

## 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
N/A				

### Genetically Modified Animals

	Species	Vendor or Source	Background Strain	Other Information	Persistent ID / URL
Parent - Male	N/A				
Parent - Female					

### Cultured Cells

Name	Vendor or Source	Sex (F, M, or unknown)	Persistent ID / URL

### Antibodies

Target antigen	Vendor or Source	Catalog #	Working concentration	Persistent ID / URL
$\alpha$ -Act2 (WB)	Sigma-Aldrich	A7811	1:2500	<a href="https://www.sigmaaldrich.com/DE/de/product/sigma/a7811">https://www.sigmaaldrich.com/DE/de/product/sigma/a7811</a>
$\alpha$ -Act2 (Immunocyt)	Sigma-Aldrich	A7811	1:1000	<a href="https://www.sigmaaldrich.com/DE/de/product/sigma/a7811">https://www.sigmaaldrich.com/DE/de/product/sigma/a7811</a>
BKCa (WB)	Alomone labs	APC-107	1:500	<a href="https://www.alomone.com/p/anti-kca1-1-1184-1200/APC-107">https://www.alomone.com/p/anti-kca1-1-1184-1200/APC-107</a>
CaM-Total (WB)	Abcam	ab45689	1:1000	<a href="https://www.abcam.com/calmodulin-123-antibody-ep799y-c-terminal-ab45689.html">https://www.abcam.com/calmodulin-123-antibody-ep799y-c-terminal-ab45689.html</a>
CaM-Total (Immunohis)	Abcam	ab45689	1:200	<a href="https://www.abcam.com/calmodulin-123-antibody-ep799y-c-terminal-ab45689.html">https://www.abcam.com/calmodulin-123-antibody-ep799y-c-terminal-ab45689.html</a>
Thr80-CaM (WB)	ProSci	80-027	1:500	<a href="https://www.prosci-inc.com/calmodulin-phospho-thr79-ser81-antibody-80-027.html">https://www.prosci-inc.com/calmodulin-phospho-thr79-ser81-antibody-80-027.html</a>
Thr80-CaM (WB)	Lsbio	LS-C354566	1:1000	<a href="https://www.lsbio.com/antibodies/calm1-antibody-calmodulin-antibody-phospho-thr80-ser82-icc-if-immunofluorescence-ihc-wb-western-ls-c354566/365687">https://www.lsbio.com/antibodies/calm1-antibody-calmodulin-antibody-phospho-thr80-ser82-icc-if-immunofluorescence-ihc-wb-western-ls-c354566/365687</a>
Thr80-CaM (Immunohis)	ProSci	80-027	1:200	<a href="https://www.prosci-inc.com/calmodulin-phospho-thr79-ser81-antibody-80-027.html">https://www.prosci-inc.com/calmodulin-phospho-thr79-ser81-antibody-80-027.html</a>
CKII $\alpha$ (WB)	Millipore	04-1129	1:1000	Not available
CKII $\alpha$ (WB)	Millipore	05-1431	1:1000	<a href="https://www.merckmillipore.com/DE/de/product/Anti-Casein-Kinase-2-Antibody-1AD9,MM_NF-05-1431">https://www.merckmillipore.com/DE/de/product/Anti-Casein-Kinase-2-Antibody-1AD9,MM_NF-05-1431</a>

DOI [to be added]

