**Supplementary material Table S1. Findings of miRNAs in coronary artery disease**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **miRNAs** | **Expression** | **Species/Cell** | **Target regulation** | **Mechanisms** | **Ref** |
| miR-15a | Downregulated | Human | / | / | [43] |
| miR-16 | Downregulated | Human/Mice | PDCD4/p38/ERK1/2 | Inflammatory Response | [44] |
| miR-17 | Upregulated | HUVECs | IGF1 | Proliferation; Apoptosis | [45] |
| miR-18a-5p | Upregulated | VSMCs/Mice | AKT/ERK | Proliferation; Migration | [46] |
| miR-101 | Upregulated | Human/HUVECs | CDH5 | Apoptosis; Migration | [47] |
| miR-101 | Downregulated | Mice/H9c2 | DDIT4 | Autophagy; Apoptosis | [48] |
| miR-101a | Upregulated | Human | / | / | [49] |
| miR-124 | Downregulated | RAW264.7cells/Trans-Endothelial Migration | p38/MAPK | Apoptosis | [50] |
| miR-124-3p | Downregulated | Mice/Macrophages | MEKK3/p38MAPK | Apoptosis; Proliferation | [51] |
| miR-126 | Upregulated | Mice/HUVECs | S1PR2 | Inflammatory Response | [52] |
| miR-130 | Upregulated | Human | / | / | [53] |
| miR-133a | Downregulated | Mice | TGF-β1 | Fibrosis | [54] |
| miR-150 | Downregulated | Mice | / | Apoptosis | [55] |
| miR-155-5p | Downregulated | Human/VSMCs/  HUVECs | AKT1 | Proliferation; Migration | [56] |
| miR-182-5p | Downregulated | Human/HA-VSMCs | PAPPA | Proliferation | [57] |
| miR-184 | Upregulated | H9c2 | FBXO28 | Apoptosis | [58] |
| miR-1247-3p | Downregulated | Mice | BCL2L11/caspase-2 | / | [59] |
| miR-24-3p | Upregulated | Human/VSMCs | Bcl-2-like protein11 | Proliferation; Apoptosis | [60] |
| miR-26a-5p | Downregulated | Human/Mice | PTEN/PI3K/AKT | Proliferation; Apoptosis | [5] |
| miR-29b | Downregulated | Mice/H9c2 | SH2B3 | Fibrosis | [61] |
| miR-200a | Upregulated | Mice | Fus | Apoptosis | [62] |
| miR-200a-3p | Downregulated | Mice | TXNIP/NLRP3 | Pyroptosis | [63] |
| miR-200a-3p | Downregulated | Mice | TXNIP/NLRP3 | Pyroptosis | [64] |
| miR-202-3P | Upregulated | Human/THP-1 | ABCG4/NCEH1/SR-B2 | Foam Cell Formation | [65] |
| miR-206 | Upregulated | Human | / | / | [66] |
| miR-210 | Upregulated | H9c2/HCM | Casp8ap2 | Apoptosis; Autophagy | [67] |
| miR-217 | Upregulated | Mice/HVECs | / | / | [68] |
| miR-223 | Downregulated | HVECs | NLRP3 | Pyroptosis | [69] |
| miR-31 | Upregulated | Human/PBMCs | Bach2 | Differentiation | [70] |
| miR-320b | Upregulated | Mice | ABCG1/EEPD1 | Cholesterol Efflux | [71] |
| miR-323-3p | Upregulated | Mice | SIRT1 | Apoptosis | [72] |
| miR-327 | Upregulated | Mice/H9c2 | ARC | Apoptosis | [73] |
| miR-339 | Upregulated | Human/Mice | Sirt2/Nrf2/FOXO3 | Oxidative Stress | [38] |
| miR-345-3P | Downregulated | HUVECs | TRAF6 | Apoptosis;  Inflammatory Response | [74] |

