

Supplementary Materials.

Fig.1: *FLNB*, *VE-cad*, *VE-PTP* and *CD133*, are up-regulated by hypoxia in Glio5.

RNAs were extracted from glioma stem cell cultures constantly maintained under normoxia (3% O₂) or exposed to hypoxia (0.3% O₂) for 48 hours. Glio5 cells were cultured as neurospheres in serum-free medium. RT-qPCR analysis was performed with primers specific for *FLNB*, *VE-cad*, *VE-PTP*, and *CD133*. Expression levels were normalized relative to the expression level of β -actin. Values are calculated by $2^{-(Ct_{\text{gene of interest}} - Ct_{\text{betaactin}})}$; * $p \leq 0.05$.

Table I: Genes differentially regulated in U87 glioma when cells are shifted from 20% to 0.3% O₂

Probe Set ID	Gene Symbol	U87 Ratio 0.3% vs 20% O₂
214293_at	---	23,25
209183_s_at	C10orf10	14,07
219434_at	TREM1	13,00
212143_s_at	IGFBP3	11,29
204363_at	F3	9,30
205199_at	CA9	8,99
237335_at	ZP1	8,27
219888_at	SPAG4	7,21
218507_at	C7orf68	5,83
201250_s_at	SLC2A1	5,69
236915_at	C4orf47	5,49
232693_s_at	FBXO16 /// ZNF395	5,40
205832_at	CPA4	5,20
228262_at	MAP7D2	5,17
239619_at	---	5,06
221123_x_at	ZNF395	5,05
219410_at	TMEM45A	5,02
228483_s_at	TAF9B	4,91
235850_at	WDR5B	4,77
200632_s_at	NDRG1	4,62
202022_at	ALDOC	4,53
225342_at	AK3L1	4,50
232451_at	---	4,39
228843_at	---	4,33
203325_s_at	COL5A1	4,32
205200_at	CLEC3B	4,29
215446_s_at	LOX	4,26
214978_s_at	PPFIA4	4,24
236480_at	---	4,16
203407_at	PPL	4,10
209859_at	TRIM9	4,05
226348_at	---	4,02
202887_s_at	DDIT4	3,99
236180_at	---	3,87
204971_at	CSTA	3,81
230710_at	---	3,76
204284_at	PPP1R3C	3,72
221009_s_at	ANGPTL4	3,62

226899_at	UNC5B	3,57
238965_at	C21orf2	3,52
204508_s_at	CA12	3,49
205493_s_at	DPYSL4	3,48
226347_at	---	3,48
226452_at	PDK1	3,44
202364_at	MXI1	3,42
227337_at	ANKRD37	3,41
219213_at	JAM2	3,34
230498_at	MCHR1	3,32
213332_at	PAPPA2	3,32
219310_at	TMEM90B	3,30
209566_at	INSIG2	3,17
228499_at	PFKFB4	3,13
203574_at	NFIL3	3,07
226436_at	RASSF4	2,98
222847_s_at	EGLN3	2,98
45714_at	HCFC1R1	2,98
203438_at	STC2	2,97
243444_at	SRD5A3	2,94
201195_s_at	SLC7A5	2,94
230695_s_at	RSPH9	2,93
1569263_at	---	2,91
220942_x_at	FAM162A	2,89
221766_s_at	FAM46A	2,88
236110_at	---	2,87
201673_s_at	GYS1	2,80
213843_x_at	SLC6A8	2,80
202769_at	CCNG2	2,79
213693_s_at	MUC1	2,78
213438_at	NFASC	2,77
201010_s_at	TXNIP	2,77
206258_at	ST8SIA5	2,75
213169_at	SEMA5A	2,73
214268_s_at	MTMR4	2,73
228575_at	IL20RB	2,73
202912_at	ADM	2,73
227068_at	PGK1	2,72
201148_s_at	TIMP3	2,71
201849_at	BNIP3	2,69
232914_s_at	SYTL2	2,69
224657_at	ERRFI1	2,66
236036_at	---	2,66
210237_at	ARTN	2,64
225750_at	---	2,61

