

Background

Atrogin-1/Muscle Atrophy F-box (MAFbx) is an E3 ubiquitin ligase that mediates proteolysis events that occur during muscle atrophy. This ATP-dependent ubiquitin-mediated proteolysis occurs in response to a variety of catabolic states in muscle. Atrogin is expressed in heart and skeletal muscle, and is upregulated during muscle atrophy. In addition, Atrogin expression increases in C2C12 myotubes after stimulation with cytokines. Atrogin is thought to recognize and bind to some phosphorylated proteins and promote their ubiquitination and degradation during skeletal muscle atrophy. Atrogin interacts with MyoD by ubiquitination via a sequence found in transcriptional coactivators and therefore may play an important role in the course of muscle differentiation by determining the abundance of MyoD. Mice deficient in Atrogin are resistant to muscle atrophy.

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.
Leger, B. et al. (2006) *J Physiol.* 576(3):923.

Product Citations

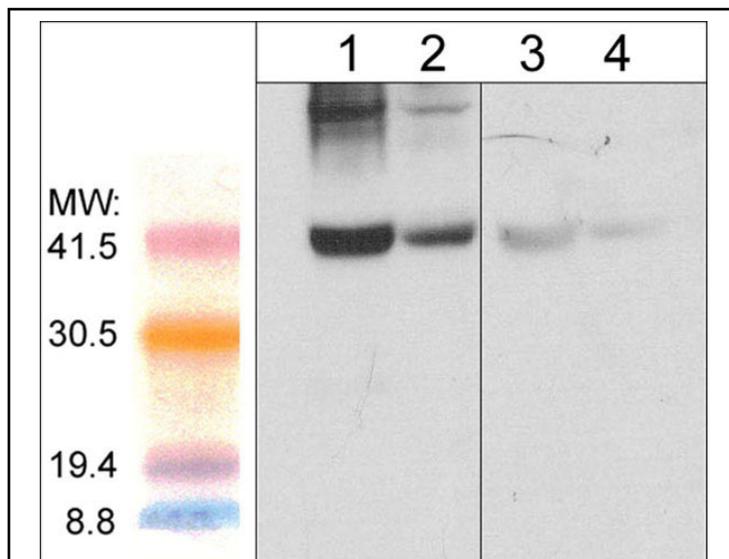
Yin, J. et al. (2018) *Nat Commun.* 9:1752.
WB: mouse myotubes

Zhang, Y. et al. (2017) *Evid Based Comp Altern Med.* 6268378.
IHC: mouse gastrocnemius

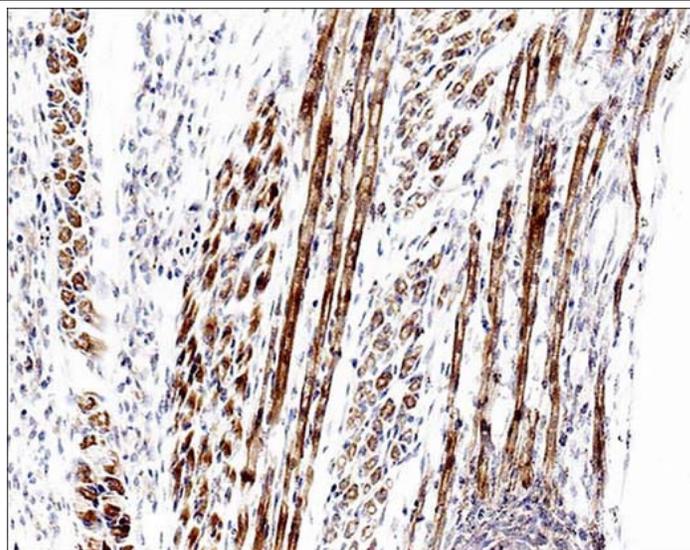
Buhler, A. et al. (2016) *Int J Mol Sci.* 17(2). pii: E187.
IHC: zebrafish skeletal muscle

Kwon, O.S. et al. (2015) *J Appl Physiol* 119(10):1033.
ICC: rat diaphragm muscle

Fanin, M. et al. (2014) *Muscle Nerve* 50(3):340.
WB: human proximal muscle



Western blot image of mouse gastrocnemius (lanes 1 & 3) and mouse diaphragm tissue lysate (lanes 2 & 4). The blot was probed with anti-Atrogin-1 (AP2041; lanes 1-4) in the presence (lanes 3 & 4) or absence (lanes 1 & 2) of Atrogin-1 peptide (AX2045).



Formalin fixed, citric acid treated paraffin sections of E16 mouse skeletal muscle. Sections were probed with anti-Atrogin-1 (AP2041) then anti-Rabbit:HRP before detection using DAB. (Images provided by Carl Hobbs and Dr. Pat Doherty at Wolfson Centre for Age-Related Diseases, King's College London).

FOR RESEARCH USE ONLY. NOT FOR DIAGNOSTIC OR THERAPEUTIC USE.

Immunogen **Uniprot ID: Q9CPU7**

A synthetic peptide (coupled to carrier protein) corresponding to amino acids 23 to 35 in mouse Atrogin. This sequence is highly homologous to human and rat Atrogin (F-box only protein 32).

Buffer and Storage

Rabbit polyclonal, affinity-purified antibody is supplied in 100µl phosphate-buffered saline, 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. Store at -20°C. Stable for 1 year.

Applications

WB	1:1000
ELISA	1:2000
IHC	1:100

Species Reactivity

Hu, Rt, Ms

End user should determine optimal dilution for their particular applications and experiments.

Western blot membranes were incubated with diluted antibody in 5% non-fat milk, Tris buffer, 0.04% Tween20 for 1 hour at room temperature.

Abbreviations: E = ELISA, ICC = immunocytochemistry, IHC = immunohistochemistry, IP = immunoprecipitation, MS = mass spectrometry, WB = western blot
Hu = Human, Ms = Mouse, Rt = Rat, Ck = Chicken, F = Frog, B = Bovine

Specificity

This antibody detects a 41 kDa* protein corresponding to the apparent molecular mass of Atrogin on SDS-PAGE immunoblots of mouse muscle tissue lysates. Similar results were seen in C2C12 cell lysate and the band observed in western blot is specifically blocked by Atrogin-1 peptide (AX2045).

*All molecular weights (MW) are confirmed by comparison to MW standards and to western blot mobilities of known proteins with similar MW.

"Native" western blot utilizes non-reducing sample buffer (no mercaptoethanol or SDS), normal SDS-PAGE gel electrophoresis, and no methanol in transfer buffers.

Related Products

ML7051 Mouse Muscle Lysate

CL8021 C2C12 Lysate

AX2045 Atrogin-1 Blocking Peptide

MP3401 MuRF1 (C-terminal region) Rabbit Polyclonal

MK6900 Mouse Tissue Lysate Kit

MK6170 Muscle Atrophy Ubiquitin Ligase Antibody Sampler Kit

FOR RESEARCH USE ONLY. NOT FOR DIAGNOSTIC OR THERAPEUTIC USE.