|  |  |
| --- | --- |
| miRNA Name | Mature miRNA Sequence |
| hsa-miR-17-5p (MIMAT0000070) | 5'CAAAGUGCUUACAGUGCAGGUAG |
| hsa-miR-18a-5p (MIMAT0000072) | 5'UAAGGUGCAUCUAGUGCAGAUAG |
| hsa-miR-19a-3p (MIMAT0000073) | 5'UGUGCAAAUCUAUGCAAAACUGA |
| hsa-miR-19b-3p (MIMAT0000074) | 5'UGUGCAAAUCCAUGCAAAACUGA |
| hsa-miR-20a-5p (MIMAT0000075) | 5'UAAAGUGCUUAUAGUGCAGGUAG |
| hsa-miR-21-3p (MIMAT0004494) | 5'CAACACCAGUCGAUGGGCUGU |
| hsa-miR-21-5p (MIMAT0000076) | 5'UAGCUUAUCAGACUGAUGUUGA |
| hsa-miR-29a-3p (MIMAT0000086) | 5'UAGCACCAUCUGAAAUCGGUUA |
| hsa-miR-29b-3p (MIMAT0000100) | 5'UAGCACCAUUUGAAAUCAGUGUU |
| hsa-miR-29c-3p (MIMAT0000681) | 5'UAGCACCAUUUGAAAUCGGUUA |
| hsa-miR-92a-3p (MIMAT0000092) | 5'UAUUGCACUUGUCCCGGCCUGU |
| hsa-miR-122-5p (MIMAT0000421) | 5'UGGAGUGUGACAAUGGUGUUUG |
| hsa-miR-145-5p (MIMAT0000437) | 5'GUCCAGUUUUCCCAGGAAUCCCU |
| hsa-miR-146b-5p (MIMAT0002809) | 5'UGAGAACUGAAUUCCAUAGGCUG |
| hsa-miR-182-5p (MIMAT0000259) | 5'UUUGGCAAUGGUAGAACUCACACU |
| hsa-miR-204-5p (MIMAT0000265) | 5'UUCCCUUUGUCAUCCUAUGCCU |
| hsa-miR-708-3p (MIMAT0004927) | 5'CAACUAGACUGUGAGCUUCUAG |
| hsa-miR-708-5p (MIMAT0004926) | 5'AAGGAGCUUACAAUCUAGCUGGG |

**Table S1. RT-qPCR miRCURY LNA miRNA primer assays sequences.**

**Table S2. Significantly up-regulated TGFβ1-responsive miRNAs associated with glaucoma-related signalling pathways and their gene targets.**

|  |  |  |
| --- | --- | --- |
| KEGG Pathway | miRNA | Gene Targets |
| HIF-1 signalling pathway | hsa-miR-99b-5p | IGF1R, MTOR |
| hsa-miR-122-5p | AKT1, IGF1R, MTOR, PIK3CG, VHL |
| hsa-miR-125a-5p | AKT1, BCL2, CDKN1A, EDN1, EGFR, EIF4EBP1,  ERBB2, HK2, IFNG, MTOR, PIK3CG, STAT3, VEGFA |
| hsa-miR-139-5p | BCL2, IGF1R, NFKB1, PIK3CA |
| hsa-miR-181a-5p | BCL2, CDKN1A, CDKN1B, IFNG, MAP2K1, MAPK1,  STAT3, TIMP1 |
| hsa-miR-182-5p | AKT1, BCL2, CDKN1B, IGF1R, LDHA, NFKB1, STAT3, VHL |
| hsa-miR-193a-5p | ERBB2, MTOR, PIK3R3 |
| hsa-miR-503-5p | BCL2, CDKN1A, IGF1R, PIK3R1, VEGFA |
| hsa-miR-574-3p | CUL2, EGFR, EP300 |
| hsa-miR-708-5p | AKT1, AKT2, BCL2 |
| AGE-RAGE signalling pathway in diabetic complications | hsa-miR-125a-5p | AKT1, EGFR, JAK2, MAPK14, RAF1, SMAD2, STAT3 |
| hsa-miR-146a-5p | EGFR, NFKB1, RAC1, RHOA, ROCK1, SMAD2, STAT1 |
| hsa-miR-216a-5p | CDC42, JAK2 |
| hsa-miR-543 | MMP7, NOS3 |
| hsa-miR-574-3p | EGFR, RAC1 |
| hsa-miR-708-5p | AKT1, MMP2, SMAD3 |
| Hippo signalling pathway | hsa-miR-23b-5p | SMAD3, TGFB2, TGFBR2 |
| hsa-miR-182-5p | APC, BMPR2, CCND1, CSNK1E, CTNNA1, SMAD4, SMAD7, YWHAG |
| hsa-miR-183-5p | BTRC, GSK3B, PPP2CB, SMAD4, SNAI2 |
| hsa-miR-574-3p | SMAD4, TGFB1 |
| hsa-miR-708-5p | BIRC5, CCND1, SMAD3 |
| hsa-miR-744-5p | GSK3B, MYC, NKD1 |
| Neurotrophin signalling pathway | hsa-miR-122-5p | AKT1, BAX, PIK3CG |
| hsa-miR-125a-5p | AKT1, BCL2, MAPK14, NTRK3, PIK3CG, RAF1, TP53, TRAF6 |
| hsa-miR-139-5p | BCL2, HRAS, JUN, NFKB1, PIK3CA, RAP1B |
| hsa-miR-146a-5p | IRAK1, IRAK2, NFKB1, RAC1, RHOA, SOS1, TRAF6 |
| hsa-miR-181a-5p | BAX, BCL2, HRAS, KRAS, MAP2K1, MAPK1, NRAS,  PRKCD, PTPN11, RAP1B |
| hsa-miR-182-5p | AKT1, BCL2, FOXO3, FRS2, IRAK1, IRS1, MAPK8, NFKB1, SHC1 |
| hsa-miR-708-5p | AKT1, AKT2, BCL2 |
| PI3K-Akt signalling pathway | hsa-miR-99b-5p | IGF1R, MTOR |
| hsa-miR-122-5p | AKT1, CDK4, CREB1, G6PC3, GYS1, IGF1R, MTOR, MYC, PIK3CG |
| hsa-miR-125a-5p | AKT1, BCL2, CDKN1A, EGFR, EIF4EBP1, JAK2, MCL1, MTOR, PIK3CG, RAF1, TP53, VEGFA |
| hsa-miR-139-5p | BCL2, HRAS, IGF1R, MCL1, MET, NFKB1, PIK3CA |
| hsa-miR-146a-5p | BRCA1, CCND1, CCND2, EGFR, IL6, LAMC2, NFKB1,  RAC1, SOS1, TLR2, TLR4 |
| hsa-miR-181a-5p | BCL2, BCL2L11, CDKN1A, CDKN1B, DDIT4, HRAS, KRAS, MAP2K1, MAPK1, MCL1, NRAS, PHLPP2, PTEN |
| hsa-miR-181b-5p | BCL2, BCL2L11, CREB1, IGF1R, MAP2K1, MCL1, PTEN, SPP1, TCL1A |
| hsa-miR-182-5p | BCL2, CCND2, CDKN1B, CREB1, CREB5, FGF9, FOXO3, GSK3B, PTEN, THBS1 |
| hsa-miR-503-5p | BCL2, CCND1, CCND3, CCNE1, CCNE2, CDKN1A, FGF2, FGF8, FGFR1, IGF1R, IKBKB, MYB, PIK3R1, VEGFA |
| hsa-miR-543 | KRAS, NOS3, PTK2 |
| hsa-miR-574-3p | EGFR, RAC1, RXRA |
| hsa-miR-708-5p | AKT1, AKT2, BCL2, CCND1, IKBKG |
| AMPK signalling pathway | hsa-miR-122-5p | AKT1, CREB1, G6PC3, GYS1, IGF1R, MTOR, PIK3CG |
| hsa-miR-125a-5p | AKT1, CDKN1A, EIF4EBP1, ELAVL1, MTOR, PIK3CG, TP53 |
| hsa-miR-182-5p | AKT1, CCND1, CREB5, FOXO1, FOXO3, IGF1R, IRS4, SCD |
| hsa-miR-193a-5p | MTOR, PIK3R3 |
| hsa-miR-708-5p | AKT1, AKT2 |
| JAK-STAT signalling pathway | hsa-miR-125a-5p | AKT1, IFNG, JAK2, LIFR, PIK3CG, STAT3 |
