

Major Resources Table

Animals (in vivo studies)

Species	Vendor or Source	Background Strain	Sex	Persistent ID / URL
Mice	Central Lab. Animal, Inc. (Seoul, Korea)	C57BL/6J	Male	https://labanimal.co.kr/product/pdf/C57BL6Jms2013.pdf

Genetically Modified Animals

	Species	Vendor or Source	Background Strain	Other Information	Persistent ID / URL
<i>Txnip</i> ^{-/-} (WT)	Mice	Korea Research Institute of Bioscience and Biotechnology	C57BL/6J	Lee KN et al. VDUP1 is required for the development of natural killer cells. <i>Immunity</i> . 2005;22:195-208. doi: 10.1016/j.immuni.2004.12.012	
<i>Txnip</i> ^{+/+} (<i>Txnip</i> KO)	Mice	Korea Research Institute of Bioscience and Biotechnology	C57BL/6J	Lee KN et al. VDUP1 is required for the development of natural killer cells. <i>Immunity</i> . 2005;22:195-208. doi: 10.1016/j.immuni.2004.12.012	
<i>Tagln</i> -Cre (B6.Cg-Tg(<i>Tagln-cre</i>)1Her/J, strain no. 017491)	Mice	Jackson Laboratory	C57BL/6J		https://www.jax.org/strain/017491
<i>Txnip</i> ^{flox/flox} (B6;129- <i>Txnip</i> ^{tm1Rlee} /J, strain no. 016847)	Mice	Jackson Laboratory	C57BL/6J		https://www.jax.org/strain/016847

Antibodies

Target antigen	Vendor or Source	Catalog #	Working concentration
TXNIP	Abcam	ab188865	IHC-P 1:200, WB 1:500
MOMA-2	Abcam	ab33451	IHC-Cryo-DAB 1:400
SM22 α	Abcam	ab10135	IHC-Cryo-DAB 1:200
Lamin B1	Abcam	ab16048	WB 1:1000
α -SMA	Agilent Dako	M0851	IHC-P 1:200
Rabbit monoclonal IgG	Cell Signaling	#3900	IHC-P 1:2000
CHAD	Atlas Antibodies	HPA018241	IHC-Cryo-F 1:200
β -actin	Cell Signaling	#4967	WB 1:1000
RUNX2	Cell Signaling	#12556	WB 1:500
p-p38	Cell Signaling	#4511	WB 1:500
p-SMAD1/5/9	Cell Signaling	#13820	WB 1:500
SMAD1	Cell Signaling	#6944	WB 1:1000
α -tubulin	Cell Signaling	CST2144	WB 1:1000
ACAN	Proteintech	13880-1-AP	IHC-Cryo-F 1:200
GAPDH	Santa Cruz	sc-365062	WB 1:500
p38	Santa Cruz	sc-7149	WB 1:500

DOI [to be added]

SMAD5	Santa Cruz	sc-101151	WB 1:200
SMAD5	Cell Signaling	#12534	WB 1:1000
SMAD6	Santa Cruz	sc-25321	WB 1:200
SMAD7	Santa Cruz	sc-365846	WB 1:150
SMAD7	Bioss	bs-0566R	WB 1:200
β -catenin	Santa Cruz	sc-133240	WB 1:200
SMAD4	Santa Cruz	sc-7966	WB 1:200
Smurf1	Santa Cruz	sc-100616	WB 1:200
Smurf2	Cell Signaling	#12024	WB 1:1000
BMPRI1A	Santa Cruz	sc-134285	WB 1:200
HA-tag	Cell Signaling	#3724	WB 1:1000
Anti-rabbit HRP-conjugated 2 nd antibody	VECTOR	MP-7401	IHC-P, ready-to-use
Anti-mouse HRP-conjugated 2 nd antibody	VECTOR	MP-7402	IHC-P, ready-to-use
Anti-rabbit HRP-conjugated 2 nd antibody	Cell Signaling	#7074	WB 1:1000
Anti-mouse HRP-conjugated 2 nd antibody	Cell Signaling	#7076	WB 1:1000

Cultured Cells

Name	Vendor or Source	Sex (F, M, or unknown)	Persistent ID / URL
Primary vascular smooth muscle cells (VSMCs)	Cultured from 3-5 weeks of WT (C57BL6/J) mice	Male	

Data & Code Availability

Description	Source / Repository	Persistent ID / URL
Single-cell RNA-sequencing data of atherosclerotic lesions from WT and <i>Txnip</i> KO mice	Sequence Read Archive (SRA)	SRP346850

