

Supplemental Table S1. Common & PPAR β/δ agonist target genes

Probe ID	Entrez Gene	Gene Symbol	Microarray analysis (fold change)		
			With PPAR β/δ agonist	Under Hypoxia	Under both stimulations
Common target genes (The genes induced by the PPAR β/δ agonist and hypoxia)					
221009_s_at, 223333_s_at	51129	ANGPTL4	7.0	20.1	35.3
225283_at	91947	ARRDC4	1.6	2.5	2.5
227443_at	286343	LURAP1L	1.5	1.9	2.2
PPAR β/δ agonist target genes (The genes induced by the PPAR β/δ agonist, but not hypoxia)					
205960_at, 225207_at 1562321_at	5166	PDK4	4.1	1.49	4.3
203633_at, 203634_s_at 210687_at, 210688_s_at	1374	CPT1A	2.3	-1.1	2.0
205749_at	1543	CYP1A1	2.3	-2.1	3.3
203658_at	788	SLC25A20	2.1	-1.1	1.9
209122_at, 215895_x_at	123	ADFP	1.8	1.3	2.1
212665_at, 1556829_at	25976	TIPARP	1.6	1.2	2.1

Supplemental Table S2. Hypoxia target genes

Probe ID	Entrez Gene	Gene Symbol	Under Hypoxia (fold change)	With PPAR β / δ agonist (fold change)	Under both stimulations (fold change)
221009_s_at,223333_s_at	51129	ANGPTL4	20.10903	6.998707	35.276196
204818_at	3294	HSD17B2	18.932432	-1.2867024	13.1734
208131_s_at,210702_s_at,211892_s_at	5740	PTGIS	15.9720545	1.0815737	12.081443
204347_at,204348_s_at,225342_at,230630_at	205	AK3L1	15.858082	1.1263087	14.116184
228501_at,236361_at,239461_at	117248	GALNTL2	13.51196	1.3196096	11.324924
220613_s_at,225496_s_at,232914_s_at	54843	SYTL2	12.964958	1.370452	9.967332
219888_at	6676	SPAG4	12.076656	1.1672696	12.134428
227337_at,242548_x_at	353322	ANKRD37	10.491178	-1.0201494	8.359237
209822_s_at	å	VLDLR	9.754207	1.3684555	9.247862
205330_at	4330	MN1	7.648098	-1.0045148	7.219291
219014_at	51316	PLAC8	7.3558273	1.1268914	6.039248
206023_at	10874	NMU	7.153032	-1.2117007	5.9229097
201249_at,201250_s_at	6513	SLC2A1	6.5150785	-1.0630188	5.0163207
226415_at	57687	VAT1L	6.016297	-1.0552046	5.2956805
202912_at	133	ADM	5.742194	1.1007686	5.0649753
231798_at	9241	NOG	5.5532675	1.0385559	5.260714
219410_at	55076	TMEM45A	5.413069	1.1743897	5.3599772
213338_at	25907	TMEM158	5.0977197	-1.0890547	4.505342
227488_at,228235_at,229784_at	84848	MGC16121	5.017606	1.0444225	4.476229
201313_at	2026	ENO2	4.9443874	-1.1037586	4.681068
205013_s_at	135	ADORA2A	4.902788	1.0262256	3.493641
221272_s_at,223125_s_at,223126_s_at,223127_s_at,237098_at	81563	C1orf21	4.6748276	1.076107	4.1597204
202022_at	230	ALDOC	4.576794	-1.0135684	4.2470136
224797_at	57561	ARRDC3	4.5106773	-1.035341	6.1319313
202364_at	4601	MXI1	4.500933	1.0816774	3.7139523
224657_at	54206	ERRFI1	4.4689636	1.0278349	3.8591936
202887_s_at	54541	DDIT4	4.4260054	-1.2394512	3.9378142