GAPDH	HyTest	5G4	1:20000	<a href="https://shop.hytest.fi/product/glyceraldehyde-3-phosphate-dehydrogenase-gapdh-antibody">https://shop.hytest.fi/product/glyceraldehyde-3-phosphate-dehydrogenase-gapdh-antibody</a>
PP2Ac (WB)	Merck	07-324	1:1000	<a href="https://www.merckmillipore.com/DE/de/product/Anti-PP2A-Antibody-C-subunit,MM_NF-07-324">https://www.merckmillipore.com/DE/de/product/Anti-PP2A-Antibody-C-subunit,MM_NF-07-324</a>
PR65/55 (WB)	Merck	539521	1:1000	<a href="https://www.merckmillipore.com/DE/de/product/Anti-PP2A-B-14-27-PR55-Rabbit-pAb,EMD_BIO-539521">https://www.merckmillipore.com/DE/de/product/Anti-PP2A-B-14-27-PR55-Rabbit-pAb,EMD_BIO-539521</a>
SK1 (WB)	Alomone labs	APC-039	1:1000	<a href="https://www.alomone.com/p/anti-kca2-1-sk1-skca1/APC-039">https://www.alomone.com/p/anti-kca2-1-sk1-skca1/APC-039</a>
SK1 (Immunocyt)	Alomone labs	APC-039	1:200	<a href="https://www.alomone.com/p/anti-kca2-1-sk1-skca1/APC-039">https://www.alomone.com/p/anti-kca2-1-sk1-skca1/APC-039</a>
SK2 (WB)	Alomone labs	APC-028	1:1000	<a href="https://www.alomone.com/p/anti-kca2-2-sk2/APC-028">https://www.alomone.com/p/anti-kca2-2-sk2/APC-028</a>
SK2 (WB)	Origene	AP10032PU-N	1:500	<a href="https://www.origene.com/catalog/antibodies/primary-antibodies/ap10032pu-n/kcnn2-goat-polyclonal-antibody">https://www.origene.com/catalog/antibodies/primary-antibodies/ap10032pu-n/kcnn2-goat-polyclonal-antibody</a>
SK2 (Immunocyt)	Alomone labs	APC-028	1:200	<a href="https://www.alomone.com/p/anti-kca2-2-sk2/APC-028">https://www.alomone.com/p/anti-kca2-2-sk2/APC-028</a>
SK2 (Immunohis)	Biorbyt	orb333956	1:200	<a href="https://www.biorbyt.com/sk2-antibody-orb333956.html">https://www.biorbyt.com/sk2-antibody-orb333956.html</a>
SK2 (Immunohis)	Alomone labs	APC-028	1:200	<a href="https://www.alomone.com/p/anti-kca2-2-sk2/APC-028">https://www.alomone.com/p/anti-kca2-2-sk2/APC-028</a>
SK3 (WB)	Alomone labs	APC-025	1:1000	<a href="https://www.alomone.com/p/anti-kca2-3-sk3-n-term/APC-025">https://www.alomone.com/p/anti-kca2-3-sk3-n-term/APC-025</a>
SK3 (Immunocyt)	Alomone labs	APC-025	1:200	<a href="https://www.alomone.com/p/anti-kca2-3-sk3-n-term/APC-025">https://www.alomone.com/p/anti-kca2-3-sk3-n-term/APC-025</a>
SK3 (Immunohis)	Alomone labs	APC-025	1:200	<a href="https://www.alomone.com/p/anti-kca2-3-sk3-n-term/APC-025">https://www.alomone.com/p/anti-kca2-3-sk3-n-term/APC-025</a>
SK4 (WB)	Alomone labs	APC-064	1:500	<a href="https://www.alomone.com/p/anti-kca3-1-sk4-ikca1/APC-064">https://www.alomone.com/p/anti-kca3-1-sk4-ikca1/APC-064</a>
TnC (WB)	Fitzgerald	10R-T122A	1:1000	<a href="https://www.fitzgerald-fii.com/troponin-c-antibody-cardiac-10r-t122a.html">https://www.fitzgerald-fii.com/troponin-c-antibody-cardiac-10r-t122a.html</a>
Anti-Mouse IgG HRP	Santa Cruz	sc-2302	1:20000	<a href="https://datasheets.scbt.com/sc-2302.pdf">https://datasheets.scbt.com/sc-2302.pdf</a>
Anti-Rabbit IgG HRP	Sigma-Aldrich	A0545	1:20000	<a href="https://www.sigmaaldrich.com/DE/de/product/sigma/a0545">https://www.sigmaaldrich.com/DE/de/product/sigma/a0545</a>
Anti-Goat IgG HRP	Santa Cruz	sc-2020	1:20000	<a href="https://www.scbt.com/de/p/donkey-anti-goat-igg-hrp">https://www.scbt.com/de/p/donkey-anti-goat-igg-hrp</a>
Anti-Mouse IgG IRDye® 680RD	Li-Cor	926-68070	1:20000	<a href="https://www.licor.com/bio/reagents/irdye-680rd-goat-anti-mouse-igg-secondary-antibody">https://www.licor.com/bio/reagents/irdye-680rd-goat-anti-mouse-igg-secondary-antibody</a>
Anti-Rabbit IgG-IRDye® 680RD	Li-Cor	926-68071	1:20000	<a href="https://www.licor.com/bio/reagents/irdye-680rd-goat-anti-rabbit-igg-secondary-antibody">https://www.licor.com/bio/reagents/irdye-680rd-goat-anti-rabbit-igg-secondary-antibody</a>
Anti-Goat IgG-IRDye® 680RD	Li-Cor	926-68074	1:20000	<a href="https://www.licor.com/bio/reagents/irdye-680rd-donkey-anti-goat-igg-secondary-antibody">https://www.licor.com/bio/reagents/irdye-680rd-donkey-anti-goat-igg-secondary-antibody</a>
Anti-Mouse IgG IRDye® 800CW	Li-Cor	926-32210	1:20000	<a href="https://www.licor.com/bio/reagents/irdye-800cw-goat-anti-mouse-igg-secondary-antibody">https://www.licor.com/bio/reagents/irdye-800cw-goat-anti-mouse-igg-secondary-antibody</a>
Anti-Rabbit IgG-IRDye® 800CW	Li-Cor	926-32211	1:20000	<a href="https://www.licor.com/bio/reagents/irdye-800cw-goat-anti-rabbit-igg-secondary-antibody">https://www.licor.com/bio/reagents/irdye-800cw-goat-anti-rabbit-igg-secondary-antibody</a>
Anti-Goat IgG-IRDye® 800CW	Li-Cor	926-32214	1:20000	<a href="https://www.licor.com/bio/reagents/irdye-800cw-donkey-anti-goat-igg-secondary-antibody">https://www.licor.com/bio/reagents/irdye-800cw-donkey-anti-goat-igg-secondary-antibody</a>