| hsa-miR-216a-5p | CBL, JAK2 |
| hsa-miR-708-5p | AKT1, AKT2, CCND1, CNTFR |
| Cell cycle | hsa-miR-122-5p | CDK4, E2F1, MYC, ORC2, TFDP2 |
| hsa-miR-182-5p | CCND1, CDK4, CHEK2, E2F1, MCM3, RB1, SMAD4, YWHAG |
| hsa-miR-503-5p | CCND1, CCND3, CCNE1, CCNE2, CDC14A, CDC25A, CDKN1A, CHEK1, E2F3, WEE1 |
| hsa-miR-708-5p | AKT1, AKT2, BIRC5, CCND1 |
| FoxO signalling pathway | hsa-miR-21-3p | FASLG, PTEN, STAT3 |
| hsa-miR-23b-5p | SMAD3, TGFB2, TGFBR2 |
| hsa-miR-122-5p | AKT1, G6PC3, IGF1R, PIK3CG |
| hsa-miR-125a-5p | AKT1, CDKN1A, EGFR, MAPK14, PIK3CG, RAF1, SMAD2, SMAD4, STAT3 |
| hsa-miR-146a-5p | CCND1, CCND2, EGFR, IL6, SMAD2, SMAD4, SOS1, TGFB1 |
| hsa-miR-181a-5p | ATM, BCL2L11, CDKN1A, CDKN1B, HRAS, KRAS, MAP2K1, MAPK1, NLK, NRAS, PTEN, SIRT1, STAT3, TGFBR1 |
| hsa-miR-181b-5p | ATM, BCL2L11, IGF1R, MAP2K1, NLK, PTEN, SIRT1 |
| hsa-miR-182-5p | AKT1, CCND1, CDKN1B, FOXO1, FOXO3, IGF1R, IRS1, MAPK8, SMAD4 |
| hsa-miR-503-5p | CCND1, CDKN1A, IGF1R, IKBKB, PIK3R1 |
| hsa-miR-543 | KRAS, SIRT1 |
| hsa-miR-574-3p | EGFR, EP300, SMAD4, TGFB1 |
| hsa-miR-708-5p | AKT1, AKT2, CCND1, SMAD3 |
| NF-kappa B signalling pathway | hsa-miR-23b-5p | CHUK, PLAU, TAB2, TAB3 |
| hsa-miR-146a-5p | CD40LG, CXCL12, CXCL8, ICAM1, IRAK1, NFKB1, PTGS2, TLR4, TRAF6 |
| hsa-miR-503-5p | BCL2, CD40, IKBKB, TNFRSF11A |
| hsa-miR-708-5p | BCL2, IKBKG, PARP1 |
| Apoptosis | hsa-miR-122-5p | AKT1, BAX, CASP7, PIK3CG |
| hsa-miR-139-5p | BCL2, NFKB1, PIK3CA |
| hsa-miR-146a-5p | CASP7, FADD, FAS, IRAK1, IRAK2, NFKB1 |
| hsa-miR-181a-5p | ATM, BAX, BCL2, PPP3CA, XIAP |
| hsa-miR-182-5p | AKT1, BCL2, NFKB1, PPP3R1, PRKACB |
| hsa-miR-503-5p | BCL2, IKBKB, PIK3R1 |
| hsa-miR-708-5p | AKT1, AKT2, BCL2, IKBKG |
| hsa-miR-23b-5p | TGFB2, TGFBR2 |
| MAPK signalling pathway | hsa-miR-139-5p | FOS, HRAS, JUN, NFKB1, RAP1B |
| hsa-miR-146a-5p | DUSP1, EGFR, FAS, NFKB1, RAC1, SOS1, TGFB1, TRAF6 |
| hsa-miR-181a-5p | DUSP5, DUSP6, FOS, HRAS, KRAS, MAP2K1, MAPK1, NLK, NRAS, PPP3CA, RAP1B, TGFBR1 |
| hsa-miR-574-3p | EGFR, RAC1, TGFB1 |
| hsa-miR-125a-5p | AKT1, BCL2, EGFR, ERBB2, PIK3CG, RAF1, VEGFA |
| Focal adhesion | hsa-miR-122-5p | AKT1, IGF1R, PAK1, PIK3CG |
| hsa-miR-139-5p | BCL2, HRAS, IGF1R, JUN, MET, PIK3CA, RAP1B, ROCK2 |
| hsa-miR-146a-5p | CCND1, CCND2, EGFR, LAMC2, RAC1, RHOA, ROCK1, SOS1 |
| hsa-miR-181a-5p | BCL2, CTNNB1, HRAS, MAP2K1, MAPK1, PTEN, RAP1B, XIAP |
| hsa-miR-181b-5p | BCL2, IGF1R, MAP2K1, PTEN, RAP1B, SPP1, XIAP |
| hsa-miR-182-5p | AKT1, BCL2, CCND1, IGF1R, ITGB1, LAMC1, MAPK8, MET, ZYX |
| hsa-miR-574-3p | EGFR, RAC1 |
| hsa-miR-708-5p | AKT1, AKT2, BCL2, CCND1 |
| hsa-miR-744-5p | ARHGAP5, GSK3B |
| mTOR signalling pathway | hsa-miR-122-5p | AKT1, MTOR, PIK3CG |
| hsa-miR-125a-5p | AKT1, EIF4EBP1, MTOR, PIK3CG, VEGFA |
| hsa-miR-129-5p | IGF1, MAPK1, PDPK1 |
| hsa-miR-139-5p | FOS, JUN, NFKB1, PIK3CA |
| hsa-miR-182-5p | AKT1, EIF4B, IRS1, RRAGA |
| hsa-miR-193a-5p | MTOR, PIK3R3 |
| hsa-miR-503-5p | IKBKB, PIK3R1, VEGFA |
| hsa-miR-708-5p | AKT1, AKT2 |
| Toll-like receptor signalling pathway | hsa-miR-146a-5p | CCL5, CD80, CXCL8, FADD, IL6, IRAK1, NFKB1, RAC1, STAT1, TLR2, TLR4, TRAF6 |
| hsa-miR-708-5p | AKT1, AKT2, IKBKG |

**Table S3. Significantly down-regulated TGFβ1-responsive miRNAs associated with glaucoma-related signalling pathways and their gene targets.**

|  |  |  |
| --- | --- | --- |
| KEGG Pathway | miRNA | Gene Targets |
| PI3K-Akt signalling pathway | hsa-miR-15a-5p | AKT3, BCL2, BRCA1, CCND1, CCND2, CCNE1, CHUK, FGF7, MYB, PHLPP1, TP53, VEGFA |
| hsa-miR-16-5p | AKT3, BCL2, BRCA1, CCND1, CCND2, CCND3, CCNE1, CDK6, CHUK, FGF2, FGFR1, HGF, IGF1R, KDR, KRAS, MTOR, MYB, RAF1, RPS6KB1, TP53, VEGFA |
| hsa-miR-20a-5p | BCL2, BCL2L11, CCND1, CCND2, CDKN1A, ITGB8, KIT, MCL1, MYC, PHLPP2, PPP2R2A, PTEN, RBL2, VEGFA |
| hsa-miR-26a-1-3p | GSK3B, PCK1, PTEN |
| hsa-miR-26a-5p | CCND2, CCNE1, CCNE2, CDK6, FGF9, GSK3B, HGF, IFNB1, IGF1, IL6, ITGA5, MCL1, NRAS, PIK3CG, PTEN |
| hsa-miR-29a-3p | AKT2, AKT3, BCL2, CCND1, CCND2, CDK2, CDK4, CDK6, COL1A2, COL3A1, COL4A1, COL4A2, COL5A2, FOXO3, GSK3B, IFNAR1, IGF1, ITGA11, ITGA6, ITGB1, LAMC2, MCL1, MYC, PDGFRB, PIK3R1, PTEN, VEGFA |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, CCND2, CDK6, COL1A1, COL3A1, COL4A1, COL4A2, COL5A2, COL5A3, GSK3B, ITGA6, ITGB1, LAMC1, LAMC2, MCL1, MYC, PDGFA, PDGFB, PDGFC, PDGFRA, PDGFRB, PIK3CG, PIK3R1, PTEN, TCL1A, VEGFA |