204298_s_at,213640_s_at,215446_s_at	4015	LOX	4.366602	-1.0497099	3.727407
213942_at,226869_at	1953	MEGF6	4.3172774	1.1134712	3.6299882
226325_at,238259_at	122622	ADSSL1	4.2958794	1.0620162	3.7998059
201506_at	7045	TGFBI	4.294224	1.0306468	3.1867814
204595_s_at,204596_s_at,204597_x_at	6781	STC1	4.216043	1.3428713	4.1274953
204239_s_at	4826	NNAT	4.121432	1.0805768	2.8460157
201008_s_at,201009_s_at,201010_s_at	10628	TXNIP	4.0431147	-1.0351532	3.542655
1559034_at	284759	SIRPB2	3.9883773	-1.1183425	4.5273523
207543_s_at,243335_at	5033	P4HA1	3.917186	1.049873	3.6096933
214978_s_at	8497	PPFIA4	3.900043	-1.2310604	5.1829367
201968_s_at	5236	PGM1	3.8619025	1.0797421	3.7957754
204790_at	4092	SMAD7	3.85889	-1.0582205	3.1265576
213715_s_at	256949	KANK3	3.7383533	1.299243	3.5162156
218541_s_at	56892	C8orf4	3.7312787	-1.0198231	3.9656029
202497_x_at,202498_s_at,202499_s_at,216236_s_at,222088_s_at	6515	SLC2A3///SLC2A14	3.7133472	-1.0656692	3.134845
209201_x_at,211919_s_at,217028_at	7852	CXCR4	3.7048063	1.1289425	3.165013
200632_s_at	10397	NDRG1	3.5996413	-1.0141298	2.9991639
204926_at,210511_s_at	3624	INHBA	3.5783617	1.0507447	2.880707
205920_at,205921_s_at,211030_s_at,228754_at,228756_at	6533	SLC6A6	3.5425673	-1.0106163	3.222889
216236_s_at,222088_s_at	144195	SLC2A3///SLC2A14	3.5091033	1.0078244	2.8309
232504_at	285628	LOC285628	3.4528813	-1.03641	3.2175832
221578_at,49306_at,226436_at,237294_at	83937	RASSF4	3.4363368	-1.0020229	3.1121616
203953_s_at,203954_x_at	1365	CLDN3	3.344086	-1.1825979	2.8395362
201848_s_at,201849_at	664	BNIP3	3.2841182	1.0305194	3.7509923
210512_s_at,210513_s_at,211527_x_at,212171_x_at	7422	VEGFA	3.2560515	1.059625	3.0206482
209795_at	969	CD69	3.2351506	1.2784197	2.019427
204284_at,240187_at	5507	PPP1R3C	3.2231414	1.0481321	2.5696115
207255_at,209894_at,211354_s_at,211355_x_at,211356_x_at,1556919_a	3953	LEPR	3.2162414	1.1283901	3.0903177
218849_s_at	10848	PPP1R13L	3.15144	1.0277561	2.8661413
223276_at	85027	MST150	3.1432748	1.0138717	2.1463187
212689_s_at,242758_x_at	55818	KDM3A	3.1113708	1.0020725	3.193421

