

p-NFATc2 (Ser 177): sc-68696

BACKGROUND

The NFAT (nuclear factor of activated T cells) family of transcription factors regulates cytokine expression in T cells. Members of the family include NFATc1 (NFATc), NFATc2 (NFATp), NFATn, NFATc3 (NFAT4, NFATx) and NFATc4 (NFAT3). Recognition of antigen by the T cell receptor (TCR) eventually activates the calcium-dependent protein phosphatase calcineurin. Once activated, calcineurin stimulates the translocation of NFATc1 (cytoplasmic) from the NFATc1, NFATc2 resides in the cytoplasm and translocates to the nucleus subsequent to activation of calcineurin. Once in the nucleus, NFATc2 synergizes with AP-1 transcription factors to initiate transcription of cytokine genes. NFATc3 and NFATc4 share 65% sequence identity with other members of the NFAT family. They are similar to NFATc2 in that they also synergize with the AP-1 family of proteins. NFATc2 is phosphorylated by NFATc-kinase and is inducibly expressed in T lymphocytes after TCR complex activation. The phosphorylated form of NFATc2 localizes to the cytoplasm. It is dephosphorylated by calcineurin and localizes to the nucleus after dephosphorylation.

REFERENCES

- Emmel, E.A., et al. 1989. Cyclosporin A specifically inhibits function of nuclear proteins involved in T cell activation. *Science* 246: 1617-1620.
- Flanagan, W.M., et al. 1991. Nuclear association of a T cell transcription factor blocked by FK506 and Cyclosporin A. *Nature* 352: 803-807.
- Liu, J., et al. 1991. Calcineurin is a common target of Cyclophilin-Cyclosporin A and FKBP-FK506 complexes. *Cell* 66: 807-815.
- Jain, J., et al. 1993. The T cell transcription factor NFATp is a substrate for calcineurin and interacts with Fos and Jun. *Nature* 365: 352-355.
- Northrop, J.P., et al. 1994. NFAT components define a family of transcription factors targeted in T cell activation. *Nature* 369: 497-502.
- Hoey, T., et al. 1995. Isolation of two new members of the NFAT gene family and functional characterization of the NFAT proteins. *Immunity* 2: 461-472.
- Crabtree, G.R. et al. 1999. Generic signals and specific outcomes: signaling through Ca²⁺, calcineurin, and NF-AT. *Cell* 96: 611-614.
- Okamura, H., et al. 2000. Concerted dephosphorylation of the transcription factor NFAT1 induces a conformational switch that regulates transcriptional activity. *Mol. Cell* 6: 539-550.
- Sheridan, C.M., et al. 2002. Protein kinase A negatively modulates the nuclear accumulation of NFATc1 by priming for subsequent phosphorylation by glycogen synthase kinase-3. *J. Biol. Chem.* 277: 48664-48676.

CHROMOSOMAL LOCATION

Genetic locus: NFATC2 (human) mapping to 20q13.2; Nfatc2 (mouse) mapping to 2 H3.

SOURCE

p-NFATc2 (Ser 177) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 177 phosphorylated NFATc2 of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-68693-R P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-NFATc2 (Ser 177) is recommended for detection of Ser 177 phosphorylated NFATc2 of mouse, rat and human 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).

p-NFATc2 (Ser 177) is also recommended for detection of correspondingly phosphorylated NFATc2 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for NFATc2 siRNA (h): sc-36055, NFATc2 siRNA (m): sc-36056, NFATc2 shRNA Plasmid (h): sc-36055-SH, NFATc2 shRNA Plasmid (m): sc-36056-SH, NFATc2 shRNA (h) Lentiviral Particles: sc-36055-V and NFATc2 shRNA (m) Lentiviral Particles: sc-36056-V.

Molecular Weight of p-NFATc2: 135 kDa.

Positive Controls: Ramos cell lysate: sc-2216, Jurkat + IL-2 cell lysate: sc-2278 or Jurkat whole cell lysate: sc-2204.

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 B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) 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.

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.

PROTOCOLS

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