| hsa-miR-29c-3p | AKT2, AKT3, BCL2, CCND2, CDK6, COL1A1, COL1A2, COL3A1, COL4A1, COL4A2, COL5A2, CREB5, ITGA6, ITGB1, LAMC1, LAMC2, MCL1, PDGFRB, PTEN, VEGFA |
| hsa-miR-34a-5p | AKT1, BCL2, CCND1, CCNE2, CDK4, CDK6, CSF1R, IFNB1, IL6R, KIT, MAP2K1, MET, MYB, MYC, PDGFRA, PDGFRB, PIK3CG, TP53 |
| hsa-miR-34c-5p | BCL2, CCND1, CCNE2, CDK4, CDK6, IL6R, MAP2K1, MET, MYC, PDGFRA, PDGFRB |
| hsa-miR-99a-5p | AKT1, FGFR3, IGF1R, MTOR |
| hsa-miR-101-3p | CCND1, ITGA3, JAK2, MCL1, MET, MTOR, PIK3CB, RAC1, VEGFA, VEGFC |
| hsa-miR-146b-5p | EGFR, IL6, KIT, NFKB1, PDGFRA, TLR4 |
| hsa-miR-195-5p | BCL2, CCND1, CCND3, CCNE1, CDK4, CDK6, CHUK, FGF2, INSR, KDR, MYB, RAF1, RPS6KB1, VEGFA |
| hsa-miR-204-5p | BCL2, CCND1, CCND2, COL3A1, COL5A3, MCL1, MDM2, ITGB3 |
| hsa-miR-340-5p | AKT1, CCND1, CCND2, CDK6, IL4, KRAS, MDM2, MET |
| hsa-miR-378a-3p | CDK6, GRB2, IGF1R, MAPK1, MYC, VEGFA |
| hsa-miR-497-5p | BCL2, CCND3, CCNE1, CDK4, EIF4E, IGF1R, IKBKB, MAP2K1, MTOR, RAF1, RPS6KB1 |
| MAPK signalling pathway | hsa-miR-15a-5p | AKT3, BDNF, CHUK, CRKL, FGF7, HSPA1B, TP53 |
| hsa-miR-16-5p | AKT3, BDNF, CHUK, FGF2, FGFR1, KRAS, RAF1, TP53 |
| hsa-miR-29b-3p | AKT2, AKT3, CDC42, DUSP2, FOS, MYC, PDGFA, PDGFB, PDGFRA, PDGFRB, TGFB1, TGFB2, TGFB3 |
| hsa-miR-146b-5p | EGFR, NFKB1, PDGFRA, TRAF6 |
| hsa-miR-378a-3p | GRB2, MAPK1, MYC, TGFB2 |
| AGE-RAGE signalling pathway in diabetic complications | hsa-miR-18a-5p | HIF1A, SMAD2, SMAD3 |
| hsa-miR-20b-5p | HIF1A, MAPK9, STAT3 |
| hsa-miR-195-5p | CDC42, CHUK, INSR, RAF1 |
| hsa-miR-204-5p | ALPL, CDC42, EZR, JAK2, MAP2K1, MMP9 |
| hsa-miR-218-5p | EGFR, IKBKB, MMP2, SP1 |
| hsa-miR-340-5p | AKT1, RHOA, ROCK1, STAT3 |
| hsa-miR-497-5p | IKBKB, MAP2K1, RAF1 |
| Focal adhesion | hsa-miR-15a-5p | AKT3, BCL2, CCND1, CCND2, CRKL, VEGFA |
| hsa-miR-16-5p | AKT3, BCL2, CCND1, CCND2, CCND3, HGF, IGF1R, KDR, RAF1, VEGFA, ZYX |
| hsa-miR-20b-5p | AKT3, MAPK9, PTEN, VEGFA |
| hsa-miR-26a-1-3p | GSK3B, PTEN |
| hsa-miR-29a-3p | AKT2, AKT3, BCL2, CCND1, CCND2, CDC42, COL1A2, COL3A1, COL4A1, COL4A2, COL5A2, GSK3B, IGF1, ITGA11, ITGA6, ITGB1, LAMC2, PDGFRB, PIK3R1, PTEN, VEGFA |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, CCND2, CDC42, COL1A1, COL3A1, COL4A1, COL4A2, COL5A2, COL5A3, GSK3B, ITGA6, ITGB1, LAMC1, LAMC2, PDGFA, PDGFB, PDGFC, PDGFRA, PDGFRB, PIK3CG, PIK3R1, PTEN, VEGFA |
| hsa-miR-29c-3p | AKT2, AKT3, BCL2, CCND2, CDC42, COL1A1, COL1A2, COL3A1, COL4A1, COL4A2, COL5A2, ITGA6, ITGB1, LAMC1, LAMC2, PDGFRB, PTEN, VEGFA |
| hsa-miR-34a-5p | AKT1, BCL2, CCND1, ERBB2, MAP2K1, MET, PDGFRA, PDGFRB, PIK3CG, PPP1CC, SRC |
| hsa-miR-34c-5p | BCL2, CCND1, MAP2K1, MET, PDGFRA, PDGFRB |
| hsa-miR-101-3p | CCND1, CTNNB1, ITGA3, MET, PIK3CB, RAC1, RAP1B, RHOA, VEGFA, VEGFC |
| hsa-miR-195-5p | BCL2, CCND1, CCND3, CDC42, KDR, RAF1, VEGFA |
| hsa-miR-204-5p | BCL2, BIRC2, CCND1, CCND2, COL3A1, ITGB3 |
| hsa-miR-378a-3p | GRB2, IGF1R, MAPK1, VEGFA |
| hsa-miR-497-5p | BCL2, CCND3, IGF1R, MAP2K1, RAF1 |
| mTOR signalling pathway | hsa-miR-16-5p | AKT3, MTOR, RICTOR, RPS6KB1, VEGFA |
| hsa-miR-19a-3p | AKT1, PIK3CA, PTEN, TNF |
| hsa-miR-20b-5p | AKT3, HIF1A, PTEN, VEGFA |
| hsa-miR-29a-3p | AKT2, AKT3, IGF1, PIK3R1, PTEN, VEGFA |
| hsa-miR-29b-3p | AKT2, AKT3, PIK3CG, PIK3R1, PTEN, VEGFA |
| hsa-miR-99a-5p | AKT1, MTOR |
| hsa-miR-218-5p | IKBKB, RICTOR, RPS6KA3, RPS6KB1 |
| hsa-miR-497-5p | EIF4E, IKBKB, MTOR, RPS6KB1 |
| FoxO signalling pathway | hsa-miR-15a-5p | AKT3, CCND1, CCND2, CDKN2B, CHUK, FOXO1 |
| hsa-miR-16-5p | AKT3, CCND1, CCND2, CHUK, IGF1R, KRAS, RAF1 |
| hsa-miR-18a-5p | ATM, PTEN, SMAD2, SMAD3, SMAD4, STK4, TGFBR2 |
| hsa-miR-19a-3p | AKT1, BCL2L11, CCND1, IL10, PIK3CA, PTEN, SMAD4, TGFBR2 |
| hsa-miR-19b-3p | BCL2L11, PRKAA1, PTEN, SMAD4, TGFBR2 |
| hsa-miR-20a-5p | BCL2L11, CCND1, CCND2, CDKN1A, PTEN, RBL2, SMAD4, STAT3, TGFBR1, TGFBR2 |
| hsa-miR-20b-5p | AKT3, CDKN1A, MAPK9, PTEN, STAT3 |
| hsa-miR-26a-1-3p | PCK1, PTEN |
| hsa-miR-26a-5p | ATM, CCND2, IGF1, IL6, NRAS, PIK3CG, PTEN, SMAD4 |
| hsa-miR-29a-3p | AKT2, AKT3, CCND1, CCND2, CDK2, FOXO3, IGF1, PIK3R1, PTEN |
| hsa-miR-29b-3p | AKT2, AKT3, CCND2, PIK3CG, PIK3R1, PTEN, STAT3, TGFB1, TGFB2, TGFB3 |
| hsa-miR-204-5p | CCND1, CCND2, MDM2, TGFBR2 |
| hsa-miR-340-5p | AKT1, CCND1, CCND2, CCNG2, KRAS, MDM2, SKP2, STAT3 |
| hsa-miR-378a-3p | GRB2, IGF1R, MAPK1, TGFB2 |
| hsa-miR-497-5p | IGF1R, IKBKB, MAP2K1, RAF1 |
| TNF signalling pathway | hsa-miR-29b-3p | AKT2, AKT3, FOS, MMP9, PIK3CG, PIK3R1, TNFAIP3 |