226925_at	ACPL2	2,56
202575_at	CRABP2	2,55
1556629_a_at	SNAP25	2,54
223839_s_at	SCD	2,53
218934_s_at	HSPB7	2,53
205302_at	IGFBP1	2,51
202856_s_at	SLC16A3	2,50
224602_at	C4orf3	2,50
227326_at	MXRA7	2,50
212496_s_at	KDM4B	2,49
209333_at	ULK1	2,46
209185_s_at	IRS2	2,44
223046_at	EGLN1	2,44
202897_at	SIRPA	2,44
235916_at	YPEL4	2,43
202016_at	MEST	2,43
240042_at	FIBCD1	2,41
205141_at	ANG	2,39
1568611_at	---	2,39
228340_at	TLE3	2,38
222245_s_at	FER1L4	2,38
202291_s_at	MGP	2,37
221211_s_at	C21orf7	2,35
225990_at	BOC	2,35
201313_at	ENO2	2,35
223502_s_at	TNFSF13B	2,35
209119_x_at	NR2F2	2,35
226325_at	ADSSL1	2,34
203296_s_at	ATP1A2	2,34
202464_s_at	PFKFB3	2,34
214101_s_at	---	2,33
222856_at	APLN	2,33
226189_at	ITGB8	2,32
244069_at	---	2,32
212155_at	RNF187	2,32
215812_s_at	LOC653562 /// SLC6A10P /// SLC6A8	2,31
218625_at	NRN1	2,31
1554704_at	ATP8B3	2,31
203710_at	ITPR1	2,29
210511_s_at	INHBA	2,28
205374_at	SLN	2,27
230864_at	MGC42105	2,27
202619_s_at	PLOD2	2,26
222450_at	PMEPA1	2,26

209982_s_at	NRXN2	2,26
204730_at	RIMS3	2,25
227195_at	ZNF503	2,23
231403_at	TRIO	2,23
229822_at	---	2,22
235467_s_at	KCNC4	2,22
223703_at	C10orf11	2,20
228959_at	---	2,20
221864_at	ORAI3	2,19
202934_at	HK2	2,19
225649_s_at	STK35	2,18
230085_at	---	2,18
238617_at	---	2,17
230560_at	STXBP6	2,16
237460_x_at	C14orf182	2,15
229382_at	C1orf183	2,15
212713_at	MFAP4	2,13
213256_at	MARCH3	2,13
229898_at	---	2,12
212593_s_at	PDCD4	2,12
221479_s_at	BNIP3L	2,12
210749_x_at	DDR1	2,11
202235_at	SLC16A1	2,11
1555579_s_at	PTPRM	2,11
203813_s_at	SLIT3	2,10
209656_s_at	TMEM47	2,09
201785_at	RNASE1	2,08
208779_x_at	DDR1	2,07
238116_at	DYNLRB2	2,07
222108_at	AMIGO2	2,05
59625_at	NOL3	2,05
1559960_x_at	LOC100130958	2,04
231178_at	SPATA4	2,03
210677_at	SOAT2	2,03
225626_at	PAG1	2,03
221261_x_at	MAGED4 /// MAGED4B	2,01
213629_x_at	MT1F	2,01
203973_s_at	CEBPD	2,00
238151_at	---	2,00
208320_at	CABP1	1,98
203282_at	GBE1	1,98
204595_s_at	STC1	1,97
225146_at	C9orf25	1,96
225717_at	KIAA1715	1,96
1007_s_at	DDR1	1,96

