

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 |
|---------|------------------|-------------------|-------|---------------------|
| Mice | Shown below | 129/B6 or B6/FVB | M & F | |
| | | | | |

Genetically Modified Animals

| Strains | Vendor or Source | Background Strain | Persistent ID / URL |
|--|--------------------------------|-------------------|---|
| <i>Alk1</i> -floxed | SP Oh/UF | 129/B6 | https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2200847/ |
| <i>Alk1</i> ^{LacZ} | SP Oh/UF | 129/B6 | https://pubmed.ncbi.nlm.nih.gov/12970115/ |
| <i>Alk1</i> ^{GFP^{Cre}} | SP Oh/UF | 129/B6 | https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3802535/ |
| ROSA26 ^{Alk1} | YJ Lee/Gachon University | 129/B6 | This manuscript is the first one reporting this strain. |
| <i>Eng</i> -floxed | H Arthur/ New Castle | 129/B6 | https://pubmed.ncbi.nlm.nih.gov/20224041/ |
| Tg <i>Eng</i> ^{loxP} | C Vary/Maine Medical Institute | 129/B6 | https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2041841/ |
| ROSA26 ^{CreER} | Jackson Laboratory | 129/B6 | https://www.jax.org/strain/008463 |
| Tg(<i>Myh11</i> -CreER) | Jackson Laboratory | B6/FVB | https://www.jax.org/strain/019079 |
| Tg(<i>Scf</i> -CreER) | CG Begley | B6/FVB | https://pubmed.ncbi.nlm.nih.gov/15187022/ |
| | | | |

Antibodies

| Target antigen | Vendor or Source | Catalog # | Working concentration | Lot # (preferred but not required) | Persistent ID / URL |
|----------------|------------------|-----------|--------------------------|------------------------------------|---|
| pAKT (Ser473) | Cell Signaling | 4060 | 1:1000 | | https://www.cellsignal.com/products/primary-antibodies/phospho-akt-ser473-d9e-xp-rabbit-mab/4060 |
| pan AKT | Cell Signaling | 4691 | 1:1000 | | https://www.cellsignal.com/products/primary-antibodies/akt-pan-c67e7-rabbit-mab/4691 |
| pSMAD1,5,8 | Cell Signaling | 13820 | WB(1:1000), IF(1:200) | | https://www.cellsignal.com/products/primary-antibodies/phospho-smad1-ser463-465-smad5-ser463-465-smad9-ser465-467-d5b10-rabbit-mab/13820 |
| SMAD1 | Cell Signaling | 9743 | 1:1000 | | https://www.cellsignal.com/products/primary-antibodies/smad1-antibody/9743 |
| HA | Covance | MMS-101-R | 1:1000 | | https://www.biolegend.com/en-us/products/anti-ha-11-epitope-tag-antibody-11071 |

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|-------------------------------------|--------------------------|--------------------|--------|--|---|
| HA | Abcam | ab9110 | 1:4000 | | https://www.abcam.com/ha-tag-antibody-chip-grade-ab9110.html |
| mouse ENG | BD Biosciences | 550546 | 1:100 | | https://www.bdbiosciences.com/us/applications/research/stem-cell-research/hematopoietic-stem-cell-markers/mouse/positive-markers/purified-rat-anti-mouse-cd105-mj718/p/550546 |
| mouse ENG | Santa Cruz Biotechnology | sc-18893 | 1:100 | | https://www.scbt.com/p/endoglin-antibody-mj7-18 |
| human ENG | BD Biosciences | 611315 | 1:300 | | https://www.bdbiosciences.com/us/applications/research/stem-cell-research/hematopoietic-stem-cell-markers/human/positive-markers/purified-mouse-anti-human-cd105-35cd105/p/611315 |
| mouse ALK1 | Santa Cruz Biotechnology | sc-19546 | 1:100 | | https://www.scbt.com/p/alk-1-antibody-d-20 |
| mouse-ALK1 | R&D systems | AF770 | 1:200 | | https://www.rndsystems.com/products/mouse-alk-1-antibody_af770 |
| β-ACTIN | Sigma-Aldrich Co | A1978 | 1:5000 | | https://www.sigmaaldrich.com/catalog/search?term=A1978&interface=All&N=0+&mode=partialmax&lang=en&region=US&focus=product |
| CD31 | Biocare medical | CM303 | 1:200 | | https://biocare.net/product/cd31-rat-antibody/ |
| cleaved CASPASE3 | Cell Signaling | 9661 | 1:200 | | https://www.cellsignal.com/products/primary-antibodies/cleaved-caspase-3-asp175-antibody/9661 |
| Ki67 | Thermo Scientific | RM-9106-S1 | 1:200 | | https://www.thermofisher.com/order/catalog/product/RM-9106-R7#/RM-9106-R7 |
| EMCN | Santa Cruz Biotechnology | sc-65495 | 1:200 | | https://www.scbt.com/p/endomucin-antibody-v-7c7 |
| LYVE1 | Novus Biologicals | NB600-1008 | 1:200 | | https://www.novusbio.com/products/lyve-1-antibody_nb600-1008 |
| ERG1/2/3-647 | Santa Cruz Biotechnology | sc-376293 AF647 | 1:100 | | https://www.scbt.com/p/erg-1-2-3-antibody-c-1 |
| SMA-Cy3 | Sigma-Aldrich Co | C6198 | 1:200 | | https://www.sigmaaldrich.com/catalog/product/sigma/c6198?lang=en&region=US |
| GFP | Abcam | ab290 | 1:500 | | https://www.abcam.com/gfp-antibody-chip-grade-ab290.html |
| JAGGED1 | R&D systems | AF599 | 1:100 | | https://www.rndsystems.com/products/rat-jagged-1-antibody_af599 |
| HRP-conjugated sheep anti-mouse IgG | GE healthcare | NA931V | | | https://www.sigmaaldrich.com/catalog/product/sigma/gena9311ml?lang=en&region=US |

