

**#4998** Store at -20C

## NFAT4 Antibody


**Cell Signaling**  
TECHNOLOGY®

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**For Research Use Only. Not for Use in Diagnostic Procedures.**

<b>Applications:</b> WB, IP	<b>Reactivity:</b> H	<b>Sensitivity:</b> Endogenous	<b>MW (kDa):</b> 140 to 190	<b>Source:</b> Rabbit	<b>UniProt ID:</b> #Q12968	<b>Entrez-Gene Id:</b> 4775
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### Product Usage Information

#### Application

Western Blotting  
Immunoprecipitation

#### Dilution

1:1000  
1:50

### Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

### Specificity / Sensitivity

NFAT4 Antibody detects endogenous levels of total NFAT4 protein.

### Species predicted to react based on 100% sequence homology:

Mouse

### Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the sequence of human NFAT4. Antibodies are purified by protein A and peptide affinity chromatography.

### Background

The NFAT (nuclear factor of activated T cells) family of proteins consists of NFAT1 (NFATc2 or NFATp), NFAT2 (NFATc1 or NFATc), NFAT3 (NFATc4), and NFAT4 (NFATc3 or NFATx). All members of this family are transcription factors with a Rel homology domain and regulate gene transcription in concert with AP-1 (Jun/Fos) to orchestrate an effective immune response (1,2). NFAT proteins are predominantly expressed in cells of the immune system, but are also expressed in skeletal muscle, keratinocytes, and adipocytes, regulating cell differentiation programs in these cells (3). In resting cells, NFAT proteins are heavily phosphorylated and localized in the cytoplasm. Increased intracellular calcium concentrations activate the calcium/calmodulin-dependent serine phosphatase calcineurin, which dephosphorylates NFAT proteins, resulting in their subsequent translocation to the nucleus (2). Termination of NFAT signaling occurs upon declining calcium concentrations and phosphorylation of NFAT by kinases such as GSK-3 or CK1 (3,4). Cyclosporin A and FK506 are immunosuppressive drugs that inhibit calcineurin and thus retain NFAT proteins in the cytoplasm (5). NFAT4 upregulates the expression of several cytokine genes and activation markers and downregulates expression of CD154 in naive CD4(+) T cells. Furthermore, NFAT4 augments expression of IFN-gamma and TNF-alpha in helper T-cells 1 (Th1 cells) and attenuates expression of IL-4 and IL-5 in helper T-cells 2 (Th2 cells) (6).

### Background References

1. Northrop, J.P. et al. (1993) *J Biol Chem* 268, 2917-23.
2. Hogan, P.G. et al. (2003) *Genes Dev* 17, 2205-32.
3. Crabtree, G.R. and Olson, E.N. (2002) *Cell* 109 Suppl, S67-79.
4. Okamura, H. et al. (2004) *Mol Cell Biol* 24, 4184-95.
5. Shaw, K.T. et al. (1995) *Proc Natl Acad Sci U S A* 92, 11205-9.
6. Chen, J. et al. (2003) *J. Immunol.* 170, 3109-3117.

### Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

### Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

### Applications Key

**WB:** Western Blotting **IP:** Immunoprecipitation

### Cross-Reactivity Key

**H:** human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster  
**X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse  
**GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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