

FoxO3a Antibody



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

Applications: W, IHC-P	Reactivity: H Mk	Sensitivity: Endogenous	MW (kDa): 82 to 97	Source/Isotype: Rabbit	UniProt ID: #O43524	Entrez-Gene Id: 2309
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Product Usage Information

Application

Western Blotting
Immunohistochemistry (Paraffin)

Dilution

1:1000
1:250

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

The FoxO3a Antibody detects exogenous and endogenous levels of total FoxO3a protein. The antibody does not detect the exogenously expressed family members FoxO4 or FoxO1. The antibody reacts with denatured components of bovine serum including BSA.

Species predicted to react based on 100% sequence homology

Mouse, Rat

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the sequence of human FoxO3a. Antibodies are purified by protein A and peptide affinity chromatography.

Background

The Forkhead family of transcription factors is involved in tumorigenesis of rhabdomyosarcoma and acute leukemias (1-3). Within the family, three members (FoxO1, FoxO4, and FoxO3a) have sequence similarity to the nematode orthologue DAF-16, which mediates signaling via a pathway involving IGF1R, PI3K, and Akt (4-6). Active forkhead members act as tumor suppressors by promoting cell cycle arrest and apoptosis. Increased expression of any FoxO member results in the activation of the cell cycle inhibitor p27 Kip1. Forkhead transcription factors also play a part in TGF-β-mediated upregulation of p21 Cip1, a process negatively regulated through PI3K (7). Increased proliferation results when forkhead transcription factors are inactivated through phosphorylation by Akt at Thr24, Ser256, and Ser319, which results in nuclear export and inhibition of transcription factor activity (8). Forkhead transcription factors can also be inhibited by the deacetylase sirtuin (SirT1) (9). In FoxO3a, the three sites phosphorylated by Akt mentioned above are Thr32, Ser253 and Ser315. FoxO3a associates with 14-3-3 proteins upon phosphorylation by Akt and is retained in the cytoplasm. In the absence of survival factors, FoxO3a is dephosphorylated, translocates to the nucleus and triggers cell death by a Fas ligand-dependent mechanism (7).

Background References

1. Anderson, M.J. et al. (1998) *Genomics* 47, 187-99.
2. Galili, N. et al. (1993) *Nat Genet* 5, 230-5.
3. Borkhardt, A. et al. (1997) *Oncogene* 14, 195-202.
4. Nakae, J. et al. (1999) *J Biol Chem* 274, 15982-5.
5. Rena, G. et al. (1999) *J Biol Chem* 274, 17179-83.
6. Guo, S. et al. (1999) *J Biol Chem* 274, 17184-92.
7. Seoane, J. et al. (2004) *Cell* 117, 211-23.
8. Arden, K.C. (2004) *Mol Cell* 14, 416-8.
9. Yang, Y. et al. (2005) *EMBO J* 24, 1021-32.

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

W: Western Blotting **IHC-P:** Immunohistochemistry (Paraffin)

Cross-Reactivity Key

H: Human **Mk:** Monkey

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