

## 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 |
|---------|--------------------|-------------------|---------------|---------------------|
| Mouse   | Jackson laboratory | C57BL/6J          | Male & female | Stock # 000664      |

### Genetically Modified Animals

|                                                               | Species | Vendor or Source                                                      | Background Strain | Other Information                                                                                                                                               | Persistent ID / URL                                                                                                                 |
|---------------------------------------------------------------|---------|-----------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <i>Eprs</i> <sup>+/-</sup>                                    | mouse   | Generated by Lin Gan, Mouse Genome Editing Core, URMCC, Rochester, NY | C57BL/6J          | See Expanded Materials & Methods                                                                                                                                | N/A                                                                                                                                 |
| <i>Eprs</i> <sup>flox/+</sup> ; <i>Postn</i> <sup>MCM/+</sup> | mouse   | Generated by Peng Yao laboratory                                      | C57BL/6J          | See Expanded Materials & Methods                                                                                                                                | N/A                                                                                                                                 |
| <i>Postn</i> <sup>MCM/+</sup><br>Parent – male                | mouse   | Provided by Dr. Eric Small, URMCC, Rochester, NY                      | C57BL/6J          | Initially generated by Dr. Jeffery Molkentin laboratory                                                                                                         | N/A                                                                                                                                 |
| <i>Eprs</i> <sup>flox/flox</sup><br>Parent – female           | mouse   | Canadian Mouse Mutant Repository                                      | C57BL/6J          | Strain name: C57BL/6N- <i>Eprs</i> <sup>tm1c(EUCOMM)Hmgu&gt;/Tcp</sup><br>Transfer to C57BL/6J background from C57BL/6N by breeding for more than 5 generations | <a href="http://www.cmmr.ca/gene-detail.php?gene=MGI:97838">Eprs_tm1c_B03<br/>http://www.cmmr.ca/gene-detail.php?gene=MGI:97838</a> |

### Antibodies

| Target antigen | Vendor or Source        | Catalog # | Working concentration        | Lot # (preferred but not required) | Persistent ID / URL                                                                                                                                                               |
|----------------|-------------------------|-----------|------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPRS           | Abcam                   | Ab157122  | IF, IHC: 1:300<br>IB: 1:2000 |                                    | <a href="https://www.abcam.com/glutamyl-prolyl-trna-synthetasepars-antibody-ab157122.html">https://www.abcam.com/glutamyl-prolyl-trna-synthetasepars-antibody-ab157122.html</a>   |
| ProRS          | Santa Cruz              | sc-393505 | IB: 1:500                    |                                    | <a href="https://www.scbt.com/p/prors-antibody-a-2">https://www.scbt.com/p/prors-antibody-a-2</a>                                                                                 |
| SULF1          | ThermoFisher Scientific | PA5-50890 | IF, IHC: 1:200               |                                    | <a href="https://www.thermofisher.com/antibody/product/SULF1-Antibody-Polyclonal/PA5-50890">https://www.thermofisher.com/antibody/product/SULF1-Antibody-Polyclonal/PA5-50890</a> |