| Ras signalling pathway | hsa-miR-16-5p | AKT3, CHUK, FGF2, FGFR1, HGF, IGF1R, KDR, KRAS, RAF1, VEGFA |
| hsa-miR-29b-3p | AKT2, AKT3, CDC42, PDGFA, PDGFB, PDGFC, PDGFRA, PDGFRB, PIK3CG, PIK3R1, VEGFA |
| hsa-miR-99a-5p | AKT1, FGFR3, IGF1R |
| hsa-miR-101-3p | MET, PIK3CB, RAB5A, RAC1, RAP1B, RHOA, VEGFA, VEGFC |
| hsa-miR-146b-5p | EGFR, KIT, NFKB1, PDGFRA |
| hsa-miR-195-5p | CDC42, CHUK, FGF2, INSR, KDR, RAF1, VEGFA |
| hsa-miR-340-5p | AKT1, KRAS, MET, RHOA |
| hsa-miR-378a-3p | GRB2, IGF1R, KSR1, MAPK1, VEGFA |
| Neurotrophin signalling pathway | hsa-miR-15a-5p | AKT3, BCL2, BDNF, CRKL, TP53 |
| hsa-miR-16-5p | AKT3, ARHGDIA, BCL2, BDNF, KRAS, PRDM4, RAF1, TP53 |
| hsa-miR-26a-1-3p | GSK3B, PRKCD |
| hsa-miR-29a-3p | ABL1, AKT2, AKT3, BCL2, CDC42, FOXO3, GSK3B, PIK3R1 |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, CDC42, GSK3B, PIK3CG, PIK3R1 |
| hsa-miR-146b-5p | IRAK1, NFKB1, TRAF6 |
| hsa-miR-204-5p | BCL2, IRAK1, NTRK2 |
| hsa-miR-340-5p | AKT1, KRAS, RHOA |
| hsa-miR-497-5p | BCL2, IKBKB, MAP2K1, RAF1 |
| Wnt signalling pathway | hsa-miR-16-5p | AXIN2, CCND1, CCND2, CCND3, TP53, WNT3A, WNT4 |
| hsa-miR-20b-5p | BAMBI, FZD6, MAPK9 |
| hsa-miR-26a-1-3p | GSK3B, TCF7L2 |
| hsa-miR-34a-5p | AXIN2, CCND1, FOSL1, LEF1, MYC, SMAD4, TCF7, TP53, WNT1 |
| hsa-miR-195-5p | BTRC, CCND1, CCND3, NKD1, WNT7A |
| hsa-miR-204-5p | CCND1, CCND2, FZD1 |
| hsa-miR-340-5p | CCND1, CCND2, RHOA |
| Hippo signalling pathway | hsa-miR-16-5p | AXIN2, BIRC5, CCND1, CCND2, CCND3, WNT3A, WNT4, YAP1 |
| hsa-miR-18a-5p | CCN2, SMAD2, SMAD3, SMAD4, TGFBR2 |
| hsa-miR-20a-5p | BMPR2, CCND1, CCND2, MYC, PPP2R2A, SMAD4, SMAD7, TGFBR1, TGFBR2 |
| hsa-miR-26a-1-3p | GSK3B, TCF7L2 |
| hsa-miR-34a-5p | AXIN2, BIRC5, BMP7, CCND1, GDF5, LEF1, MYC, PPP1CC, SMAD4, SOX2, TCF7, WNT1 |
| hsa-miR-195-5p | BIRC5, BTRC, CCND1, CCND3, NKD1, SMAD7, WNT7A, YAP1 |
| hsa-miR-204-5p | BIRC2, CCND1, CCND2, SERPINE1, TGFB2 |
| hsa-miR-340-5p | CCND1, CCND2, SOX2 |
| hsa-miR-497-5p | AMOT, BIRC5, BTRC, CCND3, SMAD7, WNT7A |
| Apoptosis | hsa-miR-15a-5p | AKT3, BCL2, CHUK, TP53 |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, PIK3CG, PIK3R1 |
| hsa-miR-146b-5p | IRAK1, NFKB1 |
| hsa-miR-204-5p | BCL2, BIRC2, IL1B, IL1RAP, IRAK1 |
| TGF-beta signalling pathway | hsa-miR-18a-5p | SMAD2, SMAD3, SMAD4, TGFBR2 |
| hsa-miR-20a-5p | BAMBI, BMPR2, MYC, RBL1, SMAD4, SMAD7, TGFBR1, TGFBR2, ZFYVE9 |
| hsa-miR-29b-3p | IFNG, MYC, SP1, TGFB1, TGFB2, TGFB3 |
| hsa-miR-204-5p | TGFBR2 |
| hsa-miR-335-5p | ID4, MAPK1, MYC, ROCK1, SP1 |
| hsa-miR-378a-3p | MAPK1, MYC, TGFB2 |
| hsa-miR-497-5p | RPS6KB1, SMAD7, SMURF1 |
| Rap1 signalling pathway | hsa-miR-16-5p | ADORA2A, AKT3, FGF2, FGFR1, HGF, IGF1R, KDR, KRAS, RAF1, VEGFA |
| hsa-miR-29b-3p | AKT2, AKT3, CDC42, ITGB1, PDGFA, PDGFB, PDGFC, PDGFRA, PDGFRB, PIK3CG, PIK3R1, VEGFA |
| hsa-miR-29c-3p | AKT2, AKT3, CDC42, CTNND1, ITGB1, PDGFRB, TIAM1, VEGFA |
| hsa-miR-99a-5p | AKT1, FGFR3, IGF1R |
| hsa-miR-101-3p | CTNNB1, MET, PIK3CB, RAC1, RAP1B, RHOA, VEGFA, VEGFC |
| hsa-miR-146b-5p | EGFR, KIT, PDGFRA |
| hsa-miR-195-5p | CDC42, FGF2, INSR, KDR, RAF1, VEGFA |
| hsa-miR-340-5p | AKT1, KRAS, MET, RHOA |
| Cell cycle | hsa-miR-15a-5p | AKT3, BRCA1, CCND1, CCND2, CCNE1, CDC25A, CDKN2B, CHEK1, TP53, WEE1 |
| hsa-miR-16-5p | AKT3, BIRC5, BRCA1, CCND1, CCND2, CCND3, CCNE1, CDK6, CHEK1, TP53, WEE1 |
| hsa-miR-20a-5p | CCND1, CCND2, CDKN1A, E2F1, MYC, PPP2R2A, RB1, RBL1, RBL2, UBE2C, WEE1 |
| hsa-miR-26a-5p | ATM, CCND2, CCNE1, CCNE2, CDC6, CDK6, CHEK1, E2F2, GSK3B, RB1, WEE1 |
| hsa-miR-34a-5p | AKT1, BIRC5, CCND1, CCNE2, CDK4, CDK6, CDKN2C, E2F1, E2F3, HDAC1, MDM4, MYC, PPP1CC, RAD51, SRC, TP53 |
| hsa-miR-195-5p | BIRC5, BTRC, CCND1, CCND3, CCNE1, CDC25A, CDK4, CDK6, CHEK1, E2F3, WEE1 |
| hsa-miR-204-5p | CCND1, CCND2, CDC23, MDM2 |
| hsa-miR-340-5p | AKT1, CCND1, CCND2, CDK6, MDM2, SKP2 |
| hsa-miR-497-5p | BIRC5, BTRC, CCND3, CCNE1, CDC25A, CDK4, CHEK1, E2F3, WEE1 |
| JAK-STAT signalling pathway | hsa-miR-15a-5p | AKT3, CCND1, CCND2, IFNG, IL10RA |
| hsa-miR-16-5p | AKT3, CCND1, CCND2, CCND3, IFNG, IL12B, PIM1, SOCS3 |
| hsa-miR-19a-3p | AKT1, CCND1, IL10, PIK3CA, SOCS1, SOCS3 |
| hsa-miR-29b-3p | AKT2, AKT3, CCND2, IFNG, MYC, PIK3CG, PIK3R1, STAT3 |
| hsa-miR-340-5p | AKT1, CCND1, CCND2, IL4, STAT3 |
| AMPK signalling pathway | hsa-miR-29b-3p | AKT2, ELAVL1, HMGCR, PIK3CG, PIK3R1 |
| hsa-miR-99a-5p | AKT1, MTOR |
| hsa-miR-195-5p | CAB39, FASN, INSR, RPS6KB1 |
| hsa-miR-204-5p | CCND1, EEF2, SCD |
