: 217-229.

RESEARCH USE

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