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|---------------------------------------|------------------------|-------------|--------|--|---|
| HRP-conjugated donkey anti-rabbit IgG | GE healthcare | NA934 | 1:5000 | | https://www.sigmaaldrich.com/catalog/product/sigma/gena9341ml?lang=en&region=US |
| HRP-conjugated donkey anti-rat IgG | Jackson ImmunoResearch | 712-036-153 | 1:5000 | | https://www.jacksonimmuno.com/catalog/products/712-036-153 |
| HRP-conjugated donkey anti-goat IgG | Jackson ImmunoResearch | 705-036-147 | 1:5000 | | https://www.jacksonimmuno.com/catalog/products/705-036-147 |
| Alexa Fluor goat anti-rabbit AF 488 | Thermo Fisher | A11070 | 1: 500 | | https://www.thermofisher.com/antibody/product/Goat-anti-Rabbit-IgG-H-L-Cross-Adsorbed-Secondary-Antibody-Polyclonal/A-11070 |
| Alexa Fluor donkey anti-rabbit AF 594 | Thermo Fisher | A11072 | 1: 500 | | https://www.thermofisher.com/antibody/product/Goat-anti-Rabbit-IgG-H-L-Cross-Adsorbed-Secondary-Antibody-Polyclonal/A-11072 |
| Alexa Fluor donkey anti-goat AF 594 | Thermo Fisher | A11058 | 1: 500 | | https://www.thermofisher.com/antibody/product/Donkey-anti-Goat-IgG-H-L-Cross-Adsorbed-Secondary-Antibody-Polyclonal/A-11058 |
| Alexa Fluor donkey anti-rat AF 594 | Thermo Fisher | A21209 | 1: 500 | | https://www.thermofisher.com/antibody/product/Donkey-anti-Rat-IgG-H-L-Highly-Cross-Adsorbed-Secondary-Antibody-Polyclonal/A-21209 |
| Alexa Fluor goat anti-rat AF 350 | Thermo Fisher | A21093 | 1: 500 | | https://www.thermofisher.com/antibody/product/Goat-anti-Rat-IgG-H-L-Cross-Adsorbed-Secondary-Antibody-Polyclonal/A-21093 |
| Alexa Fluor goat anti-rat AF 647 | Thermo Fisher | A21247 | 1: 500 | | https://www.thermofisher.com/antibody/product/Goat-anti-Rat-IgG-H-L-Cross-Adsorbed-Secondary-Antibody-Polyclonal/A-21247 |
| Alexa Fluor Streptavidin AF 594 | Thermo Fisher | S11227 | 1: 500 | | https://www.thermofisher.com/order/catalog/product/S11227#/S11227 |
| Alexa Fluor Streptavidin AF 405 | Thermo Fisher | S 32351 | 1: 500 | | https://www.thermofisher.com/order/catalog/product/S32351#/S32351 |

DNA/cDNA Clones

| Clone Name | Sequence | Source / Repository | Persistent ID / URL |
|----------------------------------|----------|---|--|
| pROSA-CAGGS-HA- <i>Alk1</i> -GFP | | HA-tagged mouse <i>Alk1</i> was inserted into the pBSApBpACAGftIGn plasmid (1), and then finally sucloned into the pROSA26PAS plasmid (2) | 1. https://pubmed.ncbi.nlm.nih.gov/19023080/ 2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1253836/ |

DOI [to be added]

| | | | |
|----------|--|---|---|
| pPNT-Cre | | The Cre gene was inserted into pPNT vector. | https://pubmed.ncbi.nlm.nih.gov/2065352/ |
| | | | |

Cultured Cells

| Name | Vendor or Source | Sex (F, M, or unknown) | Persistent ID / URL |
|-----------------------------------|---|------------------------|---|
| Mouse pulmonary Endothelial Cells | Home-made | Unknown | |
| Mouse J1 Embryonic Stem Cells | The cell line was kindly gifted from Dr. E Li | M | https://www.atcc.org/products/all/SCRC-1010.aspx#generalinformation |
| | | | |

Data & Code Availability

| Description | Source / Repository | Persistent ID / URL |
|-------------|---------------------|---------------------|
| | | |
| | | |
| | | |

Other

| Description | Source / Repository | Persistent ID / URL |
|-------------|---------------------|---------------------|
| | | |
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