205497_at	ZNF175	1,96
208935_s_at	LGALS8	1,96
207020_at	HSF2BP	1,95
201701_s_at	PGRMC2	1,95
226424_at	CAPS	1,94
201968_s_at	PGM1	1,94
241230_at	---	1,93
205022_s_at	FOXN3	1,93
201919_at	SLC25A36	1,93
216272_x_at	SYDE1	1,93
203986_at	STBD1	1,93
226517_at	BCAT1	1,92
202497_x_at	SLC2A3	1,92
213273_at	ODZ4	1,91
212154_at	SDC2	1,91
44702_at	SYDE1	1,89
241992_at	DRAM	1,89
213059_at	CREB3L1	1,88
202237_at	NNMT	1,87
209356_x_at	EFEMP2	1,85
226342_at	SPTBN1	1,85
225057_at	SLC15A4	1,84
229810_at	---	1,84
230941_at	LOC728537	1,84
211065_x_at	PFKL	1,84
35617_at	MAPK7	1,84
205575_at	C1QL1	1,84
201667_at	GJA1	1,83
221953_s_at	LOC729580	1,83
240873_x_at	DAB2	1,83
241348_at	ZNF654	1,83
203159_at	GLS	1,83
204900_x_at	SAP30	1,83
224992_s_at	CMIP	1,83
225704_at	FBRSL1	1,82
218002_s_at	CXCL14	1,82
221203_s_at	YEATS2	1,81
1559776_at	---	1,81
228008_at	---	1,80
222288_at	---	1,80
36711_at	MAFF	1,80
210512_s_at	VEGFA	1,80
217949_s_at	VKORC1	1,80
203749_s_at	RARA	1,80
228080_at	LAYN	1,80

225056_at	SIPA1L2	1,80
222221_x_at	EHD1	0,55
218398_at	MRPS30	0,55
215506_s_at	DIRAS3	0,55
233970_s_at	TRMT6	0,55
219581_at	TSEN2	0,55
205770_at	GSR	0,55
208910_s_at	C1QBP	0,55
200790_at	ODC1	0,55
203708_at	PDE4B	0,54
211379_x_at	B3GALNT1	0,54
1555091_at	PPM1F	0,54
222417_s_at	SNX5	0,54
225143_at	SFXN4	0,53
225571_at	LIFR	0,53
203499_at	EPHA2	0,53
228366_at	---	0,53
221581_s_at	LAT2	0,53
226319_s_at	THOC4	0,52
225301_s_at	MYO5B	0,52
225827_at	EIF2C2	0,51
228098_s_at	MYLIP	0,51
222837_s_at	NARG1	0,50
202069_s_at	IDH3A	0,50
218772_x_at	TMEM38B	0,50
235117_at	CHAC2	0,50
207891_s_at	HAUS7 /// TREX2	0,49
229236_s_at	SFXN4	0,49
221606_s_at	NSBP1	0,48
223296_at	SLC25A33	0,48
205479_s_at	PLAU	0,48
239177_at	IRGQ	0,47
234987_at	---	0,47
205364_at	ACOX2	0,46
1569190_at	SCLT1	0,46
204933_s_at	TNFRSF11B	0,44
203083_at	THBS2	0,44
223580_at	SPSB2	0,44
1570153_at	C13orf38	0,43
221252_s_at	GSG1	0,43
220122_at	MCTP1	0,42
224909_s_at	PREX1	0,39
210145_at	PLA2G4A	0,37
205576_at	SERPIND1	0,36
210662_at	KYNU	0,35

204439_at	IFI44L	0,35
229349_at	LIN28B	0,35
206693_at	IL7	0,31

Table II: Genes differentially regulated in Glioblastoma cells cultured in serum-free medium when cultures are shifted from 3% to 0.3% O₂.

