

Supplementary information

Table S1. Primer sequences and efficiency (E) in Arctic char skeletal muscle, liver and heart.

Primer		Sequence	Acc. No.	BP	Muscle E (%)	Liver E (%)	Heart E (%)
ATF4	Fwd	5'-AGATGGCACAGAACAAGACG-3'	NM_001140101.1	143	104	95	102
	Rev	5'-GAGTCTGCTTTCTCCGCAAG-3'					
ATG5	Fwd	5'-AGAGCGTGACTTGCTCCACT-3'	NM_001173812.1	109	97	99	110
	Rev	5'-GTCGTTGATGACCTGGCTCT-3'					
ATG4	Fwd	5'-TTGAAGACTTGCCTGACACC-3'	NM_001141602.2	98	107	104	99
	Rev	5'-CGAGTGAACGTCTGATAGGAGT-3'					
α -tubulin	Fwd	5'-CTGACTGTGCCTTCATGGTG-3'	NM_001141467.2	119	99	103	99
	Rev	5'-GGAGGAGACGATCTGACCAA-3'					
β -actin	Fwd	5'-GACGCGACCTCACAGACTAC-3'	NM_001123525.1	79	105	98	109
	Rev	5'-GTGCCCATCTCCTGCTCAAA-3'					
Beclin1	Fwd	5'-GCCTGAAGAAGACCAACGTC-3'	NM_001139818.1	86	107	105	----
	Rev	5'-GCCCAGACGGAAGTTATTGA-3'					
Beclin1	Fwd	5'-GTGTGCAGCAGTTCAAGGAG-3'	NM_001139818.1	103	----	----	97
	Rev	5'-CTGCCTCCTGTGTCCTCAAT-3'					
Calpastatin	Fwd	5'-GCAAGCTGACAGAGATGGAAG-3'	NM_001173691.1	70	97	99	----
	Rev	5'-AACCTGTACTCTGGTGGGAGA-3'					
Calpastatin	Fwd	5'-GCCGTCAAATCTGCTGCTAA-3'	NM_001173691.1	100	----	----	100
	Rev	5'-GCTCTGGGATAGGAGTCATGT-3'					
Calpain 7	Fwd	5'-AACAACCCTCAGTACCGGCT-3'	NM_001173603.1	100	----	109	----
	Rev	5'-GTGCAAAGTCATCCTTGTCAGT-3'					
Calpain 7	Fwd	5'-TTGCCTTTCCTGTCCATTC-3'	NM_001173603.1	119	105	----	108
	Rev	5'-GATCATGGTGGGTTATTGC-3'					
Calpain small subunit1	Fwd	5'-TGGAGATGACATGGAGGTGA-3'	NM_001173560.1	99	107	106	110
	Rev	5'-TCAATGCTAAACCCGTCTGTC-3'					
Cathepsin D	Fwd	5'-ATCTGCCTGAGTGGCTTCAT-3'	NM_001124711.1	124	103	102	105
	Rev	5'-GTTGTCACGGTCAACACAG-3'					
Cathepsin L	Fwd	5'-GTCAAGGACCAGGGATCATGT-3'	NM_001146546.1	120	101	97	103
	Rev	5'-GTCCACCAGGTTCTGTTTAC-3'					
DDIT3	Fwd	5'-GCGAAGAAGAGCAGGAGAGA-3'	XM_020482828.1	73	105	101	117
	Rev	5'-TCTCGTTCTGGTCCGTCAG-3'					
E1F- α	Fwd	5'-AAGGAGGTCAGCACCTACATC-3'	NC_027313.1	73	97	100	104
	Rev	5'-ATCCAGAGATGGGCACAAAG-3'					

Table S1 (continued). Primer sequences and efficiency (E) in Arctic char skeletal muscle, liver and heart

