

EXTENDED MATERIAL

REAGENT or RESOURCE	SOURCE	IDENTIFIER
Anti-RanBP9 antibody	Abcam	cat# ab140627
Anti-RanBP10 antibody	Abcam	cat# ab235104
Anti-RanBP10 antibody	Invitrogen™	cat# PA5-110267
Anti-WDR26 antibody	Abcam	cat# ab85962
Anti-GID8 antibody	Proteintech	cat# 24479-I-AP
Anti-ARMC8 antibody	Proteintech	cat# 12653-I-AP
Anti-MKLN1 antibody	Proteintech	cat# 14735-1-AP
Anti-RMND5α antibody	NOVUSBIO	cat# NBP1-92337
Anti-MAEA antibody	R&D Systems Cell Signaling Technology	cat# AF7288
Anti-Vinculin antibody	Sigma-Aldrich	cat# 18799
Rabbit Anti-Sheep IgG Antibody, HRP conjugate	Kindle Biosciences, LLC	cat# AP147P
Digital Anti-Rabbit-HRP	Kindle Biosciences, LLC	cat# R1006
Digital Anti-Mouse-HRP	Kindle Biosciences, LLC	cat# R1005
TaqMan™ Fast Advanced Master Mix	Applied Biosystems™	cat# 4444557
Maxima First Strand cDNA Synthesis Kit for RT-qPCR, with dsDNase	ThermoFisher Scientific	cat# K1672
TRIzol™ Reagent	Invitrogen™	cat# 15596026
RPMI 1640 Medium	Gibco™	cat# 21875034
DMEM, high glucose	Gibco™	cat# 11965092
Trypsin-EDTA (0.25%), phenol red	Gibco™	cat# 25200056
DPBS, no calcium, no magnesium	Gibco™	cat# 14190144
Fetal Bovine Serum, heat inactivated, certified, One Shot™, United States	Gibco™	cat# A3840002
Tet System Approved FBS, US-Sourced	Takara	cat# 631368
MycoZap™ Plus-CL	Gibco™	cat# VZA-2011
Penicillin-Streptomycin (5,000 U/mL)	Gibco™	cat# 15070063
2-Mercaptoethanol	Sigma-Aldrich	cat# M3148
Opti-MEM	Gibco™	cat# 31985-070
QIAprep Spin Miniprep Kit	QIAGEN	cat# 27106
EndoFree Plasmid Maxi Kit	QIAGEN	cat# 12362
QIAquick PCR & Gel Cleanup Kit	QIAGEN	cat# 28506
BbsI restriction enzyme	New England BioLabs	cat# R0539L
T4 Polynucleotide Kinase	New England BioLabs	cat# M0201L
Rapid DNA Dephos & Ligation Kit	ROCHE ThermoFisher Scientific	cat# C756V19
DH5α Competent Cells	Invitrogen™	cat# EC0112
Lipofectamine™ 3000 Transfection Reagent	Invitrogen™	cat# L000001

Pierce™ Lane Marker Reducing Sample Buffer	ThermoFisher Scientific	cat# 39000
Ponceau S Staining Solution	ThermoFisher Scientific	cat# A40000279
SuperSignal™ West Pico PLUS Chemiluminescent Substrate	ThermoFisher Scientific	cat# 34577
SuperSignal™ West Femto Maximum Sensitivity Substrate	ThermoFisher Scientific	cat# 34094
Halt™ Protease and Phosphatase Inhibitor Single-Use Cocktail (100X)	ThermoFisher Scientific	cat# 78442
NP-40 lysis buffer	ThermoFisher Scientific	cat# J60766.AP
4–20% Mini-PROTEAN® TGX™ Precast Protein Gels, 10-well, 50 µl	BIO-RAD	cat# 4561094
4–20% Mini-PROTEAN® TGX™ Precast Protein Gels, 10-well, 30 µl	BIO-RAD	cat# 4561093S
4–20% Mini-PROTEAN® TGX™ Precast Protein Gels, 12-well, 20 µl	BIO-RAD	cat# 4561095
Precision Plus Protein™ Kaleidoscope™ Prestained Protein Standards	BIO-RAD	cat# 1610375
Quick Start™ Bradford 1x Dye Reagent	BIO-RAD	cat# 5000205
Supported Nitrocellulose Membrane Roll, 0.45 µm, 30 cm x 3 m	BIO-RAD	cat#1620094
Nitrocellulose Membrane, Roll, 0.45 µm, 30 cm x 3.5 m	BIO-RAD	cat# 1620115
10x Tris/Glycine/SDS Buffer	BIO-RAD	cat# 1610772
10x Tris/Glycine Buffer	BIO-RAD	cat# 1610771
Blotting-Grade Blocker	BIO-RAD	cat# 1706404
Tween 20, 100% Nonionic Detergent	BIO-RAD	cat# 1706531
10x Tris Buffered Saline (TBS)	BIO-RAD	cat# 1706435
Bovine Serum Albumin	Sigma-Aldrich	cat# A3294
Doxycycline	Sigma-Aldrich	cat# D5207