Primer pairs, amplicon size, and thermocycle conditions

Description	Sequence	Amplicon size (bp)	Thermocycle conditions
Primer pairs for detecting <i>Txnip</i> ^{+/+} genotype	F: 5'-ATTCCCCTTCCAGGTGGA-3' R: 5'-TTGAAATTGGCTCTGT-3'	478	95°C 5 min – [95°C 1 min – 58°C 1 min – 72°C 1 min] × 35 cycle – 72°C 10 min
Primer pairs for detecting <i>Txnip</i> ^{-/-} genotype	F: 5'-GCAAAGACCAGACCGTTCAT-3' R: 5'-GAAGCCAATGAAACCCA-3'	593	95°C 5 min – [95°C 1 min – 58°C 1 min – 72°C 1 min] × 35 cycle – 72°C 10 min
RT-PCR primer: mouse <i>Alpl</i>	F: 5'-CAAGGACATCGCATATCAGCTAA-3' R: 5'-CAGTTCTGTTCTTCGGGTACATGT-3'	95	95°C 10 min – [95°C 10 sec – 60°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse <i>Bglap</i>	F: 5'-GCAATAAGGTAGTGAACAGACTCC-3' R: 5'-GTTTGTAGGCGGTCTTCAAGC-3'	147	95°C 10 min – [95°C 10 sec – 60°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse <i>Bmp2</i>	F: 5'-CACACAGGGACACACCAACC-3' R: 5'-CAAAGACCTGCTAATCCTCAC-3'	100	95°C 10 min – [95°C 10 sec – 61°C 30 sec] × 45 cycle (combined annealing/extension)

RT-PCR primer: mouse <i>Bmp4</i>	F: 5'-GCCGAGCCAACACTGTGAGGA-3' R: 5'-GATGCTGCTGAGGTTGAAGAGG-3'	107	95°C 10 min – [95°C 10 sec – 63°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse <i>Hmbs</i>	F: 5'-AAGGGCTTTTCTGAGGCACC-3' R: 5'-AGTTGCCCATCTTTCATCACTG-3'	78	95°C 10 min – [95°C 10 sec – 60°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse <i>Ibsp</i>	F: 5'-CACCCCAAGCACAGACTTTT-3' R: 5'-TCGTGCTTTCCTTCACTTT-3'	97	95°C 10 min – [95°C 10 sec – 60°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse <i>Id1</i>	F: 5'-CCTAGCTGTTTCGCTGAAGGC-3' R: 5'-GTAGAGCAGGACGTTACCT-3'	141	95°C 10 min – [95°C 10 sec – 60°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse <i>Id2</i>	F: 5'-ATGAAAGCCTTCAGTCCGGTG-3' R: 5'-AGCAGACTCATCGGGTCGT-3'	107	95°C 10 min – [95°C 10 sec – 60°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse <i>Id3</i>	F: 5'-CGACCGAGGAGCCTCTTAG-3' R: 5'-GCAGGATTTCCACCTGGCTA-3'	114	95°C 10 min – [95°C 10 sec – 60°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse <i>Id4</i>	F: 5'-CAGTGCGATATGAACGACTGC-3' R: 5'-GACTTCTTGTGGGCGGGAT-3'	72	95°C 10 min – [95°C 10 sec – 60°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse <i>Lum</i>	F: 5'-CTCTTGCCTTGGCATTAGTCG-3' R: 5'-GGGGCAGTTACATTCTGGTG-3'	114	95°C 10 min – [95°C 10 sec – 60°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse <i>Ly6a</i>	F: 5'-GCTATGGAGTCCCATTGAG-3' R: 5'-AGGAAGTCTTACGTTGACC-3'	198	95°C 10 min – [95°C 10 sec – 60°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse <i>Myh11</i>	F: 5'-CATCCTGACCCACGTATCAA-3' R: 5'-ATCGGAAAAGGCGCTCATAGG-3'	119	95°C 10 min – [95°C 10 sec – 60°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse <i>Sp7</i>	F: 5'-AGAGGTTCACTCGCTCTGACG-3' R: 5'-TTGCTCAAGTGGTCGCTTCTG-3'	115	95°C 10 min – [95°C 10 sec – 60°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse <i>Txnip</i>	F: 5'-CGAGTCAAAGCCGTCAGGAT-3' R: 5'-TTCATAGCGCAAGTAGTCCAAAGT-3'	102	95°C 10 min – [95°C 10 sec – 60°C 30 sec] × 45 cycle (combined annealing/extension)
RT-PCR primer: mouse β -actin	F: 5'-CGCCACCAGTTCGCCATGGA-3' R: 5'-TACAGCCCGGGAGCATCGT-3'	105	95°C 10 min – [95°C 10 sec – 64°C 30 sec] × 45 cycle (combined annealing/extension)

