

Major Resources Table

In order to allow validation and replication of experiments, all essential research materials listed in the Methods should be included in the Major Resources Table below. Authors are encouraged to use public repositories for protocols, data, code, and other materials and provide persistent identifiers and/or links to repositories when available. Authors may add or delete rows as needed.

Animals (*in vivo* studies)

Species	Vendor or Source	Background Strain	Sex	Persistent ID / URL
Mouse (<i>Mus musculus</i>)	UMC Groningen	C57BL6/J	M/F	

Genetically Modified Animals

Description	Species	Vendor or Source	Background Strain	Other Information	Persistent ID / URL
PlnR14del-KI; Hprt ^{Cre}	Mouse (<i>Mus musculus</i>)	UMC Groningen	C57BL6/J	PLN-R14 ^{Δ/Δ}	https://pubmed.ncbi.nlm.nih.gov/32555305/
Tg(aMHC-Dwarf)	Mouse (<i>Mus musculus</i>)	UT Southwestern Medical Center	C57BL6/J	DWORF ^{Tg}	https://pubmed.ncbi.nlm.nih.gov/26816378/

Antibodies

Target antigen	Vendor or Source	Catalog #	Working concentration	Persistent ID / URL
ATL3	Proteintech	16921-1-AP	1:100 for IF	www.ptglab.com/products/ATL3-Antibody-16921-1-AP.htm
CNX	Abcam	Ab22595	1:100 for IF	www.abcam.com/en-us/products/primary-antibodies/anti-calnexin-antibody-er-marker-ab22595
cTnl	Abcam	ab47003	1:100 for IF	www.abcam.com/en-us/products/primary-antibodies/anti-cardiac-troponin-i-antibody-ab47003
DWORF	Custom	N/A	1:1000 for WB	doi.org/10.1126/science.aad4076
HRC	Sigma-Aldrich	HPA004833	1:100 for IF	www.sigmaaldrich.com/US/en/product/sigma/hpa004833
p62	Abcam	ab56416	Labeled 1:20 for IF 1:1000 for WB	www.abcam.com/en-us/products/primary-antibodies/anti-sqstm1-p62-antibody-2c11-bsa-and-azide-free-ab56416
PLN	Cell Signaling	14562	1:1000 for WB	www.cellsignal.com/products/primary-antibodies/phospholamban-d9w8m-rabbit-mab/14562
PLN	Thermo Fisher Scientific	MA3-922	1:200 for EM and IF	www.thermofisher.com/antibody/product/Phospholamban-Antibody-clone-2D12-Monoclonal/MA3-922
SERCA	Thermo Fisher Scientific	MA3-919	1:100 for IF	https://www.thermofisher.com/antibody/product/SERCA2-ATPase-Antibody-clone-2A7-A1-Monoclonal/MA3-919
Tom20	Santa Cruz	sc-11415	1:400 for IF	www.scbt.com/p/tom20-antibody-fl-145

Primers for mRNA analysis

Species	Gene	Chemistry	Sequence
Mus Musculus	Rplp0 (36B4)	Sybr Green	5'- AAGCGCGTCTGGCATTGTC – 3'
			5'- GCAGCCGAAATGCAGATGG – 3'
Mus Musculus	Col1a1	Sybr Green	5'- AGAGCATGACCGATGGATTC – 3'
			5'- CGCTGTTCTTGCAGTGATAG – 3'
Mus Musculus	Lgals3	Sybr Green	5'-CAGTGAAACCCAACGCAAAC – 3'
			5'-AGGCAACATCATTCCTCTC – 3'
Mus Musculus	Nppa	Sybr Green	5'-GCTCCAGGCCATATTGGAG – 3'
			5'-GGTGGTCTAGCAGGTTCTTG – 3'

DOI [to be added]

Mus Musculus	Myh6	Sybr Green	5'-AGCTCATGGCTACACTCTTC – 3'
			5'-GTGGGTGGTCTTCAGGTTTG – 3'
Mus Musculus	Myh7	Sybr Green	5'-GAGCATTCTCTGCTGTTTC – 3'
			5'-GAGCCTGGATTCTCAAACG – 3'
Mus Musculus	Dworf	Sybr Green	5'-TTCTTCTCCTGGTTGGATGG – 3'
			5'-TCTTCTAAATGGTGTGATGAAGT – 3'

