



## p-NFATc3 (Ser 171): sc-68702

### BACKGROUND

Members of the NFAT (nuclear factor of activated T cells) family of transcription factors are related to NF $\kappa$ B/Rel proteins and form cooperative complexes with the AP-1 proteins, Fos and Jun, on DNA to regulate cytokine expression in T cells. NFAT proteins are widely expressed and alternatively modified to generate splice variants, and they are localized to both the cytosol (NFATc) and to the nucleus (NFATn). NFATc2, NFATc1 and NFATc3 are predominantly expressed in immune cells, and NFATc1 and NFATc4 are expressed at high levels in cardiac tissues. In addition to activating cytokine gene transcription, NFATc1 is also implicated in cardiac valve development, and NFATc4 is involved in cardiac hypertrophy. NFAT5 is detected in both immune and nonimmune cells and, like other NFAT proteins, it contains a highly conserved Rel-like binding domain that mediates NFAT proteins associating with specific consensus sequences on DNA. NFAT proteins are activated by increases in intracellular calcium, which leads to the calmodulin-dependent phosphatase, calcineurin, dephosphorylating NFAT proteins. This activating event induces a conformational change in the protein structure that exposes the nuclear localization signal and facilitates the translocation of NFAT proteins from the cytosol into the nucleus. NFATc3 is phosphorylated at serine residues 169, 171, 172, 174, 236, 240, 244, 265 and 344.

### REFERENCES

1. 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.
2. Ho, S.N., et al. 1995. NFATc3, a lymphoid-specific NFATc family member that is calcium-regulated and exhibits distinct DNA binding specificity. *J. Biol. Chem.* 270: 19898-19907.
3. Park, J., et al. 1996. Characterization of a new isoform of the NFAT (nuclear factor of activated T cells) gene family member NFATc. *J. Biol. Chem.* 271: 20914-20921.
4. Rao, A., et al. 1997. Transcription factors of the NFAT family: regulation and function. *Annu. Rev. Immunol.* 15: 707-747.
5. Lyakh, L., et al. 1997. Expression of NFAT-family proteins in normal human T cells. *Mol. Cell. Biol.* 17: 2475-2484.
6. Ranger, A.M., et al. 1998. The transcription factor NFATc is essential for cardiac valve formation. *Nature* 392: 186-190.
7. Amasaki, Y., et al. 1998. Distinct NFAT family proteins are involved in the nuclear NFAT-DNA binding complexes from human thymocyte subsets. *J. Immunol.* 160: 2324-2333.
8. Kel, A., et al. 1999. Recognition of NFATp/AP-1 composite elements within genes induced upon the activation of immune cells. *J. Mol. Biol.* 288: 353-376.
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### CHROMOSOMAL LOCATION

Genetic locus: NFATC3 (human) mapping to 16q22.2; Nfatc3 (mouse) mapping to 8 D.

### SOURCE

p-NFATc3 (Ser 171) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Ser 171 of NFATc3 of human origin.

### PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-68702 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### APPLICATIONS

p-NFATc3 (Ser 171) is recommended for detection of Ser 171 phosphorylated NFATc3 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).

Suitable for use as control antibody for NFATc3 siRNA (h): sc-29413 and NFATc3 siRNA (m): sc-36057.

Molecular Weight of p-NFATc3: 115-120 kDa.

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

### 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 A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 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](http://www.scbt.com) or our catalog for detailed protocols and support products.