RT-qPCR Taqman assay	SOURCE	IDENTIFIER
Human-RanBP9	ThermoFisher Scientific	Hs00170646_m1
Human-RanBP10	ThermoFisher Scientific	Hs00398714_m1
Human-ARMC8	ThermoFisher Scientific	Hs01046446_m1
Human-WDR26	ThermoFisher Scientific	Hs00228535_m1
Human-GID8	ThermoFisher Scientific	Hs00215479_m1
Human-RMND5α	ThermoFisher Scientific	Hs00405598_m1
Human-RMND5β	ThermoFisher Scientific	Hs00430576_g1
Human-MKLN1	ThermoFisher Scientific	Hs00992683_m1
Human-MAEA	ThermoFisher Scientific	Hs01028524_m1
Human-YPEL5	ThermoFisher Scientific	Hs00763191_s1

Human-OAZ1	ThermoFisher Scientific	Hs00427923_m1
Human-GAPDH	ThermoFisher Scientific	Hs02786624_g1
Mouse-RanBP9	ThermoFisher Scientific	Mm00451306_m1
Mouse-RanBP10	ThermoFisher Scientific	Mm01250596_m1
Mouse-Armc8	ThermoFisher Scientific	Mm01231843_m1
Mouse-Wdr26	ThermoFisher Scientific	Mm01318263_m1
Mouse-Gid8	ThermoFisher Scientific	Mm01215175_m1
Mouse-Rmnd5 α	ThermoFisher Scientific	Mm00662449_m1
Mouse-Rmnd5 β	ThermoFisher Scientific	Mm01288692_m1
Mouse-Mkln1	ThermoFisher Scientific	Mm00449945_m1
Mouse-Maea	ThermoFisher Scientific	Mm00491367_m1
Mouse-Ypel5	ThermoFisher Scientific	Mm01233098_m1
Mouse-Actb	ThermoFisher Scientific	Mm02619580_g1
Mouse-Gapdh	ThermoFisher Scientific	Mm99999915_g1

Cell lines	SOURCE	IDENTIFIER
A549	ATCC	CCL-185
H460	ATCC	HTB-177

WT MEFs	Generated from E12.5 embryos from heterozygous RanBP9 KO	
RANBP9 KO MEFs	Generated using Baygenomics ES targeted clones as described in Puverel et al., Development 2011 (PMID: 21561988)	
RANBP10 KO MEFs	Generated using the same Baygenomics ES targeted clones as described in Meyer et al., Blood 2012 (PMID: 22936655)	
RANBP9 RANBP10 double KO MEFs	Generated by mating RANBP9 and RANBP10 mice	

Plasmids	SOURCE	IDENTIFIER
pSpCas9(BB)-2A-Puro	Addgene	plasmid ID: 48139
pSpCas9(BB)-2A-GFP	Addgene	plasmid ID: 48138
AAVS1-TRE3G-EGFP	Addgene	plasmid ID: 52343
AAVS1-TRE3G-RANBP9	in house	Engineered by replacing EGFP with WT RANBP9 cDNA in AAVS1-TRE3G-EGFP
AAVS1-TRE3G-RANBP10	in house	Engineered by replacing EGFP with WT RANBP10 cDNA in AAVS1-TRE3G-EGFP

Software and resources	SOURCE	IDENTIFIER
------------------------	--------	------------

Graphpad Prism version 10
ImageJ version 1.53t
BioRender
Adobe Illustrator
Guide Design Resources
KwikQuant Image Analyzer
5.4
Metascape vs 3.5.20240101
LinkedOmicsKB

GraphPad Software Inc.
NIH
Biorender Software Inc.
Adobe Inc.
MIT
Kindle Biosciences, LLC
Metascape

<https://www.graphpad.com/>
<https://imagej.nih.gov/ij/>
<https://app.biorender.com/>
<https://www.adobe.com/products/illustrator.html>
<http://crispr.mit.edu>
<https://kindlebio.com/12-downloads>
<https://metascape.org>
<https://kb.linkedomics.org>