| Regulation of actin cytoskeleton | hsa-miR-29b-3p | CDC42, ITGA6, ITGB1, PDGFA, PDGFB, PDGFC, PDGFRA, PDGFRB, PIK3CG, PIK3R1 |
| hsa-miR-204-5p | EZR, ITGB3 |
| hsa-miR-340-5p | KRAS, RHOA, ROCK1 |
| HIF-1 signalling pathway | hsa-miR-16-5p | AKT3, BCL2, IFNG, IGF1R, MTOR, RPS6KB1, VEGFA |
| hsa-miR-20a-5p | BCL2, CDKN1A, EGLN3, HIF1A, STAT3, VEGFA |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, IFNG, PIK3CG, PIK3R1, STAT3, VEGFA |
| hsa-miR-34a-5p | AKT1, BCL2, CYBB, ERBB2, IL6R, LDHA, MAP2K1, PIK3CG |
| hsa-miR-99a-5p | AKT1, IGF1R, MTOR |
| hsa-miR-146b-5p | EGFR, IL6, NFKB1, TLR4 |
| hsa-miR-378a-3p | IGF1R, MAPK1, VEGFA |
| hsa-miR-204-5p | BCL2, SERPINE1 |
| hsa-miR-497-5p | BCL2, EIF4E, IGF1R, MAP2K1, MTOR, RPS6KB1 |
| Relaxin signalling pathway | hsa-miR-16-5p | AKT1, MAP2K1, VEGFA |
| hsa-miR-29a-3p | AKT2, AKT3, COL1A2, COL3A1, COL4A1, COL4A2, PIK3R1, VEGFA |
| hsa-miR-29b-3p | AKT2, AKT3, COL1A1, COL3A1, COL4A1, COL4A2, TGFB1, TGFB2, VEGFA |
| hsa-miR-29c-3p | AKT2, AKT3, COL1A1, COL1A2, COL3A1, CREB5 |
| hsa-miR-34a-5p | AKT1, MAP2K1 |
| hsa-miR-146b-5p | EGFR, MMP2, NFKB1 |
| hsa-miR-195-5p | RAF1, VEGFA |
| hsa-miR-378a-3p | MAPK1, TGFB2 |
| hsa-miR-1255a | RLN2 |
| Toll-like receptor signalling pathway | hsa-miR-146b-5p | IL6, IRAK1, NFKB1, TLR4, TRAF6 |
| ECM-receptor interaction | hsa-miR-29a-3p | COL1A2, COL3A1, COL4A1, COL4A2, COL5A2, ITGA11, ITGA6, ITGB1, LAMC2 |
| hsa-miR-29b-3p | COL1A1, COL3A1, COL4A1, COL4A2, COL5A2, COL5A3, ITGA6, ITGB1, LAMC1, LAMC2 |
| hsa-miR-29c-3p | COL1A1, COL1A2, COL3A1, COL4A1, COL4A2, COL5A2, ITGA6, ITGB1, LAMC1, LAMC2 |
| hsa-miR-204-5p | COL3A1, COL5A3, ITGB3 |
| VEGF signalling pathway | hsa-miR-16-5p | AKT3, KDR, KRAS, PTGS2, RAF1, VEGFA |
| hsa-miR-29a-3p | AKT2, AKT3, CDC42, PIK3R1, VEGFA |
| hsa-miR-29b-3p | AKT2, AKT3, CDC42, PIK3CG, PIK3R1, VEGFA |
| hsa-miR-101-3p | PIK3CB, PTGS2, RAC1, VEGFA |
| hsa-miR-195-5p | CDC42, KDR, RAF1, VEGFA |
| hsa-miR-340-5p | AKT1, KRAS |
| NF-kappa B signalling pathway | hsa-miR-18a-5p | ATM, BCL2, TNFAIP3, TNFSF11 |
| hsa-miR-146b-5p | IRAK1, NFKB1, TLR4, TRAF6 |
| hsa-miR-195-5p | BCL2, CCL4, CHUK, TAB3 |

**Table S4. Significantly up-regulated TGFβ2-responsive miRNAs associated with glaucoma-related signalling pathways and their gene targets.**

|  |  |  |
| --- | --- | --- |
| KEGG Pathway | miRNA | Gene Targets |
| MAPK signalling pathway | hsa-miR-29b-1-5p | AKT3, JUND, TGFB1 |
| hsa-miR-143-3p | AKT1, AKT2, BRAF, HRAS, KRAS, MAPK7, NFATC1, NFKB2, TNF |
| hsa-miR-181a-5p | DUSP5, DUSP6, FOS, HRAS, KRAS, MAP2K1, MAPK1, NLK, NRAS, PPP3CA, RAP1B, TGFBR1 |
| hsa-miR-214-3p | ATF4, FGFR1, MAP2K3, MAPK1, MAPK8, MEF2C, NRAS, TP53 |
| Neurotrophin signalling pathway | hsa-miR-21-3p | JUN, MAP3K1 |
| hsa-miR-143-3p | AKT1, AKT2, BCL2, BRAF, HRAS, KRAS, MAPK7 |
| hsa-miR-181a-5p | BAX, BCL2, HRAS, KRAS, MAP2K1, MAPK1, NRAS, PRKCD, PTPN11, RAP1B |
| hsa-miR-181c-5p | BCL2, KRAS, PRKCD, RAP1B |
| hsa-miR-214-3p | ATF4, BAX, MAPK1, MAPK8, NRAS, TP53 |
| hsa-miR-708-5p | AKT1, AKT2, BCL2 |
| AGE-RAGE signalling pathway in diabetic complications | hsa-miR-29b-1-5p | SMAD3, STAT3 |
| hsa-miR-135a-5p | EGFR, FOXO1, JAK2, ROCK1 |
| hsa-miR-143-3p | AKT1, MMP13, MMP14, MMP2, MMP9 |
| hsa-miR-145-5p | EGFR, IRS1, MMP14, ROCK1, SMAD2, SMAD3, SP1, STAT1, TIRAP |
| hsa-miR-216a-5p | CDC42, JAK2 |
| hsa-miR-708-5p | AKT1, MMP2, SMAD3 |
| Wnt signalling pathway | hsa-miR-21-3p | CCND1, FZD4, JUN |
| hsa-miR-145-5p | FZD7, MYC |
| hsa-miR-424-5p | CCND1, CCND3, SIAH1, SMAD3 |
| mTOR signalling pathway | hsa-miR-143-3p | AKT1, AKT2, BRAF, TNF |
| hsa-miR-503-5p | IKBKB, PIK3R1, VEGFA |
| hsa-miR-708-5p | AKT1, AKT2 |
| FoxO signalling pathway | hsa-miR-21-3p | FASLG, PTEN, STAT3 |
| hsa-miR-29b-1-5p | AKT3, SMAD3, STAT3, TGFB1 |
| hsa-miR-143-3p | AKT1, AKT2, BRAF, GABARAPL1, HRAS, IGF1R, KRAS, MDM2 |
| hsa-miR-145-5p | BNIP3, BRAF, CDKN1A, EGFR, IGF1R, IRS1, IRS2, MDM2, NRAS, SMAD2, SMAD3, TGFB2, TGFBR2 |
| hsa-miR-181a-5p | ATM, BCL2L11, CDKN1A, CDKN1B, HRAS, KRAS, MAP2K1, MAPK1, NLK, NRAS, PTEN, SIRT1, STAT3, TGFBR1 |
| hsa-miR-181b-5p | ATM, BCL2L11, IGF1R, MAP2K1, NLK, PTEN, SIRT1 |
| hsa-miR-181c-5p | KRAS, NLK, PTEN, SIRT1, TGFBR1, TGFBR2 |
| hsa-miR-503-5p | CCND1, CDKN1A, IGF1R, IKBKB, PIK3R1 |
| hsa-miR-708-5p | AKT1, AKT2, CCND1, SMAD3 |
| VEGF signalling pathway | hsa-miR-143-3p | AKT1, AKT2, HRAS, KRAS, PTGS2 |
| hsa-miR-181a-5p | HRAS, KRAS, MAP2K1, MAPK1, NRAS, PPP3CA |
| hsa-miR-708-5p | AKT1, AKT2 |
