

ADDITIONAL FILE 5

Table S3. Gene microarray analyses of EDL muscles from WT and CASQ1-null mice reveals significant up-regulation of genes involved in autophagy/atrophy signaling.

<i>GB_accession</i>	<i>Gene_Symbol</i>	<i>Description</i>	<i>Fold Change</i> ^A
NM 026346	atrogen-1/MAFbx	E3 ubiquitin ligase	1,82445753
AK010596	Psmd1	proteasome (prosome, macropain) 26S subunit, non-ATPase, 1	1,63895746
X06086	Ctsl	Cathepsin L	1,46843157
AF041054	Bnip	BCL2/adenovirus E1B 19 kDa-interacting protein 1, NIP3	1,61282553

Microarray analyses revealed significant up-regulation of 4 atrogenes involved in autophagy/atrophy signalling. Cathepsin L is a lysosomal enzyme involved in the degradation of membrane proteins that is upregulated during skeletal muscle atrophy [1]; Bnip3 regulates autophagy by inducing mitochondrial damage and removal via autophagosomes (mitophagy) [2]. Atrogen1/MAFbx is an ubiquitin ligase that contributes to muscle atrophy in a variety of catabolic states [3]. Psmd1 is a regulatory subunit of the proteasome that is involved in the ATP-dependent degradation of ubiquitinated proteins [4]. The up-regulation of these genes in EDL muscle from CASQ1-null mice reflects activation of the proteosomal and autophagic pathways during muscle atrophy.

SUPPLEMENTAL REFERENCES

1. Judge AR, Koncarevic A, Hunter RB, Liou HC, Jackman RW, Kandarian SC. Role for I κ B α , but not c-Rel, in skeletal muscle atrophy. *Am J Physiol Cell Physiol.* 2007;292(1):C372-82. doi:00293.2006 [pii] 10.1152/ajpcell.00293.2006.
2. Kubli DA, Ycaza JE, Gustafsson AB. Bnip3 mediates mitochondrial dysfunction and cell death through Bax and Bak. *Biochem J.* 2007;405(3):407-15. doi:BJ20070319 [pii] 10.1042/BJ20070319.
3. Li YP, Chen Y, John J, Moylan J, Jin B, Mann DL et al. TNF- α acts via p38 MAPK to stimulate expression of the ubiquitin ligase atrogin1/MAFbx in skeletal muscle. *Faseb J.* 2005;19(3):362-70. doi:19/3/362 [pii] 10.1096/fj.04-2364com.
4. Voges D, Zwickl P, Baumeister W. The 26S proteasome: a molecular machine designed for controlled proteolysis. *Annu Rev Biochem.* 1999;68:1015-68. doi:10.1146/annurev.biochem.68.1.1015.