**Supplementary material Table S1. Findings of miRNAs in coronary artery disease (Continued)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **miRNAs** | **Expression** | **Species/Cell** | **Target regulation** | **Mechanisms** | **Ref** |
| miR-363-3p | Downregulated | Mice | NOX4/p38/MAPK | Apoptosis;  Inflammatory Response | [75] |
| miR-374b | Upregulated | Pig/HUVECs | MAPK7 | Endothelial–Mesenchymal Transition | [76] |
| miR-378 | Downregulated | Human | / | / | [77] |
| miR-381 | Downregulated | Human/HUVECs | CXCR4 | Apoptosis;  Inflammatory Response; | [78] |
| miR-3129-5p | Upregulated | Human/H9c2 | mTOR | Autophagy | [79] |
| miR-3614 | Downregulated | Macrophages | TRAF6/MAPKs/NF-κB | Inflammatory Response | [80] |
| miR-488-3P | Downregulated | Human/Mice/HUVECs | ZNF791 | Apoptosis; Proliferation | [81] |
| miR-4286 | Upregulated | Human | / | / | [82] |
| miR-4306 | Downregulated | Mice | VEGFA/ERK1/2/NF-κB | Migration | [83] |
| miR-520b | Downregulated | Human/HUVECs | NF-κB/p65-VCAM1 | Monocyte Adhesion/Trans-Endothelial Migration | [84] |
| miR-520d-3p | Downregulated | HCM/Mice | ATG12 | Autophagy; Apoptosis | [85] |
| miR-577 | Downregulated | Mice/MCM | PARP1 | Apoptosis | [86] |
| miR-587 | Upregulated | Human | / | / | [87] |
| miR-665 | Downregulated | VSMCs | TGFBR1 | Proliferation; Apoptosis | [88] |
| miR-9 | Downregulated | HUVECs | Notch1 | Arteriogenesis | [89] |
| miR-9 | Downregulated | Mice | OLR1/p38MAPK | / | [90] |

**Abbreviation:** HCAECs: human coronary artery endothelial cells; HCM: human myocardial cell; ECs: endothelial cells; HVECs: human vascular endothelial cells; HVECs: human vein endothelial cells; CMEC: cardiac microvascular endothelial cell; HUVECs: human umbilical vein endothelial cells; BMDMs: Bone marrow-derived macrophages; PBMCs: Peripheral blood mononuclear cells; IGF1: insulin-like-growth factor 1; CMs: cardiomyocytes; CFs: cardiac fibroblasts; MEFs: mouse embryonic fibroblasts; CHOC: Chinese hamster ovary cell; CAEC: coronary artery endothelial cell; HAECs: human artery endothelial cells; NRVCs: neonatal rat ventricular cells; MVSMCs: mice vascular smooth muscle cells; CCC: coronary collateral circulation; EPCs: endothelial progenitor cells; VEGF: vascular endothelial growth factor; EGFR: epidermal growth factor receptor; TF: tissue factor; MSCs: mesenchymal stem cells.