219702_at	10761	PLAC1	3.1000793	1.1821946	2.2554028
202796_at,235128_at,235914_at	11346	SYNPO	3.0607767	-1.0115477	2.4617748
221031_s_at	81575	APOLD1	3.0205743	1.1764495	2.8127327
219232_s_at,222847_s_at	112399	EGLN3	3.019163	1.0871795	2.35681
202733_at	8974	P4HA2	3.0142086	-1.0027268	2.751664
204881_s_at,221765_at,224967_at	7357	UGCG	2.998255	-1.0145199	2.6139965
201169_s_at,201170_s_at	8553	BHLHE40	2.965117	-1.0116216	2.593799
201147_s_at,201148_s_at,201149_s_at,201150_s_at	7078	TIMP3	2.9071414	-1.0830353	2.3944306
228362_s_at,229390_at,229391_s_at,229543_at,229915_at	441168	FAM26F	2.8846965	1.1309612	2.5181847
220388_at,222245_s_at	80307	FER1L4	2.8095615	1.1387254	3.1754975
228770_at	115330	GPR146	2.7955272	-1.0950174	2.4899452
221478_at,221479_s_at	665	BNIP3L	2.791297	1.0345457	2.8819861
233565_s_at	27111	SDCBP2	2.7470639	1.096678	2.621835
210715_s_at	10653	SPINT2	2.7400997	1.0381677	2.3365803
201041_s_at,201044_x_at	1843	DUSP1	2.739735	1.062241	2.3276436
203973_s_at,213003_s_at,213006_at	1052	CEBPD	2.7347922	1.0870358	2.3310966
203066_at	51363	GALNAC4S-6ST	2.709463	1.2635218	3.0513194
213900_at	9413	C9orf61	2.7082953	1.0218042	2.0367332
207574_s_at,209304_x_at,209305_s_at,213560_at	4616	GADD45B	2.6910226	-1.0672487	2.2442837
227868_at	154761	LOC154761	2.6862133	-1.016597	2.1748219
202023_at	1942	EFNA1	2.672577	-1.134444	2.140025
218149_s_at,221123_x_at,222536_s_at,223216_x_at,232693_s_at,232694_s_at	55893	FBXO16///ZNF395	2.6613812	-1.0005155	2.4505234
227481_at,242394_at	154043	CNKSr3	2.6547613	-1.1260433	2.0106716
221011_s_at	81606	LBH	2.6483796	-1.0430537	1.8323219
218863_s_at,218864_at,221246_x_at,221747_at,221748_s_at,232750_at	7145	TNS1	2.6409469	1.0196899	2.4974587
209946_at	7424	VEGFC	2.6380374	-1.1224189	2.2622871
208510_s_at	5468	PPARG	2.632619	-1.0869524	1.3990397
208891_at,208892_s_at,208893_s_at	1848	DUSP6	2.6288686	-1.0732999	3.0172298
223672_at	84251	SGIP1	2.6123674	-1.0434889	2.89288
208461_at,230218_at	3090	HIC1	2.6072962	1.0544306	1.8571677
206633_at,211039_at	1134	CHRNA1	2.6072748	-1.0815752	2.1196766

203835_at	2615	LRRC32	2.5887058	-1.0504373	2.418337
202855_s_at,202856_s_at,213522_s_at,217685_at,217691_x_at	9123	SLC16A3	2.575064	-1.0763892	2.6620975
206084_at,210675_s_at	5801	PTPRR	2.5745492	1.1081775	1.734538
228564_at	375295	LOC375295	2.5697331	1.0214471	2.6363823
213280_at	23108	GARNL4	2.5377605	1.4615843	1.9120365
209821_at	90865	IL33	2.527802	1.0623894	1.6323873
206211_at	6401	SELE	2.525342	1.4597855	1.807039
205158_at,213397_x_at	6038	RNASE4	2.5219579	1.0859808	2.4892704
208214_at,229277_at,229309_at	153	ADRB1	2.5138063	1.1400461	2.536407
227307_at,228819_at,1561449_at	90139	TSPAN18	2.5015595	-1.2474855	1.7461693
209493_at,233025_at,233026_s_at	23037	PDZD2	2.4981704	1.1128467	1.9936345
203417_at	4237	MFAP2	2.4730103	-1.105154	2.224367
225283_at	91947	ARRDC4	2.4702792	1.5583578	2.5006428
223315_at	59277	NTN4	2.4509566	1.0857127	3.1736004
219319_at,222123_s_at,222124_at,232669_at,233517_s_at,1555318_at,1.	64344	HIF3A	2.4327266	1.0901693	2.4273324
220108_at,243580_at	9630	GNA14	2.4255335	-1.0085351	1.6824194
213996_at,228296_at,228788_at	29799	YPEL1	2.4243898	1.0182933	2.1329432
236915_at,237585_at	441054	C4orf47	2.4220521	1.4357066	2.383356
218162_at	56944	OLFML3	2.411359	1.0546969	1.9682903
235953_at	162963	ZNF610	2.4097505	1.0694715	2.0069046
1553635_s_at	200132	TCTEX1D1	2.391177	-1.0019665	2.0252175
220092_s_at,220093_at,224694_at,227660_at,234430_at,234832_at	84168	ANTXR1	2.3854177	1.0140164	2.203451
202972_s_at,202973_x_at,217047_s_at,1569024_at,1569025_s_at	10144	FAM13A	2.3677855	1.0863153	2.238961
203859_s_at	5064	PALM	2.3641858	1.0920115	2.0960515
205846_at,217177_s_at,230250_at,1560105_at	5787	PTPRB	2.359804	1.0544599	2.5497692
204135_at,1554965_at,1554966_a_at	11259	FILIP1L	2.3380134	-1.0937941	2.0470176
219862_s_at	26502	NARF	2.33565	-1.0587037	2.1874118
205554_s_at,1561336_at	1776	DNASE1L3	2.3310173	1.206035	1.8233258
209774_x_at,230101_at,1569203_at	2920	CXCL2	2.3308785	-1.3441355	1.7987003
227263_at,236296_x_at	541565	C8orf58	2.3261378	1.0424777	1.8719829
207196_s_at,243423_at	10318	TNIP1	2.3091512	-1.1153599	2.2248285

