

FoxO3a Antibody

✓ 100 µl
(10 western blots)

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This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W, IHC-P Endogenous	H, Mk, (M, R)	82–97 kDa	Rabbit**

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 p27Kip1. Forkhead transcription factors also play a part in TGF-β-mediated upregulation of p21CIP1, 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).

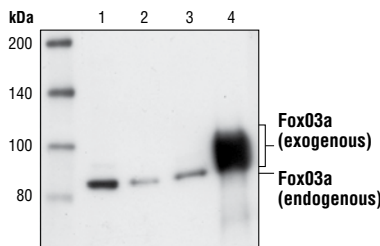
In FoxO3a, the three sites phosphorylated by Akt mentioned above are Thr32, Ser253 and Ser315. FoxO3a associates with 14-3-3 proteins upon phosphorylation by Akt and is retained in the cytoplasm. In the absence of survival factors, FoxO3a is dephosphorylated, translocates to the nucleus and triggers cell death by a Fas ligand-dependent mechanism (7).

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.

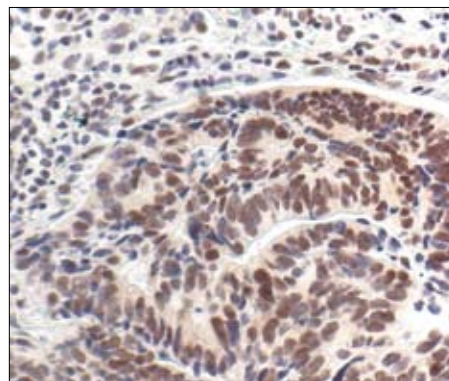
Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the sequence of human FoxO3a. Antibodies are purified by protein A and peptide affinity chromatography.

Background References:

- Anderson, M.J. et al. (1998) *Genomics* 47, 187-199.
- Gallili, N. et al. (1993) *Nat. Genet.* 5, 230-235.
- Borkhardt, A. et al. (1997) *Oncogene* 14, 195-202.
- Nakae, J. et al. (1999) *J. Biol. Chem.* 274, 15982-15985.
- Rena, G. et al. (1999) *J. Biol. Chem.* 274, 17179-17183.



Western blot analysis of extracts from COS cells, mock transfected (lane 1), transfected with FoxO4 (lane 2), transfected with FoxO1 (lane 3), or transfected with FoxO3a (lane 4), using FoxO3a Antibody.



Immunohistochemical analysis of paraffin-embedded human lung carcinoma, showing nuclear and cytoplasmic localization, using FoxO3a Antibody.

- Guo, S. et al. (1999) *J. Biol. Chem.* 274, 17184-17192.
- Seoane, J. et al. (2004) *Cell* 117, 211-223.
- Arden, K.C. (2004) *Mol. Cell* 14, 416-418.
- Yang, Y. et al. (2005) *EMBO J.* 24, 1021-1032.

Entrez-Gene ID #2309
Swiss-Prot Acc. #O43524

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.

*Species cross-reactivity is determined by western blot.

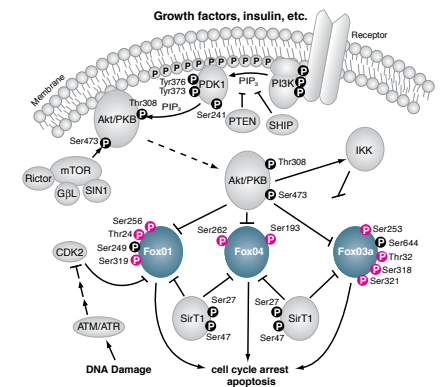
**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

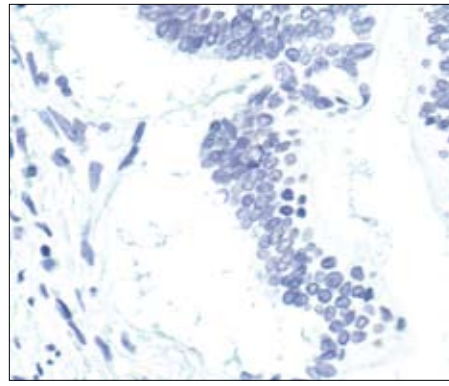
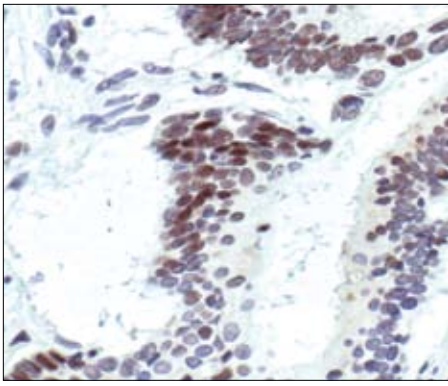
Western blotting 1:1000
Immunohistochemistry (Paraffin) 1:250†
Unmasking buffer: Citrate
Antibody diluent: TBST-5%NGS
Detection reagent: SignalStain® Boost (HRP, Rabbit) #8114
†Optimal IHC dilutions determined using SignalStain® Boost IHC Detection Reagent.

For application specific protocols please see the web page for this product at www.cellsignal.com.

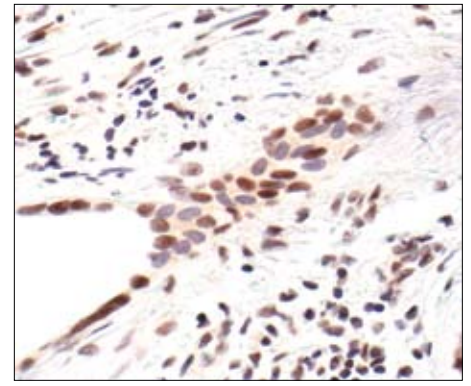
Please visit www.cellsignal.com for a complete listing of recommended companion products.



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



Immunohistochemical analysis of paraffin-embedded human colon carcinoma, using FoxO3a Antibody in the presence of control peptide (left) or antigen-specific peptide (right).



Immunohistochemical analysis of paraffin-embedded human prostate carcinoma, using FoxO3a Antibody.