Primer	Sequence	Acc. No.	BP	Muscle E (%)	Liver E (%)	Heart E (%)
eif2 α	Fwd 5'-AGATGGAGGTGTGGGATGTC-3'	NM_00114008	142	95	99	107
	Rev 5'-TAGCCGTTGCTGACACGTAG-3'	8.1				
Fbxo25	Fwd 5'-CCAGCTCATAGCCAGGTCTC-3'	NM_00113989	103	95	108	97
	Rev 5'-ATGGTCCTCCAGAACCTTCC-3'	7.1				
GAPDH	Fwd 5'-AACATCATCCCAGCCTCCAC-3'	NM_00112356	147	104	107	-----
	Rev 5'-GGCAGGTTTCTCAAGACGGA-3'	1.1				
HIF1a	Fwd 5'-AGCCTGCACATCCTTCTGTC-3'	NM_00114002	136	100	-----	98
	Rev 5'-CAGCCTCTGGTTGAGAGGTC-3'	2.1				
HIF1a	Fwd 5'-CCGTTTCTGGCTAAGAGTG-3'	NM_00114002	89	-----	97	-----
	Rev 5'-CAGCCTCTGGTTGAGAGGTC-3'	2.1				
LC3A	Fwd 5'-GCCTTCTTCTCCTGGTCA-3'	NM_00113958	119	101	105	106
	Rev 5'-TCCTGAGAGGCGTAAACCAT-3'	9.1				
LC3B	Fwd 5'-CAAGTTCTGGTTCTGACC-3'	NM_00125235	131		105	109
	Rev 5'-CTGCCGACACTGAGACCAT-3'	6.1				
Mafbx	Fwd 5'-AGTACCACTTCACTGACAGACA-3'	NM_00118502	78	100	101	103
	Rev 5'-ACATCTTCTTCCACTCCAAGTG-3'	7.1				
Murfl	Fwd 5'-CTCCATGTGCAAAGTGTCG-3'	NM_00127912	155	102	-----	-----
	Stem 5'-TGTCTCCATCTGAGCCATC-3'	2.1				
rs11	Fwd 5'-ATGTCGGTCCATCTCTCACC-3'	NM_00112353	144	102	106	105
	Stem 5'-GAACTGCTTCTTGGCTCCAG-3'	8.1				
UBE2H	Fwd 5'-ACAGCCCTTACGATCTCACCAAT-3'	NM_00116535	155	104	-----	109
	Stem 5'-TTCTGGATGTACTCTTTGATTTTCTG-3'					
VEGFa	Fwd 5'-GCCTTGCTCAGAGAGAAGAAAG-3'	XM_01416915	139	102	-----	115
	Stem 5'-CCTTGGTTTGTACACATCTGC-3'	7.1				
VEGFa	Fwd 5'-GAGCCTTGCTCAGAGAGAAGA-3'	XM_01416915	139	-----	98	-----
	Stem 5'-CCTTGGTTTGTACACATCTGC-3'	7.1				
VHL	Fwd 5'-CGAATCATGCGACCAGTATG-3'	XM_02156926	195	102	101	98
	Stem 5'-AGCCTGTCCATTCTCCATTG-3'	2.1				

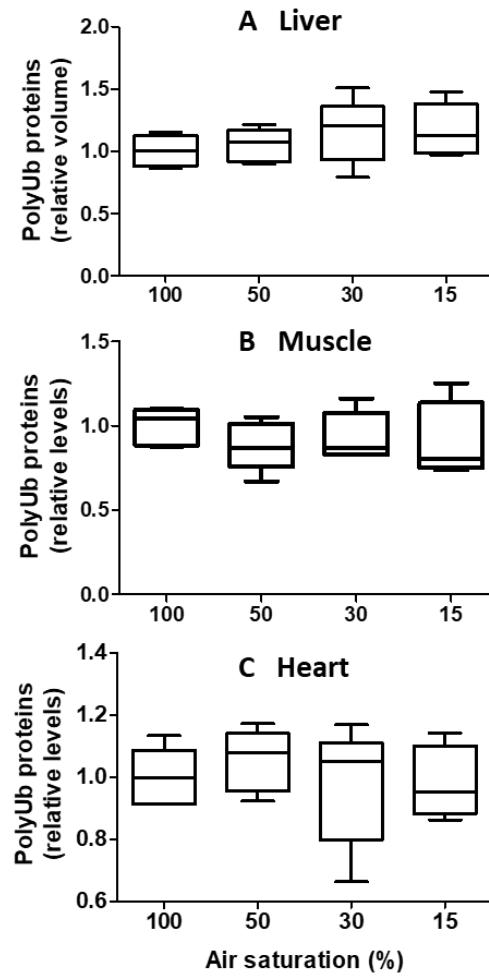


Figure S1. Polyubiquitinated proteins (relative band densities) in A) liver, B) muscle and C) heart of hypoxic Arctic char. Data are normalized to control levels and values are expressed as mean \pm s.e.m.