Muscle Atrophy Ubiquitin Ligase

Antibody Sampler Kit

Cat. # MK6170
Size Kit

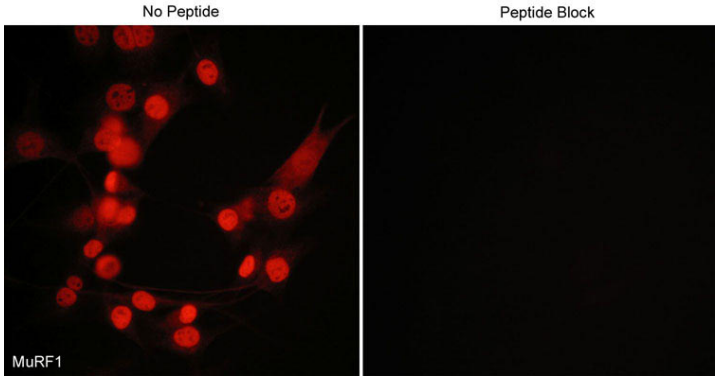
Kit Summary

The muscle atrophy antibody sampler kit can be used to detect the changes in the expression of muscle-specific ubiquitin ligases, Atrogin 1 and MuRF1. The kit also includes peptides for antibody blocking experiments and a secondary reagent for antibody detection.

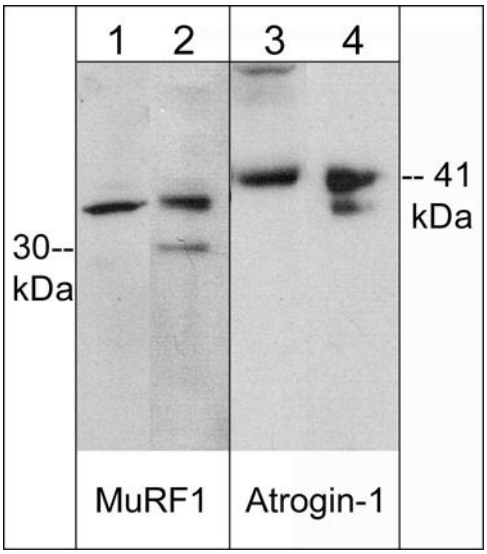
Kit Components

Cat. #	Description	Product Type	Size	Applications	Species Reactivity	WB Dilution
AP2041	Atrogin-1	Rabbit pAb	50 µl	WB, E, IHC	Hu, Rt, Ms	1:1000
AX2045	Atrogin-1	Peptide	50 µg	AB, E		
MP3401	MuRF1 (C-terminal region)	Rabbit pAb	50 µl	WB, E, ICC	Hu, Rt, Ms	1:1000
MX3405	MuRF1 (C-terminal region)	Peptide	50 µg	AB, E		
RS3251	Anti-Rabbit Ig Light-Chain Specific:HRP	Mouse mAb	100 µl	WB, E, ICC, IHC	Rb	1:5000

Applications: WB = Western blot, E = ELISA, ICC = Immunocytochemistry, IP = Immunoprecipitation, IHC = Immunohistochemistry, FC = Flow Cytometry
Species: H = Human, R = Rat, M = Mouse, C = Chicken, F = Fish, Fr = Frog, Rb = Rabbit



Immunocytochemical labeling of MuRF1 in mouse C2C12 cells. The cells were labeled with rabbit polyclonal MuRF1 antibody, then detected using appropriate secondary antibody conjugated to Cy3. The antibody was used in the absence (left) or presence (right) of blocking peptide (MX3405).



Western blot analysis of mouse heart tissue (lanes 1 & 3) or C2C12 cells (lanes 2 & 4). The blot was probed with anti-MuRF1 (C-terminal region) (lanes 1 & 2) or anti-Atrogin-1 (lanes 3 & 4).

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www.ecmbiosciences.com
telephone: 859-879-2075
toll-free: 1-800-859-8202
tech: info@ecmbiosciences.com

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Background

Muscle proteolysis is requlated by the ATP-dependent ubiquitin–proteasome system. This system involved ubiquitination of specific proteins, leading to recognition and degradation by the 26S proteasome complex. Ubiquitination requires interactions with ubiquitin related proteins, ubiquitin-activating (E1), ubiquitin-conjugating (E2), and ubiquitin-ligating enzymes (E3) known as ligases. Two muscle specific ubiquitin ligases have been identified, muscle ring finger 1 (MuRF -1) and Atrogin 1. Both ligases are regulated by the Akt1/FOXO1 signaling pathway, and both proteins have been shown to be upregulated prior to the onset of atrophy in multiple models of muscle wasting, including disuse and cachexia. MuRF1 is also known as TRIM63, SMRZ, and RNF28, and its expression is upregulated after TNFα treatment in C2C12 cells and muscle tissue, while localization of MuRF1 protein has been observed in the cytoplasm and nucleus of cells.

Background References

Bodine, S.C. et al. (2001) Science 294: 1704-8.

Dai, K.S. & Liews, C.C. (2001) J Biol. Chem. 276(26):23992.

Buffer and Storage

Rabbit polyclonal antibodies are supplied in phosphate-buffered saline (PBS), 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. The secondary reagents are supplied in the same buffer without azide, and the peptides are supplied in PBS and 0.05% sodium azide. Store all at –20°C. Stable for 1 year.

Product Citations

Cat. #	Citation & Application
AP2041	Cong, H. et al. (2011) Human Gene Therapy. 22(3):313. (WB: mouse muscle, C2C12, shRNA)
AP2041	Doyle, A. et al. (2011) FASEB J. 25:99. (WB: mouse muscle, LPS-induced)
AP2041	Hain, B.A. et al. (2011) AJP Regul Integr Comp Physiol. 300(3):R595. (WB: rat muscle)
AP2041	Moylan, J.S. et al. (2008) Am J Phys Cell Phys. 295:986. (WB: mouse C2C12)
AP2041	Wang, H. et al. (2011) Cancer Lett. 305(1):40. (WB, ICC: mouse muscle)
MP3401	Anvar, S.Y. et al. (2011) Skeletal Muscle. 1:15. (ICC: C2C12 myotubes)
MP3401	Finlin, B.S. et al. (2011) J Nutritional Biochem. Online, Aug. 17 (WB: human myotubes)
MP3401	Hain, B.A. et al. (2011) AJP Regul Integr Comp Physiol. 300(3):R595. (WB: rat muscle)

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