

KEY RESOURCES TABLE

Please upload the completed table as a separate document. **Please do not add subheadings to the key resources table.** If you wish to make an entry that does not fall into one of the subheadings below, please contact your handling editor. **Any subheadings not relevant to your study can be skipped.** (NOTE: For authors publishing in *Cell Genomics*, *Cell Reports Medicine*, *Current Biology*, and *Med*, please note that references within the KRT should be in numbered style rather than Harvard.)

Key resources table

REAGENT or RESOURCE	SOURCE	IDENTIFIER
Antibodies		
Monoclonal Anti-TNNI3 antibody produced in mouse	Sigma Aldrich	WH0007137M4
Goat anti-Mouse secondary antibody IgG	Abcam	ab6785
Biological Samples		
Decellularized porcine small intestine submucosa	This manuscript	N/A
Decellularized porcine liver	This manuscript	N/A
Decellularized bovine cancellous bone	This manuscript	N/A
Chemicals, peptides, and recombinant proteins		
Peroxyacetic acid, ca. 35wt.% sol. in diluted acetic acid, stabilized (PAA)	Acros Organics	257755000
Trypsin solution from porcine pancreas	Sigma Aldrich	T4424
Ethylenediaminetetraacetic acid (EDTA)	Thermo Scientific	J62948A1
Triton™ X-100	Sigma Aldrich	X100
Deoxycholic acid	Sigma Aldrich	D2510
Papain from <i>Carica papaya</i>	Sigma Aldrich	10108014001
Pepsin from porcine gastric mucosa	Sigma Aldrich	P7012
Multi-walled carbon nanotubes (MWCNTs) (>95%, OD: 10-20 nm)	US Nano	US4306
LifeSupport™ for FRESH	Allevi	FF-0002
RPMI 1640 Medium	Thermo Fischer	11875119
B-27™ Supplement (50X), custom	Thermo Fischer	0080085SA
Y-27632 ROCK inhibitor	Tocris	1254
Foetal bovine serum (FBS)	Sigma Aldrich	F4135
bisBenzimide Hoechst 33258	Sigma Aldrich	B2883
Acetoxymethyl (AM) calcein solution	Sigma Aldrich	C1359
Ethidium homodimer I	Sigma Aldrich	E1903
Critical commercial assays		
Quant-iT™ Picogreen® assay kit	Thermo Fischer	P7589
Hydroxyproline Assay Kit (DMMB)	Sigma Aldrich	MAK008
RNeasy Mini kit	Qiagen	74106
cDNA Reverse Transcription Kit	Thermo Fischer	4374966
iQ Universal SYBR Green Supermix	Bio-Rad	1708880
FRESH Kit	Allevi	N/A
Experimental models: Cell lines		
hPSC Line	Chris Denning's Lab (University of Nottingham)	REBL-PAT
Oligonucleotides		

See Table S1 for details on the primers used	StabVida	N/A
Software and algorithms		
ImageJ open-source software	N/A	https://imagej.nih.gov/ij/
GraphPad Prism	GraphPad Software, San Diego, California USA	www.graphpad.com
MYOCYTER v1.3	Dr Tobias Jung, Nuthetal, Germany	http://www.scyrus.de/page9.html
Other		
Fisnar F5200N.2 3-Axis Inline Gantry Robot	Fisnar, Germantown, Wisconsin, USA	https://www.fisnar.com/products/robotics/benchtop-robots/f5200n-2-compact-gantry-benchtop-robot/
Ultimus V High Precision Dispenser	Nordson Corporation, Westlake, Ohio, USA	https://www.nordson.com/en/divisions/efd/products/fluid-dispensing-systems/ultimus-v-high-precision-dispenser
Physical MCR 301 Modular Compact Rheometer	Anton Paar, Graz, Austria	https://www.anton-paar.com/sg-en/products/details/rheometer-mcr-102-302-502/
Keithley 2400 Graphical Series SMU	Tektronix, Beaverton, Oregon, USA	https://www.tek.com/en/products/keithley/source-measure-units/2400-graphical-series-sourcemeater
FRA32 Electrochemical impedance spectroscopy module	Metrohm Autolab, Herisau, Switzerland	https://www.metrohm.com/en_nl/products/f/ra32/fra32m.html
Samdri-780a Critical Point Drier	Tousimis, Maryland, USA	N/A
JSM-7100F Thermal field emission electron microscope	Jeol, Tokyo, Japan	https://www.jeolbelux.com/JEOL-BV-News/jsm-7100f-thermal-field-emission-electron-microscope

AFG1000 Arbitrary/Function Generator	Tektronix, Beaverton, Oregon, USA	https://www.tek.com/en/products/signals-generators/arbitrary-function-generator/afg1000