DNA/cDNA Clones

Clone Name	Source / Repository	Persistent ID / URL
pCMV3 C-terminal HA-tagged control vector	SinoBiological, cat. CV013	https://kr.sinobiological.com/cdna-clone/mouse-txnip-mg52103-cy
pCMV3 C-terminal HA-tagged mouse TXNIP cDNA clone	SinoBiological, cat. MG52103-CY	https://kr.sinobiological.com/cdna-clone/control-vector-pcmv3-c-terminal-ha-tagged-cv013

Other

Description	Vendor or Source	Catalog
High fat diet	Research Diet	D12079B
Oil Red O dye	Sigma-Aldrich	O0625

DOI [to be added]

Alizarin Red S dye	Sigma-Aldrich	A5533
Alcian Blue Stain Kit	VECTOR	H-3501
TrueBlack® Lipofuscin Autofluorescence Quencher	Biotium	23007
QuantiChrom Calcium assay kit	BioAssay Systems	DICA-500
Hybrid-R™ RNA extraction kit	GeneAll	305-101
QuantiTect Reverse Transcription kit	Qiagen	205311
Rotor-Gene SYBR Green PCR kit	Qiagen	204074
Collagenase II	Worthington	CLS-2
Elastase	Worthington	LS002279
Collagenase I	Sigma-Aldrich	C0130
Collagenase XI	Sigma-Aldrich	C7657
DNase I	Sigma-Aldrich	DN25
Hyaluronidase	Sigma-Aldrich	H1115000
RNAScope® Probe-Mm-Ly6a	Advanced Cell Diagnostics	427571-C2
RNAScope® Probe-Mm-Myh11	Advanced Cell Diagnostics	316101
RNAScope® Probe-Mm-Ibsp	Advanced Cell Diagnostics	414401-C2
RNAScope® Probe-Mm-Acan	Advanced Cell Diagnostics	439101
RNAScope® 2.5HD Duplex Positive Control Probe (Mm) PPIB-C1/POLR2A-C2	Advanced Cell Diagnostics	321651
RNAScope® Negative Control Probe-DapB	Advanced Cell Diagnostics	310043
RNAScope® Probe-Hs-IBSP	Advanced Cell Diagnostics	587221
RNAScope® Probe-Hs-HAPLN1	Advanced Cell Diagnostics	506171
RNAScope® Probe-Hs-PPIB	Advanced Cell Diagnostics	313901
RNAScope® 2.5HD Duplex Assay	Advanced Cell Diagnostics	322435
Tris-EDTA buffer (pH 9.0)	Abcam	Ab93864
DAB peroxidase	VECTOR	SK-4105
Negative control siRNA	Bioneer	AccuTarget™ Negative Control siRNA, cat. SN-1012
<i>Txnip</i> siRNA	Bioneer	AccuTarget™ Genome-wide Predesigned siRNA No. 56338-3
<i>Smad4</i> siRNA	Bionics	A10001 Pre-designed siRNAs, candidate 1
<i>MAPK14</i> siRNA	Bionics	Pre-designed siRNAs, candidate 3
Lipofectamine RNAiMAX	Thermo Fisher	13778075
Cytobuster™ protein extraction reagent	Millipore	71009
Phosphatase inhibitor cocktail	GenDEPOT	P3200
Protease inhibitor cocktail	GenDEPOT	P3100
5X SDS-PAGE loading buffer	Biosesang	SF2002-110-00
BMP2	R&D Systems	355-BM
K02288	MedChemExpress	HY-12278
NE-PER Nuclear and Cytoplasmic Extraction Reagents kit	Thermo Fisher	78833

Chemiluminescent HRP substrate	Merck Millipore	WBKLS0500
Restore™ Western Blot Stripping Buffer	Thermo Fisher	21059
Lipofectamine LTX with Plus Reagent	Thermo Fisher	15338030
Pierce™ HA-Tag Magnetic IP/Co-IP Kit	Thermo Fisher	88838