Probe Set ID	Gene Symbol	Glioblastoma Ratio 0.3% vs 3% O₂
203438_at	STC2	10,02
222847_s_at	EGLN3	7,73
226452_at	PDK1	5,24
202912_at	ADM	4,88
202934_at	HK2	4,37
202856_s_at	SLC16A3	4,33
208614_s_at	FLNB	4,25
204304_s_at	PROM1	4,11
230498_at	MCHR1	4,00
228483_s_at	TAF9B	3,94
202887_s_at	DDIT4	3,91
236480_at	---	3,89
235850_at	WDR5B	3,86
201170_s_at	BHLHE40	3,84
209493_at	PDZD2	3,78
236915_at	C4orf47	3,67
225283_at	ARRDC4	3,53
219410_at	TMEM45A	3,44
210675_s_at	PTPRR	3,44
230250_at	PTPRB	3,37
1555997_s_at	IGFBP5	3,28
227868_at	LOC154761	3,24
210512_s_at	VEGFA	3,20
202998_s_at	LOXL2	3,13
202022_at	ALDOC	3,06
230710_at	---	2,99
220942_x_at	FAM162A	2,95
201010_s_at	TXNIP	2,88
225342_at	AK3L1	2,86
226682_at	RORA	2,86
200827_at	PLOD1	2,77
204677_at	CDH5	2,74
214978_s_at	PPFIA4	2,71
201565_s_at	ID2	2,68
232693_s_at	FBXO16 /// ZNF395	2,68
212364_at	MYO1B	2,64
205199_at	CA9	2,64

227068_at	PGK1	2,64
221123_x_at	ZNF395	2,62
201849_at	BNIP3	2,56
1552256_a_at	SCARB1	2,54
224797_at	ARRDC3	2,49
200878_at	EPAS1	2,47
228057_at	DDIT4L	2,45
214043_at	PTPRD	2,42
219622_at	RAB20	2,39
230630_at	---	2,38
218717_s_at	LEPREL1	2,38
201250_s_at	SLC2A1	2,35
227271_at	FGF11	2,27
207543_s_at	P4HA1	2,24
205970_at	MT3	2,22
1553159_at	DNAH11	2,21
228499_at	PFKFB4	2,20
200632_s_at	NDRG1	2,20
202497_x_at	SLC2A3	2,19
240055_at	---	2,17
232451_at	---	2,15
212689_s_at	KDM3A	2,15
202524_s_at	SPOCK2	2,14
211685_s_at	NCALD	2,11
223046_at	EGLN1	2,08
202733_at	P4HA2	2,02
203282_at	GBE1	2,02
205204_at	NMB	2,02
223276_at	MST150	2,01
227168_at	MIAT	1,99
201313_at	ENO2	1,99
208321_s_at	CABP1	1,97
221479_s_at	BNIP3L	1,97
218484_at	NDUFA4L2	1,97
228770_at	GPR146	1,96
236180_at	---	1,96
200795_at	SPARCL1	1,93
203710_at	ITPR1	1,93
208308_s_at	GPI	1,90
223172_s_at	MTP18	1,90
1558834_s_at	C1orf62	1,87
238996_x_at	ALDOA	1,85
212776_s_at	OBSL1	1,84
225750_at	---	1,84
218995_s_at	EDN1	1,83

211026_s_at	MGLL	1,83
219670_at	BEND5	1,82
226347_at	---	1,82
229156_s_at	---	1,81
227529_s_at	AKAP12	1,80

Table III: Genes differentially regulated in Glioblastoma cells cultured in the presence of 10% fetal calf serum when cultures are shifted from 3% O₂ to 0.3% O₂.