**Supplementary material Table S2. Findings of lncRNAs in coronary artery disease**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LncRNAs** | **Expression** | **Species/Cell** | **Target regulation** | **Mechanisms** | **Ref** |
| AK136714 | Upregulated | Mice | HuR/FOXO3 | / | [91] |
| AL355711 | Upregulated | Mice | ABCG1/mmp3 | Migration | [92] |
| Ang362 | Upregulated | Mice | TGF-β1/Smad7 . | Fibrosis | [93] |
| ANRIL | Upregulated | Mice | / | Fibrosis; Apoptosis | [94] |
| ANRIL | Upregulated | Human/HCAECs/  HUVECs | CLIP1/EZ/LYVE1 | Monocyte Adhesion | [95] |
| ANRIL | Upregulated | Human/HUVECs | let-7b/TGF-βR1 | / | [96] |
| APOA1-AS | Upregulated | VSMCs | TAF15/SMAD3 | Proliferation; Migration; Apoptosis | [97] |
| AWPPH | Upregulated | Human | / | Apoptosis; Proliferation | [98] |
| C2dat1 | Upregulated | Human/VSMCs | miR-34a-5p | Migration | [99] |
| CASC11 | Downregulated | Human | TGF-β1 | Apoptosis | [100] |
| CDKN2B-AS1 | Downregulated | VSMCs | miR-126-5p/PTPN7/  PI3K-Akt | Proliferation; Apoptosis | [101] |
| CERNA1 | / | Mice/ HUVECs | API5 | Apoptosis | [102] |
| ENST00000609755.1 | Upregulated | Human/HCAECs | / | Apoptosis | [103] |
| ENST00000416361 | Upregulated | Human/HUVECs | / | Inflammatory Response | [104] |
| ENST00000602558.1 | / | Human | p65 | Cholesterol Efflux | [105] |
| EZR-AS1 | Upregulated | Human/HUVECs | SMYD3 | Proliferation; Migration;  Apoptosis | [106] |
| FA2H-2 | Downregulated | Human | / | Inflammatory Response | [107] |
| FAF | Downregulated | Human | FGF9 | Fibrosis | [62] |
| FOXC2-AS1 | Upregulated | Human/VSMCs | miR-1253/FOXF1 | Proliferation; Apoptosis | [108] |
| GAS5 | Upregulated | Mice | EZH2/ABCA1 | Lipid Accumulation | [109] |
| GAS5 | Downregulated | Mice | miR-21 | Apoptosis | [110] |
| GAS5 | Downregulated | Human/mice | Wnt/β-catenin | Apoptosis | [111] |
| H19 | Upregulated | Mice/HAVSMCs | Let-7a | Proliferation | [81] |
| H19 | Upregulated | Human/HCAECs | TGF-β1 | / | [112] |
| HIF1A-AS2 | Upregulated | Mice | ATF2 | Inflammatory Response | [113] |
| HIF1A-AS2 | Upregulated | HMCs | TRIM44 | / | [114] |
| HOTAIR | Downregulated | Mice/H9c2 | miR-519d-3p | Apoptosis; Necrosis | [115] |
| KCNC3-3:1 | Upregulated | Mice/HUVEC | JAK1/STAT3 | Endothelial cell damage and lipid metabolism | [116] |
| Kcnq1ot1 | Upregulated | Mice/H9C2 | miR-466k/miR-466i-5P/  Tead1 | Apoptosis | [117] |

**Supplementary material Table S2. Findings of lncRNAs in coronary artery disease(Continued)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LncRNAs** | **Expression** | **Species/Cell** | **Target regulation** | **Mechanisms** | **Ref** |
| LEF1-AS1 | Upregulated | Human/VSMCs | miR-544a/PTEN | Migration; Proliferation | [81] |
| LINC00261 | Upregulated | Mice | miR-522-3p/TNRC6A | Apoptosis | [118] |
| LINC00936 | Upregulated | Mice | NFKBIA/NF-κB | Inflammatory Response;  Apoptosis | [119] |
| MALAT1 | Upregulated | Mice | miR-145/TGF‐β1 | Fibrosis | [120] |
| MALAT1 | Upregulated | Mice | miR-181a-5p | Apoptosis | [121] |
| MALAT1 | Upregulated | Mice | miR-125b-5p/ NLRC5 | Apoptosis | [122] |
| MALAT1 | Upregulated | Mice/EPCs | miR-15b-5p/MAPK1/  mTOR | Autophagy; Apoptosis | [123] |
| MALAT1 | Upregulated | Human | miR-125b | Inflammatory Response | [124] |
| MEG3 | Downregulated | Human/VSMC | miR-26a/Smad1 | Proliferation; Apoptosis | [125] |
| MIAT | Upregulated | Mice | miR-10a-5p/EGR2 | Apoptosis | [126] |
| MIAT | Upregulated | Mice/HCM | miR-181a-5p/JAK2/  STAT3 | Apoptosis;  Inflammatory Response | [127] |
| Mirt2 | Upregulated | Mice | miR-764/PDK1 | Apoptosis | [128] |
| NEAT1 | Upregulated | Human/HUVECs | miR-148b-3p/ICAM-1 | Apoptosis;Proliferation;  Inflammatory Responses | [40] |
| NEAT1 | Upregulated | Mice/HUVECs | miR-181d-5p/CDKN3 | / | [129] |
| NEAT1 | Upregulated | Human/HCAECs/  HUVECs | miR-140-3p/MAPK1 | Apoptosis | [130] |
| NEXN-AS1 | Downregulated | Mice/VSMCs/  HUVECs | TLR4/NF-κB | Activation and Adhesion | [131] |
| NORAD | Upregulated | Mice/HUVECs | miR-590-3p | Angiogenesis | [132] |
| NORAD | Upregulated | Mice/HUVECs | H3K9/VEGF | / | [133] |
| NR\_045363 | Upregulated | Mice | p53 | Apoptosis | [134] |
| P21 | Downregulated | Mice/HAECs | miR-221/SIRT1/PCSK9 | Proliferation; Migration; Tube Formation;  ROS Accumulation; Apoptosis | [39] |
| PEBP1P2 | Downregulated | Mice/Human/  HVSMCs | CDK9 | Phenotypic Switching;  Proliferation | [135] |
| PVT1 | Upregulated | Human | / | / | [136] |
| SENCR | Downregulated | Human/VSMCs | miR‐4731‐5p/FOXO3a | Proliferation; Migration | [137] |
| SNHG14 | Downregulated | Mice/HA-VSMC | miR-19a-3p | Proliferation; Apoptosis | [138] |
| THRIL | Upregulated | Human | AKT/FUS | Autophagy | [139] |
| THRIL | Upregulated | Mice | miR-424/TXNIP | / | [140] |
| TONSL-AS1 | Downregulated | Human/HCAECs | miR-197/BCL-2 | Migration; Apoptosis | [141] |
| TTTY15 | Upregulated | Mice | miR-374a-5p/FOXO1 | Autophagy | [142] |