Anti-Rabbit IgG-FITC	Jackson ImmunoResearch	111-095-008	1:200	<a href="https://www.jacksonimmuno.com/catalog/products/111-095-008">https://www.jacksonimmuno.com/catalog/products/111-095-008</a>
Anti-Mouse IgG-FITC	Jackson ImmunoResearch	115-096-008	1:200	<a href="https://www.jacksonimmuno.com/catalog/products/115-096-008">https://www.jacksonimmuno.com/catalog/products/115-096-008</a>
Anti-Rabbit IgG-Cy <sup>TM</sup> 3	Jackson ImmunoResearch	111-165-045	1:200	<a href="https://www.jacksonimmuno.com/catalog/products/111-165-045">https://www.jacksonimmuno.com/catalog/products/111-165-045</a>
Anti-Mouse IgG-Cy <sup>TM</sup> 3	Jackson ImmunoResearch	115-165-062	1:200	<a href="https://www.jacksonimmuno.com/catalog/products/115-165-062">https://www.jacksonimmuno.com/catalog/products/115-165-062</a>
Anti-Rabbit IgG-Cy <sup>TM</sup> 5	Jackson ImmunoResearch	111-175-144	1:200	<a href="https://www.jacksonimmuno.com/catalog/products/111-175-144">https://www.jacksonimmuno.com/catalog/products/111-175-144</a>
Anti-Mouse IgG-Alexa <sup>®</sup> 405	Abcam	ab175660	1:200	<a href="https://www.abcam.com/goat-mouse-igg-hl-alexa-fluor-405-ab175660.html">https://www.abcam.com/goat-mouse-igg-hl-alexa-fluor-405-ab175660.html</a>
Wheat Germ Agglutinin (WGA)	Invitrogen	W11263	1:500	<a href="https://www.fishersci.de/shop/products/molecular-probes-wheat-germ-agglutinin-alexa-fluor-350-conjugate/11590806">https://www.fishersci.de/shop/products/molecular-probes-wheat-germ-agglutinin-alexa-fluor-350-conjugate/11590806</a>

#### DNA/cDNA Clones

Clone Name	Sequence	Source / Repository	Persistent ID / URL

#### qPCR oligonucleotide primer sequences

Description	Source / Repository	Persistent ID / URL
<i>KCNN1</i> (qPCR)	TaqMan (Applied Biosystems; Thermo Fisher Scientific)	Hs00158457_m1
<i>KCNN1</i> (dPCR)	TaqMan (Applied Biosystems; Thermo Fisher Scientific)	Hs01109326_m1
<i>KCNN2</i>	TaqMan (Applied Biosystems; Thermo Fisher Scientific)	Hs00222059_m1
<i>KCNN3</i>	TaqMan (Applied Biosystems; Thermo Fisher Scientific)	Hs01546821_m1
<i>B2M</i>	TaqMan (Applied Biosystems; Thermo Fisher Scientific)	Hs99999907_m1
<i>GATA4</i>	TaqMan (Applied Biosystems; Thermo Fisher Scientific)	Hs00171403_m1
<i>HMBS</i>	TaqMan (Applied Biosystems; Thermo Fisher Scientific)	Hs00609296_g1

#### Data & Code Availability

Description	Source / Repository	Persistent ID / URL
Matlab code for human atrial cardiomyocyte model	GitHub	<a href="https://github.com/drgrandilab">https://github.com/drgrandilab</a>
Full Western blots	Online Supplement	

#### Other

DOI [to be added]

<b>Description</b>	<b>Source / Repository</b>	<b>Persistent ID / URL</b>
Human right-atrial samples	University Medical Center Essen, Germany	#12-5268-BO
Human right-atrial samples	Medical Faculty Mannheim, Ruprecht Karl University of Heidelberg, Germany	No. 2011-216N-MA
Paired human right- and left-atrial samples	Medical Faculty, Ruhr-Universität Bochum	No. AZ 21/2013