

**Supplementary Table 1: Combinatorial in silico analysis of the miR-22-3p target genes displayed on Supplemental Figure 4 using metaMIR**  
(<http://rna.informatik.uni-freiburg.de/metaMIR/>).

miRNA	Final Score	Positive Combination	Positive Score	Positive Group
hsa-miR-22-3p	5.67	BDNF,CREB1,ESR1,HDAC4,HDAC6,KDM3A,KDM6B,KLF6,MAPK14,MECP2,PPARA,PPARGC1B,PRDM16,RUNX2	7.145	14
hsa-miR-181a-2-3p	5.18	BDNF,BMP7,CREB1,ESR1,FGFR1,HDAC4,KDM3A,KLF6,MAPK14,MECP2,PPARA,PPARGC1B,PTEN,RUNX2	7.371	14
hsa-miR-200c-3p	4.86	BDNF,BMPR1B,CREB1,ESR1,HDAC4,KLF6,MAPK14,PPARA,PRDM16,PRDX3,PTEN,RUNX2	5.768	12
hsa-miR-200b-3p	4.85	BDNF,BMPR1B,CREB1,HDAC4,KLF6,MAPK14,PPARA,PPARGC1B,PRDM16,PTEN,TRPM8	4.854	11
hsa-miR-1470	4.77	CREB1,FGFR1,HDAC4,KDM6B,KLF6,MAPK14,MECP2,PPARA,PPARGC1B,PTEN,RUNX2	4.769	11
hsa-miR-4445-3p	4.77	BDNF,BMP7,ESR1,HDAC4,MAPK14,PPARA,PPARGC1B	4.768	7
hsa-miR-5001-3p	4.69	BMPR1B,ESR1,FGFR1,HDAC4,KLF6,MAPK14,MECP2,PPARA,PRDM16,PTEN,RUNX2,TRPM8	4.695	12
hsa-miR-101-3p	4.68	BMPR1B,CREB1,ESR1,KDM3A,KLF6,MECP2,PPARGC1B,PRDM16,PTEN,SIRT1,TRPM8	5.408	11
hsa-miR-10b-5p	4.67	BDNF,BMPR1B,CREB1,ESR1,HDAC4,KDM3A,PPARA,PPARGC1B,PRDM16,PTEN	4.692	10
hsa-miR-7855-5p	4.64	ESR1,HDAC4,KLF11,MAPK14,PPARA,PRDM16,PTEN,TRPM8	4.639	8
hsa-miR-1468-3p	4.58	ESR1,FGFR1,HDAC4,KLF6,MECP2,PPARA,PPARGC1B,PRDM16,PTEN,TRPM8	4.576	10
hsa-miR-7110-5p	4.54	CREB1,FGFR1,KDM6B,KLF6,MECP2,PPARA,PPARGC1B,PRDM16,PTEN,RUNX2,TRPM8	5.283	11
hsa-miR-302a-3p	4.49	CREB1,ESR1,FGFR1,HDAC4,KDM6B,MECP2,PPARA,PPARGC1B,PRDM16,PTEN,RUNX2	4.489	11
hsa-miR-4801	4.47	BDNF,BMPR1B,CREB1,KDM3A,KLF6,MAPK14,MECP2,PPARGC1B,PTEN,RUNX2,TRPM8	4.473	11
hsa-miR-941	4.37	CREB1,HDAC4,KDM6B,KLF6,MECP2,PPARGC1B,PRDM16	4.396	7
hsa-miR-6081	4.26	CEBPD,FGFR1,HDAC4,KLF6,MAPK14,MECP2,PPARA,PPARGC1B,PTEN,RUNX2	4.275	10
hsa-miR-381-3p	4.26	BDNF,BMPR1B,CREB1,ESR1,HDAC4,KLF6,MAPK14,MECP2,PPARGC1B,RUNX2,TRPM8	4.267	11
hsa-miR-5699-5p	4.22	BMP7,CREB1,HDAC4,KLF6,MAPK14,MECP2,PPARGC1B,RUNX2	4.304	8
hsa-miR-30e-5p	4.21	BDNF,BMP7,CREB1,HDAC4,KDM3A,PPARA,PPARGC1B,PRDM16,PTEN,RUNX2	4.212	10
hsa-miR-300	4.19	BDNF,BMPR1B,CREB1,ESR1,HDAC4,KLF6,MAPK14,MECP2,PPARGC1B,PRDX3,PTEN	4.194	11
hsa-miR-3649	4.1	BDNF,ESR1,FGFR1,HDAC4,KDM6B,MECP2,PPARA,PPARGC1B,RUNX2	4.098	9
hsa-miR-4694-3p	4.09	BMP6,CREB1,ESR1,HDAC4,KLF6,MAPK14,MECP2,PRDM16,PTEN,RUNX2,TRPM8	4.087	11
hsa-miR-6826-5p	4.03	ESR1,HDAC4,KLF11,PPARA,PTEN,TRPM8	4.051	6