206246_at,228499_at	5210	PFKFB4	2.3066256	-1.2963716	2.205529
243337_at	166752	FREM3	2.2856097	-1.133587	1.1894583
202643_s_at,202644_s_at	7128	TNFAIP3	2.274235	1.1366693	2.1153088
228427_at,232693_s_at	157574	FBXO16///ZNF395	2.268759	-1.1465316	2.149984
217867_x_at,222446_s_at	25825	BACE2	2.2680182	1.0146326	1.819841
238429_at	137835	TMEM71	2.2621398	1.2234018	2.264053
222662_at,1552669_at,1552670_a_at	79660	PPP1R3B	2.2617211	1.0282257	2.077569
203325_s_at,212488_at,212489_at	1289	COL5A1	2.2615478	1.0658569	2.1075532
205974_at,205975_s_at	3231	HOXD1	2.2598553	1.0077931	1.9462303
203592_s_at	10272	FSTL3	2.2553558	1.0659888	1.6256529
211518_s_at	652	BMP4	2.24237	-1.0056616	2.0314214
221221_s_at,1555110_a_at	26249	KLHL3	2.2348135	1.1348771	2.271526
227151_at	257364	SNX33	2.2322192	1.1520879	1.8624104
213349_at,213351_s_at,213352_at,227112_at	23023	TMCC1	2.207695	1.0208389	2.026031
235548_at	164284	APCDD1L	2.1963515	1.1245165	2.0158021
1555366_at	100131275	NSAP11	2.1921139	-1.1967434	1.8107357
220942_x_at,221533_at,223193_x_at,224345_x_at	26355	FAM162A	2.1745884	1.0496544	2.215231
225803_at,241762_at,241763_s_at	114907	FBXO32	2.1691191	-1.2190872	1.7193284
219165_at,232302_at	64236	PDLIM2	2.1648476	-1.0689782	1.9526
219049_at	55790	CSGALNACT1	2.162727	-1.0311981	1.610716
216598_s_at	6347	CCL2	2.1600096	-1.0595535	1.8255678
204288_s_at,220858_at,225728_at,233720_at,237285_at,1555472_at,155	8470	SORBS2	2.1583967	-1.0879725	1.890009
223423_at	26996	GPR160	2.1523507	1.4074777	1.511825
204906_at,212912_at,1557970_s_at	6196	RPS6KA2	2.149721	-1.0137899	1.818362
207547_s_at,209074_s_at	11170	FAM107A	2.1425042	1.0596012	2.0806036
209908_s_at,209909_s_at,220406_at,220407_s_at,228121_at	7042	TGFB2	2.131523	-1.0832423	2.0179913
221497_x_at,223045_at,223046_at,224314_s_at	54583	EGLN1	2.1310742	-1.0906855	1.9458026
203758_at	1519	CTSO	2.1273916	-1.0197392	1.7217008
207174_at	2262	GPC5	2.1257377	-1.1293306	1.6161052
201032_at	10904	BLCAP	2.1253934	-1.0865993	1.8260674
205141_at	283	ANG	2.1212332	1.3270131	2.0240164