| PI3K-Akt signalling pathway | hsa-miR-21-3p | CCND1, CDK6, ITGA6, MCL1 |
| hsa-miR-29b-1-5p | AKT3, COL1A1, COL3A1, COL5A1, JAK3 |
| hsa-miR-99b-5p | IGF1R, MTOR |
| hsa-miR-143-3p | AKT1, AKT2, BCL2, COL3A1, HRAS, IGF1R, ITGB1, ITGB4, KRAS, MDM2, TLR2 |
| hsa-miR-145-5p | COL1A2, IGF1R, IRS1, ITGA3, MYC, THBS1 |
| hsa-miR-181a-5p | BCL2, BCL2L11, CDKN1A, CDKN1B, DDIT4, HRAS, KRAS, MAP2K1, MAPK1, MCL1, NRAS, PHLPP2, PTEN |
| hsa-miR-181b-5p | BCL2, BCL2L11, CREB1, IGF1R, MAP2K1, MCL1, PTEN, SPP1, TCL1A |
| hsa-miR-214-3p | ATF4, BCL2L11, CDK6, FGFR1, MAPK1, NRAS, PTEN, TP53 |
| hsa-miR-214-5p | CDK6, IGF1R, TP53 |
| hsa-miR-424-5p | CCND1, CCND3, CCNE1, CDK6, FGF2, FGFR1, MAP2K1, MYB |
| hsa-miR-503-5p | BCL2, CCND1, CCND3, CCNE1, CCNE2, CDKN1A, FGF2, FGF8, FGFR1, IGF1R, IKBKB, MYB, PIK3R1, VEGFA |
| hsa-miR-708-5p | AKT1, AKT2, BCL2, CCND1, IKBKG |
| Focal adhesion | hsa-miR-21-3p | CCND1, ITGA6, JUN, PPP1CC |
| hsa-miR-29b-1-5p | AKT3, COL1A1, COL3A1, COL5A1 |
| hsa-miR-143-3p | AKT1, AKT2, BCL2, BRAF, COL3A1, HRAS, IGF1R, ITGB1, ITGB4 |
| hsa-miR-145-5p | ACTB, ACTG1, COL1A2, IGF1R, ITGA3, PAK1, THBS1 |
| hsa-miR-181a-5p | BCL2, CTNNB1, HRAS, MAP2K1, MAPK1, PTEN, RAP1B, XIAP |
| hsa-miR-181b-5p | BCL2, IGF1R, MAP2K1, PTEN, RAP1B, SPP1, XIAP |
| hsa-miR-503-5p | BCL2, CCND1, CCND3, IGF1R, PIK3R1, VEGFA |
| hsa-miR-708-5p | AKT1, AKT2, BCL2, CCND1 |
| Hippo signalling pathway | hsa-miR-21-3p | CCND1, FZD4, PPP1CC |
| hsa-miR-29b-1-5p | SMAD3, TGFB1 |
| hsa-miR-145-5p | ACTB, ACTG1, CTGF, FZD7, MYC, SERPINE1 |
| hsa-miR-181c-5p | BMPR2, LATS2, SAV1, TGFBR1, TGFBR2 |
| hsa-miR-424-5p | CCND1, CCND3, SMAD3, SMAD7 |
| hsa-miR-708-5p | BIRC5, CCND1, SMAD3 |
| TNF signalling pathway | hsa-miR-143-3p | AKT1, AKT2, MMP14, MMP9, PTGS2, TNF |
| hsa-miR-214-3p | ATF4, CCL5, JAG1, MAP2K3, MAPK1, MAPK8 |
| hsa-miR-708-5p | AKT1, AKT2, IKBKG |
| Relaxin signalling pathway | hsa-miR-29b-1-5p | AKT3, COL3A1 |
| hsa-miR-135a-5p | EGFR |
| hsa-miR-143-3p | COL3A1, HRAS |
| hsa-miR-145-5p | EGFR, NRAS, SMAD2 |
| hsa-miR-181a-5p | FOS, HRAS, MAP2K1, NRAS |
| hsa-miR-181b-5p | MAP2K1 |
| hsa-miR-214-3p | NRAS |
| hsa-miR-424-5p | MAP2K1 |
| hsa-miR-503-5p | VEGFA |
| Ras signalling pathway | hsa-miR-181a-5p | HRAS, KRAS, MAP2K1, MAPK1, NRAS, PTPN11, RALA, RAP1B, RASSF1 |
| hsa-miR-214-5p | IGF1R, RASSF5 |
| hsa-miR-503-5p | FGF2, FGF8, FGFR1, IGF1R, IKBKB, PIK3R1, VEGFA |
| Rap1 signalling pathway | hsa-miR-143-3p | AKT1, AKT2, BRAF, HRAS, IGF1R, ITGB1, KRAS |
| hsa-miR-214-5p | IGF1R, RASSF5 |
| hsa-miR-503-5p | FGF2, FGF8, FGFR1, IGF1R, PIK3R1, VEGFA |
| Apoptosis | hsa-miR-143-3p | AKT1, AKT2, BCL2, TNF |
| hsa-miR-181a-5p | ATM, BAX, BCL2, PPP3CA, XIAP |
| hsa-miR-503-5p | BCL2, IKBKB, PIK3R1 |
| hsa-miR-708-5p | AKT1, AKT2, BCL2, IKBKG |
| Regulation of actin cytoskeleton | hsa-miR-21-3p | ITGA6, PPP1CC |
| hsa-miR-135a-5p | APC, EGFR, PTK2, ROCK1, ROCK2 |
| hsa-miR-143-3p | BRAF, HRAS, ITGB1, ITGB4, KRAS, LIMK1 |
| hsa-miR-145-5p | ACTB, ACTG1, ITGA3, PAK1 |
| hsa-miR-503-5p | FGF2, FGF8, FGFR1, PIK3R1 |
| Notch signalling pathway | hsa-miR-199b-5p | HES1, JAG1 |
| Toll-like receptor signalling pathway | hsa-miR-143-3p | AKT1, AKT2, TLR2, TNF |
| hsa-miR-708-5p | AKT1, AKT2, IKBKG |
| NF-kappa B signalling pathway | hsa-miR-143-3p | BCL2, NFKB2, PTGS2, TNF |
| hsa-miR-503-5p | BCL2, CD40, IKBKB, TNFRSF11A |
| hsa-miR-708-5p | BCL2, IKBKG, PARP1 |
| HIF-1 signalling pathway | hsa-miR-21-3p | STAT3 |
| hsa-miR-29b-1-5p | AKT3, STAT3 |
| hsa-miR-99b-5p | IGF1R, MTOR |
| hsa-miR-143-3p | AKT1, AKT2, BCL2, HK2, IGF1R, SERPINE1 |
| hsa-miR-145-5p | HK2, IGF1R, SERPINE1, TIMP1 |
| hsa-miR-181a-5p | BCL2, CDKN1A, CDKN1B, IFNG, MAP2K1, MAPK1, STAT3, TIMP1 |
| hsa-miR-503-5p | BCL2, CDKN1A, IGF1R, PIK3R1, VEGFA |
| hsa-miR-708-5p | AKT1, AKT2, BCL2 |
| JAK-STAT signalling pathway | hsa-miR-29b-1-5p | AKT3, JAK3, STAT3 |
| hsa-miR-708-5p | AKT1, AKT2, CCND1, CNTFR |

**Table S5. Significantly down-regulated TGFβ2-responsive miRNAs associated with glaucoma-related signalling pathways and their gene targets.**

|  |  |  |
| --- | --- | --- |
| KEGG Pathway | miRNA | Gene Targets |
| Neurotrophin signalling pathway | hsa-miR-15a-3p | AKT3, BCL2, BDNF, CRKL, TP53 |
| hsa-miR-26a-1-3p | GSK3B, PRKCD |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, CDC42, GSK3B, PIK3CG, PIK3R1 |
| hsa-miR-204-5p | BCL2, IRAK1, NTRK2 |
| hsa-miR-302b-3p | AKT1, AKT2, MAP3K1 |
| Hippo signalling pathway | hsa-miR-26a-1-3p | GSK3B, TCF7L2 |