**Supplementary material Table S2. Findings of lncRNAs in coronary artery disease (Continued)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LncRNAs** | **Expression** | **Species/Cell** | **Target regulation** | **Mechanisms** | **Ref** |
| TUG1 | Downregulated | Mice | miR-186-5p/XIAP | Pyroptosis | [143] |
| Uc003pxg.1 | Upregulated | Human/HUVECs | miR-25-5p | Proliferation; Migration | [144] |
| XIST | Upregulated | HVSMCs | miR-761/BMP9 | Proliferation; Migration | [145] |
| ZFAS1 | Upregulated | Mice/CFs | Wnt/β-catenin | Apoptosis | [146] |

**Abbreviation:** HVSMCs: Human vascular smooth muscle cells; HAECs: Human aortic endothelial cells; HUVEC: Human umbilical vein endothelial cell; HCM: Human cardiomyocytes; VSMCs :vascular smooth muscle cells; HA-VSMC: Human primary aortic smooth muscle cells; HCAECs: Human coronary endothelial cells; CFs: Cardiac fibroblasts; TNRC6A: Trinucleotide Repeat-Containing Gene 6a; HMCs: Human cardiomyocytes; SMYD3: SET and MYND domain-containing protein 3; CDK9: cyclin-dependent kinase 9; HCASMCs: human coronary artery smooth muscle cells; EPCs: endothelial progenitor cells.

**Supplementary material Table S3. Findings of circRNAs in coronary artery disease**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ciriRNAs** | **Expression** | **Species/Cell** | **Target regulation** | **Mechanisms** | **Ref** |
| circ\_0004104 | Upregulated | ECs | miR-100/TNFAIP8 | Proliferation; Apoptosis; Inflammatory Response; | [147] |
| circ\_0030235 | Upregulated | H9c2 | miR-526b/PI3K/  AKT & MEK/ERK | Apoptosis | [148] |
| circDHCR24 | Upregulated | HA-VSMC | miR-149-5p/MMP9 | Proliferation; Migration | [42] |
| circ-HIPK2 | Upregulated | PMNCs | miR-485-5p/ATG101 | Apoptosis; Autophagy | [41] |
| circMAP3K5 | Downregulated | Mice/HCASMCs | miR-22-3P | Proliferation | [149] |
| circ\_ROBO2 | Upregulated | Human | miR-149/NF-κB | Proliferation; Migration; Apoptosis | [150] |
| circ-SATB2 | Upregulated | VSMCs | miR-939/STIM1 | Proliferation; Differentiation | [151] |
| hsa\_circ\_0001445 | Downregulated | Human | / | / | [152] |
| hsa\_circ\_0030042 | Downregulated | HUVECs | eIF4A3/FOXO1/beclin1 | Autophagy | [153] |

