#5504 Store at -20°C

Atg14 Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not For Use In Diagnostic Procedures.

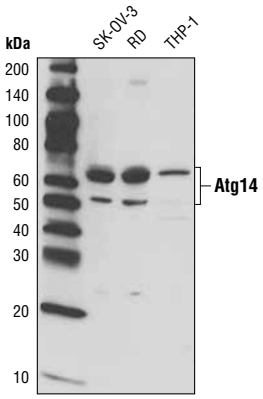
Entrez-Gene ID #22863
UniProt ID #Q6ZNE5

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W Endogenous	H, (Mk)	65 kDa	Rabbit**

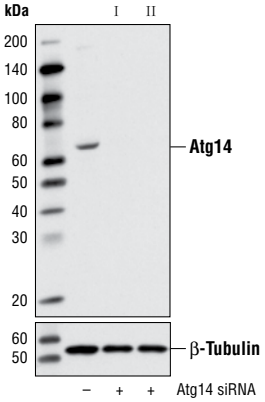
Background: Autophagy is a catabolic process for the autophagosomic-lysosomal degradation of bulk cytoplasmic contents (1,2). Autophagy is generally activated by conditions of nutrient deprivation but is also associated with a number of physiological processes including development, differentiation, neurodegeneration, infection and cancer (3). The molecular machinery of autophagy was largely discovered in yeast and is directed by a number of autophagy-related (Atg) genes. These proteins are involved in the formation of autophagosomes, cytoplasmic vacuoles that are delivered to lysosomes for degradation. The class III type phosphoinositide 3-kinase (PI3K) Vps34 regulates vacuolar trafficking and autophagy (4,5). Multiple proteins associate with Vsp34, including p105/Vsp15, Beclin-1, UVRAG, Atg14, and Rubicon, to determine Vsp34 function (6-12). Atg14L and Rubicon were identified based on their ability to bind to Beclin-1 and participate in unique complexes with opposing functions (9-12). Rubicon, which localizes to the endosome and lysosome, inhibits Vps34 lipid kinase activity; knockdown of Rubicon enhances autophagy and endocytic trafficking (11,12). In contrast, Atg14L localizes to autophagosomes, isolation membranes and ER, and can enhance Vps34 activity. Knockdown of Atg14L inhibits starvation-induced autophagy (11,12).

Specificity/Sensitivity: Atg14 Antibody detects endogenous levels of total Atg14 protein.

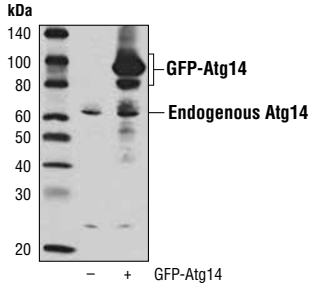
Source/Purification: Polyclonal antibodies were prepared from animals immunized with a synthetic peptide corresponding to a region surrounding Val215 of human Atg14. Antibodies were purified by protein A and peptide affinity chromatography.



Western blot analysis of extract from various cell lines using Atg14 Antibody.



Western blot analysis of extracts from HeLa cells, transfected with 100 nM SignalSilence® Control siRNA (Unconjugated) #6568 (-), SignalSilence® Atg14 siRNA I #6286 (+) or SignalSilence® Atg14 siRNA II #6287 (+), using Atg14 Antibody #5504 (upper) or β-Tubulin (9F3) Rabbit mAb #2128 (lower). The Atg14 Antibody confirms silencing of Atg14 expression, while the β-Tubulin (9F3) Rabbit mAb is used as a loading control.



◀ *Western blot analysis of extracts from 293T cells, mock transfected (-) or transfected with a GFP-Atg14 construct (+), using Atg14 Antibody. GFP-Atg14 construct was kindly provided by Dr. Qing Zhong, University of California, Berkeley CA.*

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

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.

Background References:

(1) Reggiori, F. and Klionsky, D.J. (2002) *Eukaryot Cell* 1, 11-21.
(2) Codogno, P. and Meijer, A.J. (2005) *Cell Death Differ* 12 Suppl 2, 1509-18.
(3) Levine, B. and Yuan, J. (2005) *J Clin Invest* 115, 2679-88.
(4) Corvera, S. (2001) *Traffic* 2, 859-66.
(5) Yan, Y. and Backer, J.M. (2007) *Biochem Soc Trans* 35, 239-41.
(6) Stack, J.H. et al. (1995) *J Cell Biol* 129, 321-34.
(7) Zeng, X. et al. (2006) *J Cell Sci* 119, 259-70.
(8) Liang, C. et al. (2006) *Nat Cell Biol* 8, 688-99.
(9) Itakura, E. et al. (2008) *Mol Biol Cell* 19, 5360-72.
(10) Sun, Q. et al. (2008) *Proc Natl Acad Sci U S A* 105, 19211-6.
(11) Zhong, Y. et al. (2009) *Nat Cell Biol* 11, 468-76.
(12) Matsunaga, K. et al. (2009) *Nat Cell Biol* 11, 385-96.

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.

Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide
Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **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 **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.