Probe Set ID	Gene Symbol	Glioblastoma FCS Ratio 0.3% vs 3% O₂
204748_at	PTGS2	5,46
219232_s_at	EGLN3	4,98
230250_at	PTPRB	4,91
202934_at	HK2	4,18
235850_at	WDR5B	4,15
202887_s_at	DDIT4	4,09
203438_at	STC2	3,94
225342_at	AK3L1	3,75
201010_s_at	TXNIP	3,46
228483_s_at	TAF9B	3,44
226452_at	PDK1	3,25
204304_s_at	PROM1	3,25
205199_at	CA9	3,20
1553770_a_at	SLAMF9	3,12
227868_at	LOC154761	3,09
221123_x_at	ZNF395	3,08
232693_s_at	FBXO16 /// ZNF395	3,06
226682_at	RORA	2,94
202912_at	ADM	2,93
210675_s_at	PTPRR	2,88
219410_at	TMEM45A	2,84
236480_at	---	2,71
228057_at	DDIT4L	2,71
201250_s_at	SLC2A1	2,70
209031_at	CADM1	2,61
220942_x_at	FAM162A	2,54
217028_at	CXCR4	2,51
236180_at	---	2,50
202856_s_at	SLC16A3	2,49
1552256_a_at	SCARB1	2,47
213397_x_at	RNASE4	2,46
232451_at	---	2,42
236915_at	C4orf47	2,38
236513_at	---	2,37
228635_at	PCDH10	2,37
230710_at	---	2,31
201313_at	ENO2	2,29

201849_at	BNIP3	2,29
202524_s_at	SPOCK2	2,27
242868_at	---	2,27
210512_s_at	VEGFA	2,25
201170_s_at	BHLHE40	2,25
209348_s_at	MAF	2,25
216236_s_at	SLC2A14 /// SLC2A3	2,23
218723_s_at	C13orf15	2,21
219670_at	BEND5	2,21
225962_at	ZNRF1	2,20
205204_at	NMB	2,20
227068_at	PGK1	2,18
204508_s_at	CA12	2,18
224797_at	ARRDC3	2,18
211782_at	IDS	2,16
208614_s_at	FLNB	2,15
218995_s_at	EDN1	2,13
227717_at	FLJ41603	2,11
209309_at	AZGP1	2,11
207543_s_at	P4HA1	2,09
208320_at	CABP1	2,08
211026_s_at	MGLL	2,07
200878_at	EPAS1	2,06
230711_at	---	2,04
204730_at	RIMS3	2,02
202497_x_at	SLC2A3	2,01
204677_at	CDH5	2,01
218218_at	APPL2	1,99
227004_at	---	1,99
202998_s_at	LOXL2	1,98
235419_at	---	1,97
203710_at	ITPR1	1,96
234725_s_at	SEMA4B	1,96
212364_at	MYO1B	1,96
200632_s_at	NDRG1	1,96
202221_s_at	EP300	1,96
227271_at	FGF11	1,96
223046_at	EGLN1	1,95
200827_at	PLOD1	1,95
225750_at	---	1,92
208876_s_at	PAK2	1,92
205227_at	IL1RAP	1,91
221479_s_at	BNIP3L	1,91
242051_at	---	1,91
214862_x_at	---	1,90

213493_at	SNED1	1,90
202341_s_at	TRIM2	1,90
212488_at	COL5A1	1,89
214068_at	BEAN	1,89
209566_at	INSIG2	1,88
205249_at	EGR2	1,88
202620_s_at	PLOD2	1,87
232990_at	FAM104B	1,87
237169_at	---	1,85
212143_s_at	IGFBP3	1,84
212689_s_at	KDM3A	1,84
209357_at	CITED2	1,83
238965_at	C21orf2	1,82
232744_x_at	---	1,82
237585_at	C4orf47	1,81
203563_at	AFAP1	1,81
203282_at	GBE1	1,81
220914_at	---	1,81
238914_at	DCC	1,81
1564028_s_at	FAM115C	1,80
210215_at	TFR2	1,80

Table IV.

Sequences of the primers used in the RT-qPCR experiments

Gene	Forward (5'-3')	Reverse (3'-5')
<i>Actin</i>	tgttttctgcaagtagg	ctctgagcgcaagtactcc
<i>CD133</i>	cagcagagagcagatgacca	tccacagaaattacctacattgg
<i>VE-PTP</i>	gtgatcctcaggtcggtgac	caaggaagcccagactgaag
<i>VE-cad</i>	ctggccctgtcactggt	aagccttgattggcacagt
<i>FLNB</i>	acataggcctcttcggtcac	tcactgtcatggccacagat