|                   |                         |                  |                              |  |                                                                                                                                                                                                           |
|-------------------|-------------------------|------------------|------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Col III           | ThermoFisher Scientific | PA527828         | IF: 1:200                    |  | <a href="https://www.thermofisher.com/antibody/product/Collagen-III-Antibody-Polyclonal/PA5-27828">https://www.thermofisher.com/antibody/product/Collagen-III-Antibody-Polyclonal/PA5-27828</a>           |
| Periostin         | ThermoFisher Scientific | PA5-34641        | IF: 1:300<br>IB: 1:1000      |  | <a href="https://www.thermofisher.com/antibody/product/Periostin-Antibody-Polyclonal/PA5-34641">https://www.thermofisher.com/antibody/product/Periostin-Antibody-Polyclonal/PA5-34641</a>                 |
| MYH6              | ThermoFisher Scientific | MA5-27819        | IHC: 1:300                   |  | <a href="https://www.thermofisher.com/antibody/product/MYH6-Antibody-clone-GT5612-Monoclonal/MA5-27819">https://www.thermofisher.com/antibody/product/MYH6-Antibody-clone-GT5612-Monoclonal/MA5-27819</a> |
| COL1A1            | Sigma-Aldrich           | SAB1402151-100UG | IF, IHC: 1:200<br>IB: 1:1000 |  | <a href="https://www.sigmaaldrich.com/catalog/product/sigma/sab1402151?lang=en&amp;region=US">https://www.sigmaaldrich.com/catalog/product/sigma/sab1402151?lang=en&amp;region=US</a>                     |
| $\alpha$ -Actinin | Sigma-Aldrich           | A7811            | IHC: 1:500                   |  | <a href="https://www.sigmaaldrich.com/catalog/product/sigma/a7811?lang=en&amp;region=US">https://www.sigmaaldrich.com/catalog/product/sigma/a7811?lang=en&amp;region=US</a>                               |
| $\alpha$ -SMA     | Sigma-Aldrich           | A2547            | IF, IHC: 1:500<br>IB: 1:2000 |  | <a href="https://www.sigmaaldrich.com/catalog/product/sigma/a2547?lang=en&amp;region=US">https://www.sigmaaldrich.com/catalog/product/sigma/a2547?lang=en&amp;region=US</a>                               |
| COL3A1            | Santa Cruz              | sc-271249        | IB: 1:200                    |  | <a href="https://www.scbt.com/p/col3a1-antibody-b-10">https://www.scbt.com/p/col3a1-antibody-b-10</a>                                                                                                     |
| Vimentin          | ProteinTech             | 10366-1-AP       | IHC: 1:250                   |  | <a href="https://www.ptglab.com/Products/VIM-Antibody-10366-1-AP.htm">https://www.ptglab.com/Products/VIM-Antibody-10366-1-AP.htm</a>                                                                     |
| CysRS             | Santa Cruz              | sc-390230        | IB: 1:1000                   |  | <a href="https://www.scbt.com/p/cytoplasmic-cysrs-antibody-a-3">https://www.scbt.com/p/cytoplasmic-cysrs-antibody-a-3</a>                                                                                 |
| FLAG              | Sigma-Aldrich           | F1804            | IF: 1:250<br>IB: 1:2000      |  | <a href="https://www.sigmaaldrich.com/catalog/product/sigma/f1804?lang=en&amp;region=US">https://www.sigmaaldrich.com/catalog/product/sigma/f1804?lang=en&amp;region=US</a>                               |
| FLAG              | ProteinTech             | 20543-1-AP       | IF: 1:250<br>IB: 1:2000      |  | <a href="https://www.ptglab.com/products/Flag-Tag-Antibody-20543-1-AP.htm">https://www.ptglab.com/products/Flag-Tag-Antibody-20543-1-AP.htm</a>                                                           |
| GAPDH             | ProteinTech             | 60004-1-Ig       | IB: 1:5000                   |  | <a href="https://www.ptglab.com/products/GAPDH-Antibody-60004-1-Ig.htm">https://www.ptglab.com/products/GAPDH-Antibody-60004-1-Ig.htm</a>                                                                 |

### DNA/cDNA Clones

| Clone Name      | Sequence                 | Source / Repository | Persistent ID / URL                                                                                                               |
|-----------------|--------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| pLV-mSulf1-Flag | Listed in the repository | VectorBuilder       | <a href="https://en.vectorbuilder.com/vector/VB191007-1166ekk.html">https://en.vectorbuilder.com/vector/VB191007-1166ekk.html</a> |
| pLV-mEprs-Flag  | Listed in the repository | VectorBuilder       | <a href="https://en.vectorbuilder.com/vector/VB191007-1162bxu.html">https://en.vectorbuilder.com/vector/VB191007-1162bxu.html</a> |

### Cultured Cells

| Name    | Vendor or Source                                 | Sex (F, M, or unknown) | Persistent ID / URL                                                                                                                                 |
|---------|--------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| NIH/3T3 | Provided by Dr. Eric Small, URMCC, Rochester, NY | Unknown                | <a href="https://www.atcc.org/products/all/CRL-1658.aspx#generalinformation">https://www.atcc.org/products/all/CRL-1658.aspx#generalinformation</a> |

|                                  |                     |               |     |
|----------------------------------|---------------------|---------------|-----|
| Adult ventricular cardiomyocytes | Mouse primary cells | Male          | N/A |
| Adult cardiac fibroblast cells   | Mouse primary cells | Male & female | N/A |

### Data & Code Availability

| Description                                                                                   | Source / Repository           | Persistent ID / URL |
|-----------------------------------------------------------------------------------------------|-------------------------------|---------------------|
| RNA-Seq and polysome profiling RNA-Seq in halofuginone treated NIH/3T3 mouse fibroblast cells | Gene Expression Omnibus (GEO) | GSE136838           |

### Other

| Description                        | Source / Repository | Persistent ID / URL                                                                                                               |
|------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| mSulf1-Flag recombinant lentivirus | VectorBuilder       | <a href="https://en.vectorbuilder.com/vector/VB191007-1166ekk.html">https://en.vectorbuilder.com/vector/VB191007-1166ekk.html</a> |
| mEprs-Flag recombinant lentivirus  | VectorBuilder       | <a href="https://en.vectorbuilder.com/vector/VB191007-1162bxu.html">https://en.vectorbuilder.com/vector/VB191007-1162bxu.html</a> |