**Abbreviation:** HASMCs: Human Aortic Smooth Muscle Cells; HCASMCs: human coronary artery smooth muscle cells; PMNCs: primary mouse neonatal cardiomyocytes; ASMC: Aortic Smooth Muscle Cell; VSMC: vascular smooth muscle cell; VECs: Vascular Endothelial Cells.

**Supplementary material Table S4. Findings of exosomal-derived ncRNAs in coronary artery disease**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Exosomal-**  **ncRNAs** | **Donor cell** | **Target Cell** | **Target regulation** | **Mechanisms** | **Ref** |
| Exo-miR-25-3p | Platelet | CVECs | Adam10/NF-κB | Inflammation | [171] |
| Exo-miR-92a | Cardiomyocyte | Myofibroblast | SMAD7/αSMA | Myofibroblast Activation | [62] |
| Exo-miR-126 | Platelet | HUVECs | Angiogenic  Factors | Proliferation; Migration | [168] |
| Exo-miR-let7 | MSC | M2 Macrophage | HMGA2/NF-κB | Polarization; Migration | [172] |
| AK139128 | Cardiomyocytes | Cardiac Fibroblasts | / | Apoptosis; Proliferation; Migration | [173] |
| H19 | MSC | EC | miR-675-5p/-3p/  VEGF/ICAM-1 | Angiogenesis | [174] |
| HCP5 | BMSC | Myocardial cell | miR-497/IGF1/  PI3K/AKT | Apoptosis | [175] |
| KLF3-AS1 | HMSC | Cardiomyocytes | miR-138-5p/Sirt1 | Pyroptosis; Apoptosis; Inflammation | [169] |
| KLF3-AS1 | Cardiomyocytes | MSC | miR-23c/STAT5B | IGF-1 Secretion | [176] |
| LINC00174 | EC | Cardiomyocytes | SRSF1/P53/AKT/  AMPK | Autophagy; Apoptosis | [177] |
| LINC01005 | EC | VSMC | miR-128-3p/KLF4 | Proliferation; Migration | [178] |
| MALAT1 | hESC-CVPCs | Cardiomyocytes | miR-497 | Angiogenesis | [179] |
| MALAT1 | Cardiomyocytes | Cardiomyocytes | miR-92a/KLF2/CD31 | Neovascularization | [180] |
| Mir9-3hg | BMSC | cardiomyocyte | Pum2/PRDX6 | Ferroptosis | [181] |
| SNHG9 | MSC | EC | TRADE/NF-kB | Apoptosis; Inflammation | [182] |
| UCA1 | MSC | CMECs | miR-143/Bcl-2 | Autophagy | [183] |
| UCA1 | MSC | Cardiomyocytes | miR-873-5p/XIAP | / | [184] |
| Exo-circ\_0036176 | Cardiomyocytes | Cardiac Fibroblast | Myo9a-208/cyclin/Rb | Proliferation | [185] |
| Exo-circR-HIPK3 | Cardiomyocytes | CMVECs | miR-29a/IGF-1 | Apoptosis；  ROS Accumulation | [170] |

**Abbreviation:** BMMSCs: Bone marrow mesenchymal stem cells; CVEC: cardiovascular endothelial cells; MSCs: mesenchymal stem cells; HUVECs: human umbilical vein endothelial cells. HMSC: human mesenchymal stem cell; MSC: mesenchymal stem cell; BMSC: bone marrow mesenchymal stem cells; hESC-CVPCs: human embryonic stem cell-derived cardiovascular progenitor cells; CMECs: cardiac microvascular endothelial cells; ECs: endothelial cells; VSMC: vascular smooth muscle cell; DC: dendritic cell.