| hsa-miR-29b-3p | ACTB, CCND1, CCND2, DVL3, FZD5, SMAD2, TGFB2 |
| hsa-miR-200a-3p | AREG, CTNNB1, SMAD2, SMAD3, TCF7L1, TGFB2, YAP1 |
| hsa-miR-204-5p | BIRC2, CCND1, CCND2, SERPINE1, TGFB2 |
| hsa-miR-324-3p | DVL2, WNT2B, WNT9B |
| Wnt signalling pathway | hsa-miR-20b-5p | BAMBI, FZD6, MAPK9 |
| hsa-miR-26a-1-3p | GSK3B, TCF7L2 |
| hsa-miR-29b-3p | CCND1, CCND2, DVL3, FZD5, JUN, SIAH1, TP53 |
| hsa-miR-204-5p | CCND1, CCND2, EZD1 |
| hsa-miR-324-3p | CREBBP, DVL2, WNT2B, WNT9B |
| hsa-miR-582-3p | AXIN2, SFRP1 |
| Focal adhesion | hsa-miR-15a-3p | AKT3, BCL2, CCND1, CCND2, CRKL, VEGFA |
| hsa-miR-20b-5p | AKT3, MAPK9, PTEN, VEGFA |
| hsa-miR-26a-1-3p | GSK3B, PTEN |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, CCND2, CDC42, COL1A1, COL3A1, COL4A1, COL4A2, COL5A2, COL5A3, GSK3B, ITGA6, ITGB1, LAMC1, LAMC2, PDGFA, PDGFB, PDGFC, PDGFRA, PDGFRB, PIK3CG, PIK3R1, PTEN, VEGFA |
| hsa-miR-204-5p | BCL2, BIRC2, CCND1, CCND2, COL3A1, ITGB3 |
| hsa-miR-302b-3p | AKT1, AKT2, CCND2, EGFR |
| PI3K-Akt signalling pathway | hsa-miR-15a-3p | AKT3, BCL2, BRCA1, CCND1, CCND2, CCNE1, CHUK, FGF7, MYB, PHLPP1, TP53, VEGFA |
| hsa-miR-20b-5p | AKT3, BRCA1, CDKN1A, PTEN, VEGFA |
| hsa-miR-26a-1-3p | GSK3B, PCK1, PTEN |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, CCND2, CDK6, COL1A1, COL3A1, COL4A1, COL4A2, COL5A2, COL5A3, GSK3B, ITGA6, ITGB1, LAMC1, LAMC2, MCL1, MYC, PDGFA, PDGFB, PDGFC, PDGFRA, PDGFRB, PIK3CG, PIK3R1, PTEN, TCL1A, VEGFA |
| hsa-miR-204-5p | BCL2, CCND1, CCND2, COL3A1, COL5A3, ITGB3, MCL1, MDM2 |
| hsa-miR-302b-3p | AKT1, AKT2, CCND2, CDK2, EGFR, MCL1 |
| hsa-miR-582-3p | CASP9, CREB1, MCL1 |
| Relaxin signalling pathway | hsa-miR-29b-3p | AKT2, COL4A2, TGFB1 |
| hsa-miR-138-5p | AKT1 |
| hsa-miR-200a-3p | EGFR, SHC1 |
| hsa-miR-204-5p | MMP9 |
| hsa-miR-218-5p | EGFR, MMP2 |
| hsa-miR-302b-3p | AKT1, AKT2, EGFR |
| hsa-miR-452-3p | KRAS |
| Apoptosis | hsa-miR-15a-3p | AKT3, BCL2, CHUK, TP53 |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, PIK3CG, PIK3R1 |
| hsa-miR-204-5p | BCL2, BIRC2, IL1B, IL1RP8, IRAK1 |
| hsa-miR-302b-3p | AKT1, AKT2 |
| AGE-RAGE signalling pathway in diabetic complications | hsa-miR-20b-5p | HIF1A, MAPK9, STAT3 |
| hsa-miR-138-5p | AKT1, CASP3, HIF1A, NFKB1 |
| hsa-miR-200a-3p | EGFR, MAPK14, SHC1, SMAD2, SMAD3 |
| hsa-miR-204-5p | ALPL, CDC42, EZR, JAK2, MAP2K1, MMP9 |
| hsa-miR-218-5p | EGFR, IKBKB, MMP2, SP1 |
| hsa-miR-302b-3p | AKT1, EGFR |
| hsa-miR-330-3p | CDC42, SP1 |
| Cell cycle | hsa-miR-15a-3p | AKT3, BRCA1, CCND1, CCND2, CCNE1, CDC25A, CDKN2B, CHEK1, TP53, WEE1 |
| hsa-miR-204-5p | CCND1, CCND2, CDC23, MDM2 |
| hsa-miR-302b-3p | AKT1, AKT2, CCND2, CDK2, E2F1 |
| hsa-miR-760 | CSNK2A1, HIST1H2AD |
| mTOR signalling pathway | hsa-miR-20b-5p | AKT3, HIF1A, PTEN, VEGFA |
| hsa-miR-29b-3p | AKT2, AKT3, PIK3CG, PIK3R1, PTEN, VEGFA |
| hsa-miR-218-5p | IKBKB, RICTOR, RPS6KA3, RPS6KB1 |
| hsa-miR-302b-3p | AKT1, AKT2 |
| AMPK signalling pathway | hsa-miR-29b-3p | AKT2, ELAVL1, HMGCR, PIK3CG, PIK3R1 |
| hsa-miR-204-5p | CCND1, EEF2, SCD |
| hsa-miR-302b-3p | AKT1, AKT2 |
| MAPK signalling pathway | hsa-miR-15a-3p | AKT3, BDNF, CHUK, CRKL, FGF7, HSPA1B, TP53 |
| hsa-miR-29b-3p | AKT2, AKT3, CDC42, DUSP2, FOS, MYC, PDGFA, PDGFB, PDGFRA, PDGFRB, TGFB1, TGFB2, TGFB3 |
| hsa-miR-302b-3p | AKT1, AKT2, EGFR, MAP3K1, TGFBR2 |
| FoxO signalling pathway | hsa-miR-15a-3p | AKT3, CCND1, CCND2, CDKN2B, CHUK, FOXO1 |
| hsa-miR-20b-5p | AKT3, CDKN1A, MAPK9, PTEN, STAT3 |
| hsa-miR-26a-1-3p | PCK1, PTEN |
| hsa-miR-29b-3p | AKT2, AKT3, CCND2, PIK3CG, PIK3R1, PTEN, STAT3, TGFB1, TGFB2, TGFB3 |
| hsa-miR-200a-3p | EGFR, GRB2, MAPK14, PTEN, SMAD2, SMAD3, TGFB2 |
| hsa-miR-204-5p | CCND1, CCND2, MDM2, TGFBR2 |
| hsa-miR-302b-3p | AKT1, AKT2, CCND2, CDK2, EGFR, TGFBR2 |
| hsa-miR-452-3p | CDKN1B, KRAS |
| VEGF signalling pathway | hsa-miR-29b-3p | AKT2, AKT3, CDC42, PIK3CG, PIK3R1, VEGFA |
| hsa-miR-302b-3p | AKT1, AKT2 |
| HIF-1 signalling pathway | hsa-miR-20b-5p | AKT3, CDKN1A, HIF1A, STAT3, VEGFA |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, IFNG, PIK3CG, PIK3R1, STAT3, VEGFA |
| hsa-miR-204-5p | BCL2, SERPINE1 |
| hsa-miR-302b-3p | AKT1, AKT2, EGFR |

**Table S6. Significantly down-regulated TGFβ2-responsive miRNAs associated with glaucoma-related signalling pathways and their gene targets.**

|  |  |  |
| --- | --- | --- |
| KEGG Pathway | miRNA | Gene Targets |
| Neurotrophin signalling pathway | hsa-miR-15a-3p | AKT3, BCL2, BDNF, CRKL, TP53 |
