αPIX (2E5): sc-293362

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BACKGROUND

The serine/threonine kinase, p21 activated kinase (PAK), is a downstream effector of the small GTPases Cdc42 and Rac. PAK associates with Nck, the p85 and p110 subunits of PI3-kinase, and PIX (PAK-interacting exchange factor) in a focal complex. The binding of PIX is necessary for the localization and activation of PAK in the Cdc42 to Rac signaling pathway, and this binding occurs through the high affinity of the N-terminal SH3 domain of PIX for a conserved proline rich PAK sequence. PIX exists as two isoforms, α and β and both are highly expressed in heart, muscle, and thymus tissues of human and rat. αPIX is phosphorylated via PDGF and EphB2 receptor signaling pathways or through association with PI3-kinase. The αPIX isoform predominantly acts as a guanine nucleotide exchange factor (GEF) on Rac, which may mediate lamellipodia formation.

REFERENCES

1. Manser, E., et al. 1998. PAK kinases are directly coupled to the PIX family of nucleotide exchange factors. Mol. Cell 1: 183-192.

2. Obermeier, A., et al. 1998. PAK promotes morphological changes by acting upstream of Rac. EMBO J. 17: 4328-4339.

3. Yoshii, S., et al. 1999. αPIX nucleotide exchange factor is activated by interaction with phosphatidylinositol 3-kinase. Oncogene 18: 5680-5690.

4. Daniels, R.H., et al. 1999. αPIX stimulates p21-activated kinase activity through exchange factor-dependent and -independent mechanisms. J. Biol. Chem. 274: 6047-6050.

5. Turner, C.E., et al. 1999. Paxillin LD4 motif binds PAK and PIX through a novel 95-kD ankyrin repeat, ARF-GAP protein: a role in cytoskeletal remodeling. J. Cell Biol. 145: 851-863.

6. Li, Z., et al. 2003. Directional sensing requires $G_{\beta\gamma}$-mediated PAK1 and PIX α-dependent activation of Cdc42. Cell 114: 215-227.

7. Feng, Q., et al. 2004. Novel regulatory mechanisms for the Dbl family guanine nucleotide exchange factor Cool-2/α-Pix. EMBO J. 23: 3492-3504.

8. Baird, D., et al. 2005. The Cool-2/αPIX protein mediates a Cdc42-Rac signaling cascade. Curr. Biol. 15: 1-10.

CHROMOSOMAL LOCATION

Genetic locus: ARHGEF6 (human) mapping to Xq26.3.

SOURCE

αPIX (2E5) is a mouse monoclonal antibody raised against amino acids 61-175 of αPIX of human origin.

PRODUCT

Each vial contains 100 µg IgG$_{2a}$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

αPIX (2E5) is recommended for detection of αPIX of 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for αPIX siRNA (h): sc-39146, αPIX shRNA Plasmid (h): sc-39146-SH and αPIX shRNA (h) Lentiviral Particles: sc-39146-V.

Molecular Weight of αPIX: 75 kDa.

Positive Controls: αPIX transfected 293T whole cell lysate.

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
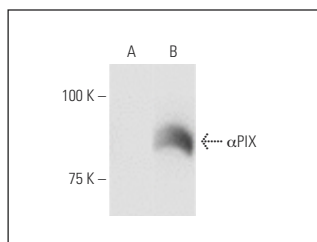
αPIX (2E5): sc-293362. Western blot analysis of αPIX expression in non-transfected (**A**) and αPIX transfected (**B**) 293T whole cell lysates.
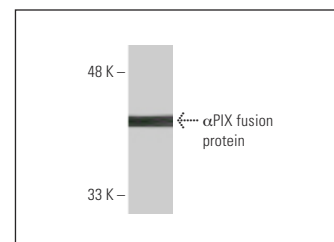
αPIX (2E5): sc-293362. Western blot analysis of human recombinant αPIX fusion protein.

SELECT PRODUCT CITATIONS

1. Li, J., et al. 2021. Interaction between Ras and Bcl2L12 in B cells suppresses IL-10 expression. Clin. Immunol. 229: 108775.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.