225955_at	284207	METRNL//LOC653506	2.1209793	-1.1133599	1.5940164
225955_at	653506	METRNL//LOC653506	2.1209793	-1.1133599	1.5940164
224602_at,224604_at,224605_at	401152	C4orf3	2.1202826	-1.0400119	2.299671
229872_s_at	100132999	LOC100132999	2.119753	1.0120751	1.5495505
203504_s_at,203505_at,216066_at,1570279_at	19	ABCA1	2.1100938	1.2356447	2.3568194
206750_at,226206_at	7975	MAFK	2.1041422	-1.032114	1.897115
220765_s_at	55679	LIMS2	2.1037471	1.0523642	1.7651325
232090_at,235891_at	100128178	LOC100128178	2.1018226	-1.0440995	2.1785946
206039_at	9363	RAB33A	2.1001346	-1.0072429	1.5192027
202403_s_at,202404_s_at,229218_at	1278	COL1A2	2.0951462	-1.1576678	1.9340343
230800_at	196883	ADCY4	2.0943985	-1.0339007	1.875875
225956_at,225957_at,238476_at,1554229_at	153222	C5orf41	2.0924127	1.0739126	1.9774675
202331_at	593	BCKDHA	2.086277	1.0938169	1.8832657
227285_at	148523	C1orf51	2.085083	-1.1474195	2.6896985
221016_s_at	83439	TCF7L1	2.0803952	1.0203443	1.6747903
203438_at,203439_s_at	8614	STC2	2.0640998	1.293725	2.1740055
218723_s_at,228193_s_at,239827_at	28984	C13orf15	2.061145	-1.0670787	1.6759852
220753_s_at	51084	CRYL1	2.0590684	1.0620204	2.0383368
209034_at	10957	PNRC1	2.0540316	1.0597006	1.8538456
203824_at	7103	TSPAN8	2.050393	1.3287568	2.1017601
212358_at,235243_at	25999	CLIP3	2.0453627	1.0572242	1.8384871
224647_at,224649_x_at,224651_at,224652_at,1554694_at	219771	CCNY	2.0426536	-1.048578	1.8834214
201473_at	3726	JUNB	2.041329	1.0165668	1.8109099
202149_at,202150_s_at,1569020_at	4739	NEDD9	2.0344055	-1.0132056	2.1341426
225898_at	84058	WDR54	2.032354	1.0555876	2.0671153
238865_at	132430	PABPC4L	2.0269117	1.1380436	1.8523573
231868_at	57594	HOMEZ	2.0247905	1.0693351	1.5284432
221211_s_at	56911	C21orf7	2.0194871	1.0919338	1.7180967
220111_s_at,234718_at	57101	ANO2	2.0129318	1.2785292	2.040816
229523_at,238128_at	645369	TTMA	2.011496	1.1876391	1.6046479
214719_at	283537	SLC46A3	2.0113132	-1.3414589	1.1275975

205150_s_at,205151_s_at	9865	KIAA0644	2.0057852	1.2285626	1.486554
212154_at,212157_at,212158_at	6383	SDC2	2.005355	-1.0155405	1.6271296

Supplemental Table S3A. Primers list for expression analysis

ANGPTL4fw	GCAGGATCCAGCAACTCTTC
ANGPTL4rv	AAACTGGCTTTGCAGATGCT
HIF1 α fw	CGAGATGCAGCCAGATCTCGGCCAAGTAA
HIF1 α rv	CTCTCATTTCCTCATGGTCACATGGATG
PPAR β / δ fw	TCATTGCGGCCATCATTCTGTGTG
PPAR β / δ rv	TTCGGTCTTCTTGATCCGCTGCAT
PDK4fw	TGCAATTGGTTAAAAGCTGGT
PDK4rv	CATCTGGGCTTTTCTCATGG
CPT1Afw	ACAGTCGGTGAGGCCTCTTATGAA
CPT1Arv	CTTGCTGCCTGAATGTGAGTTGG
SLC25A20fw	GTTATCTGGCGTATTCACCACA
SLC25A20rv	GTCCAGTGTACTTGCTTTCTCC
VEGFAfw	GCGGAGAAAGCATTGTGTTGT
VEGFArv	CGGCTTGTCACATCTGCAAC
SLC2A1fw	GGTTGTGCCATACTCATGACC
SLC2A1rv	CACATAGGACATCCAGGGTAGC
ADSSL1fw	CAGGCAGGAAGAGGCGCTGC
ADSSL1rv	GGCCAGCGCAGTGAATCCGT
ANGPTL4fw (1 st exon)	GCCTCAGCGGATGGAGATTT
ANGPTL4rv (1 st intron)	GAGTTGCTGGATCCTGCTGT
ANGPTL4fw (2 nd intron)	GAGGTGGTGAGAAGTGGACG
ANGPTL4rv (3 rd exon)	GGTCTAGGTGCTTGTGGTCC
ANGPTL4fw (5 th intron)	TTCTAGTGGGGACAGAGGCA
ANGPTL4rv (6 th exon)	CCCGTGATGCTATGCACCTT