Other

Description	Source / Repository	Persistent ID / URL
TRI Reagent	Sigma-Aldrich T9424	www.sigmaaldrich.com/US/en/product/sigma/t9424
QuantiTect Reverse Transcription Kit	Qiagen 205311	www.qiagen.com/us/products/informatics-and-data/quantitect-reverse-transcription-kit
iQ SYBR Green Supermix	Bio-Rad 1708880	www.bio-rad.com/en-us/sku/1708880-iq-sybr-green-supermix-100-x-50-ul-rxns-2-5-ml-2-x-1-25-ml
Pierce BCA Protein Assay Kit	Thermo Fisher Scientific 23225	www.thermofisher.com/order/catalog/product/23225
Immun-Blot PVDF Membrane	Bio-Rad 1620177	www.bio-rad.com/en-us/product/immun-blot-pvdf-membrane
Revert 700 Total Protein Stain	LI-COR Biosciences 926-11011	www.licor.com/bio/reagents/revert-700-total-protein-stain
HRP-conjugated goat anti-rabbit Ab	Dako P0448	www.agilent.com/en/product/specific-proteins/elisa-kits-accessories/goat-anti-rabbit-immunoglobulins-hrp-affinity-isolated-2717113
Immobilon Classico Western HRP substrate	Merck Millipore WBLUC0500	www.emdmillipore.com/US/en/product/Immobilon-Classico-Western-HRP-substrate-500-mL,MM_NF-WBLUC0500
Alexa Fluor 555 Antibody Labeling Kit	Invitrogen A20187	www.thermofisher.com/order/catalog/product/A20187
FITC-conjugated WGA	Sigma-Aldrich L4895	www.sigmaaldrich.com/US/en/product/sigma/l4895
VECTASHIELD Antifade Mounting Medium with DAPI	Vector Laboratories H-1200-10	www.vectorlabs.com/products/mounting/vectashield-mounting-medium-with-dapi
APEX Alexa Fluor™ 488 Antibody Labeling Kit	Invitrogen A10468	www.thermofisher.com/order/catalog/product/A10468
Alexa Fluor 555- conjugated donkey anti-rabbit Ab	Invitrogen A31572	www.thermofisher.com/antibody/product/Donkey-anti-Rabbit-IgG-H-L-Highly-Cross-Adsorbed-Secondary-Antibody-Polyclonal/A-31572
APEX Biotin-XX Antibody Labeling Kit	Invitrogen A10495	www.thermofisher.com/order/catalog/product/A10495
Streptavidin, Alexa Fluor 555 conjugate	Invitrogen S21381	www.thermofisher.com/order/catalog/product/S21381
Endogenous Biotin- Blocking Kit	Invitrogen E21390	www.thermofisher.com/order/catalog/product/E21390
Mounting Medium with DAPI	Abcam ab104139	www.abcam.com/en-us/products/media/mounting-medium-with-dapi-aqueous-fluoroshield-ab104139

Alexa Fluor 488-conjugated donkey anti-mouse Ab	Invitrogen A21202	www.thermofisher.com/antibody/product/Donkey-anti-Mouse-IgG-H-L-Highly-Cross-Adsorbed-Secondary-Antibody-Polyclonal/A-21202
Biotinylated horse anti-mouse Ab	Vector Laboratories BA-2001	www.vectorlabs.com/products/antibodies/biotinylated-horse-anti-mouse-igg-rat-adsorbed
Streptavidin-conjugated Qdot 655	Invitrogen Q10123MP	www.thermofisher.com/order/catalog/product/Q10123MP
Fura-2, AM	Invitrogen F1221	www.thermofisher.com/order/catalog/product/F1221
PowerLoad Concentrate	Invitrogen P10020	www.thermofisher.com/order/catalog/product/P10020
Isoproterenol hydrochloride	Sigma-Aldrich I6504	www.sigmaaldrich.com/US/en/product/sigma/i6504
Muscle Injury Panel 3 Mouse Kit	Meso Scale Diagnostics K15186C	www.mesoscale.com/en/products/muscle-injury-panel-3-mouse-kit-k15186c/
Evans Blue	Sigma-Aldrich E2129	https://www.sigmaaldrich.com/NL/en/product/sigma/e2129