| hsa-miR-26a-1-3p | GSK3B, PRKCD |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, CDC42, GSK3B, PIK3CG, PIK3R1 |
| hsa-miR-204-5p | BCL2, IRAK1, NTRK2 |
| hsa-miR-302b-3p | AKT1, AKT2, MAP3K1 |
| Hippo signalling pathway | hsa-miR-26a-1-3p | GSK3B, TCF7L2 |
| hsa-miR-29b-3p | ACTB, CCND1, CCND2, DVL3, FZD5, SMAD2, TGFB2 |
| hsa-miR-200a-3p | AREG, CTNNB1, SMAD2, SMAD3, TCF7L1, TGFB2, YAP1 |
| hsa-miR-204-5p | BIRC2, CCND1, CCND2, SERPINE1, TGFB2 |
| hsa-miR-324-3p | DVL2, WNT2B, WNT9B |
| Wnt signalling pathway | hsa-miR-20b-5p | BAMBI, FZD6, MAPK9 |
| hsa-miR-26a-1-3p | GSK3B, TCF7L2 |
| hsa-miR-29b-3p | CCND1, CCND2, DVL3, FZD5, JUN, SIAH1, TP53 |
| hsa-miR-204-5p | CCND1, CCND2, EZD1 |
| hsa-miR-324-3p | CREBBP, DVL2, WNT2B, WNT9B |
| hsa-miR-582-3p | AXIN2, SFRP1 |
| Focal adhesion | hsa-miR-15a-3p | AKT3, BCL2, CCND1, CCND2, CRKL, VEGFA |
| hsa-miR-20b-5p | AKT3, MAPK9, PTEN, VEGFA |
| hsa-miR-26a-1-3p | GSK3B, PTEN |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, CCND2, CDC42, COL1A1, COL3A1, COL4A1, COL4A2, COL5A2, COL5A3, GSK3B, ITGA6, ITGB1, LAMC1, LAMC2, PDGFA, PDGFB, PDGFC, PDGFRA, PDGFRB, PIK3CG, PIK3R1, PTEN, VEGFA |
| hsa-miR-204-5p | BCL2, BIRC2, CCND1, CCND2, COL3A1, ITGB3 |
| hsa-miR-302b-3p | AKT1, AKT2, CCND2, EGFR |
| PI3K-Akt signalling pathway | hsa-miR-15a-3p | AKT3, BCL2, BRCA1, CCND1, CCND2, CCNE1, CHUK, FGF7, MYB, PHLPP1, TP53, VEGFA |
| hsa-miR-20b-5p | AKT3, BRCA1, CDKN1A, PTEN, VEGFA |
| hsa-miR-26a-1-3p | GSK3B, PCK1, PTEN |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, CCND2, CDK6, COL1A1, COL3A1, COL4A1, COL4A2, COL5A2, COL5A3, GSK3B, ITGA6, ITGB1, LAMC1, LAMC2, MCL1, MYC, PDGFA, PDGFB, PDGFC, PDGFRA, PDGFRB, PIK3CG, PIK3R1, PTEN, TCL1A, VEGFA |
| hsa-miR-204-5p | BCL2, CCND1, CCND2, COL3A1, COL5A3, ITGB3, MCL1, MDM2 |
| hsa-miR-302b-3p | AKT1, AKT2, CCND2, CDK2, EGFR, MCL1 |
| hsa-miR-582-3p | CASP9, CREB1, MCL1 |
| Relaxin signalling pathway | hsa-miR-29b-3p | AKT2, COL4A2, TGFB1 |
| hsa-miR-138-5p | AKT1 |
| hsa-miR-200a-3p | EGFR, SHC1 |
| hsa-miR-204-5p | MMP9 |
| hsa-miR-218-5p | EGFR, MMP2 |
| hsa-miR-302b-3p | AKT1, AKT2, EGFR |
| hsa-miR-452-3p | KRAS |
| Apoptosis | hsa-miR-15a-3p | AKT3, BCL2, CHUK, TP53 |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, PIK3CG, PIK3R1 |
| hsa-miR-204-5p | BCL2, BIRC2, IL1B, IL1RP8, IRAK1 |
| hsa-miR-302b-3p | AKT1, AKT2 |
| AGE-RAGE signalling pathway in diabetic complications | hsa-miR-20b-5p | HIF1A, MAPK9, STAT3 |
| hsa-miR-138-5p | AKT1, CASP3, HIF1A, NFKB1 |
| hsa-miR-200a-3p | EGFR, MAPK14, SHC1, SMAD2, SMAD3 |
| hsa-miR-204-5p | ALPL, CDC42, EZR, JAK2, MAP2K1, MMP9 |
| hsa-miR-218-5p | EGFR, IKBKB, MMP2, SP1 |
| hsa-miR-302b-3p | AKT1, EGFR |
| hsa-miR-330-3p | CDC42, SP1 |
| Cell cycle | hsa-miR-15a-3p | AKT3, BRCA1, CCND1, CCND2, CCNE1, CDC25A, CDKN2B, CHEK1, TP53, WEE1 |
| hsa-miR-204-5p | CCND1, CCND2, CDC23, MDM2 |
| hsa-miR-302b-3p | AKT1, AKT2, CCND2, CDK2, E2F1 |
| hsa-miR-760 | CSNK2A1, HIST1H2AD |
| mTOR signalling pathway | hsa-miR-20b-5p | AKT3, HIF1A, PTEN, VEGFA |
| hsa-miR-29b-3p | AKT2, AKT3, PIK3CG, PIK3R1, PTEN, VEGFA |
| hsa-miR-218-5p | IKBKB, RICTOR, RPS6KA3, RPS6KB1 |
| hsa-miR-302b-3p | AKT1, AKT2 |
| AMPK signalling pathway | hsa-miR-29b-3p | AKT2, ELAVL1, HMGCR, PIK3CG, PIK3R1 |
| hsa-miR-204-5p | CCND1, EEF2, SCD |
| hsa-miR-302b-3p | AKT1, AKT2 |
| MAPK signalling pathway | hsa-miR-15a-3p | AKT3, BDNF, CHUK, CRKL, FGF7, HSPA1B, TP53 |
| hsa-miR-29b-3p | AKT2, AKT3, CDC42, DUSP2, FOS, MYC, PDGFA, PDGFB, PDGFRA, PDGFRB, TGFB1, TGFB2, TGFB3 |
| hsa-miR-302b-3p | AKT1, AKT2, EGFR, MAP3K1, TGFBR2 |
| FoxO signalling pathway | hsa-miR-15a-3p | AKT3, CCND1, CCND2, CDKN2B, CHUK, FOXO1 |
| hsa-miR-20b-5p | AKT3, CDKN1A, MAPK9, PTEN, STAT3 |
| hsa-miR-26a-1-3p | PCK1, PTEN |
| hsa-miR-29b-3p | AKT2, AKT3, CCND2, PIK3CG, PIK3R1, PTEN, STAT3, TGFB1, TGFB2, TGFB3 |
| hsa-miR-200a-3p | EGFR, GRB2, MAPK14, PTEN, SMAD2, SMAD3, TGFB2 |
| hsa-miR-204-5p | CCND1, CCND2, MDM2, TGFBR2 |
| hsa-miR-302b-3p | AKT1, AKT2, CCND2, CDK2, EGFR, TGFBR2 |
| hsa-miR-452-3p | CDKN1B, KRAS |
| VEGF signalling pathway | hsa-miR-29b-3p | AKT2, AKT3, CDC42, PIK3CG, PIK3R1, VEGFA |
| hsa-miR-302b-3p | AKT1, AKT2 |
| HIF-1 signalling pathway | hsa-miR-20b-5p | AKT3, CDKN1A, HIF1A, STAT3, VEGFA |
| hsa-miR-29b-3p | AKT2, AKT3, BCL2, IFNG, PIK3CG, PIK3R1, STAT3, VEGFA |
| hsa-miR-204-5p | BCL2, SERPINE1 |
| hsa-miR-302b-3p | AKT1, AKT2, EGFR |