Supplemental Table S3B. Primers for site-directed mutagenesis of the HRE and PPRE

mutHRE1	3' - GCACACCCAAGGGCTAGATCTCAGGCTGCCACTCAT
mutHRE2	5' - CCGAGTAGCTGTAAGAGATCTCCACCACACCCGGCT
mutHRE3	5' - GGGGGAAAGAAGAGTCAGATCTCCCACGGTTCGTAG
mutPPRE1	5' - CAGGCCCGCCAAGTAGAGATCTGTTTCAGAGCTGGGA
mutPPRE2	5' - GATGGGAGGAAAGTAGAGATCTGGGGAGATGCCTGA
mutPPRE3	3' - CCAGCCGGAAAAGTAGAGATCTGGTTCGAAATGAGTC

Supplemental Table S3C. Primers list for ChIP assay

ANGPTL4 PPRE at 3rd intron +3500fw	CCTTACTGGATGGGAGGAAAG
ANGPTL4 PPRE at 3rd intron +3500rv	CCCAGAGTGACCAGGAAGAC
ANGPTL4 Negative Control for PPAR β/δ +15000fw	GCCTATAGCCTGCAGCTCAC
ANGPTL4 Negative Control for PPAR β/δ +15000rv	CAAGTGGAGAAGGGTACGGA
ANGPTL4 HIF1 α binding site for H3K27ac -1800fw	TAGGGGAATGGGTAGGGAAG
ANGPTL4 HIF1 α binding site for H3K27ac -1800rv	AGTTCTCAGGCAGGTGGAGA
ANGPTL4 PPAR β/δ binding site for H3K27ac +3200fw	TAGCATCTCAGCGTGGTCAG
ANGPTL4 PPAR β/δ binding site for H3K27ac +3200rv	TGAGCCAAGAGTCTGGGAGT
ANGPTL4 TSS for Pol II fw	ACCGACCTCCCGTTAGCCCC
ANGPTL4 TSS for Pol II rv	CGGAGAACCAGCCCTGGGGA

Supplemental Table S3D. Primers and TaqMan probe for 3C assay

Target analysis	
ANGPTL4 Target Anchor Fw (TSS-3kb, HRE)	TGGTTTTCTGTGCCAGCCTC
ANGPTL4 Target Anchor TaqMan probe	(6-FAM) CCTTCCTGACAGGGTATAG (MGB)
ANGPTL4 Control Anchor Fw1 (TSS-4kb)	AACACGGCAAAAATCCTGTC
ANGPTL4 Control Anchor TaqMan probe1	(6-FAM) TGCCTATAGTCCCAGCTGCT (MGB)
ANGPTL4 Control Anchor Fw2 (TSS+6kb)	CCAGAGAGGCTTTGCAGATT
ANGPTL4 Control Anchor TaqMan probe2	(6-FAM) CCTACTCCCTCCCACACTCA (MGB)
ANGPTL4 Rv (TSS+5.3kb, PPRE)	CCTGACCACGCTGAGATGCTA
ANGPTL4 Rv (TSS-10kb)	AATGGCTCACGCCTGTAATC
ANGPTL4 Rv (TSS-8kb)	TCGGTCCCTGAAAGGAGATA
ANGPTL4 Rv (TSS-6kb)	CCCGTACTCCCACACGTA
ANGPTL4 Rv (TSS+1kb)	CCAGGCAAGGGAGTCTTTCT
ANGPTL4 Rv (TSS+4kb)	TGTAGAGACGGGGGTTTCAC
ANGPTL4 Rv (TSS+15kb)	GCCTCCCTCCCTCTATCATC
