

Supplementary Table S1. Primer list used for real time PCR.

Genes		Sequence	Accession No.
<i>PAX7</i>	Forward	AGGACGGCGAGAAGAAAGC	XM_019984705.1
	Reverse	CCCTTTGTCGCCCAGGAT	
<i>MYF5</i>	Forward	CAGCCTCTCTCTCCCCAGTTG	NM_174116.1
	Reverse	AGGCCCTGGAGTTGCA	
<i>MYOD1</i>	Forward	CACGTCTAGCAACCCAAACCA	AB110599.1
	Reverse	ATGGCGTTGCGCAGGAT	
<i>MYOG</i>	Forward	GACGCCATCATCCATGTTCTAC	NM_173881.2
	Reverse	GGGCATCAGCACCGAAGT	
<i>MYF6</i>	Forward	GGCGGCGGCTCAAGA	AB110601.1
	Reverse	AACGAGGCCTTCGAGG	
<i>MYH1</i>	Forward	GCCAGACTGTAGAGCAGGTATATAACG	NM_174117.1
	Reverse	GCAACCATCCACAGGAACATC	
<i>MSTN</i>	Forward	CGGCTCCTTGGAAGACGAT	NM_001001525.3
	Reverse	CTCCGTGGGCATGGTAATG	
<i>TERT</i>	Forward	GCAGGTCCTACATCCAGTGTC	NM_001046242.1
	Reverse	TCCATGTCCCATAGCAGAAG	
<i>CDKN1A</i>	Forward	CTCCCAGGGCCGGA	NM_001098958.2
	Reverse	GCGTTTGGAGTGGTAGAAATCTG	
<i>TP53</i>	Forward	TTACGCGCGGAGTATTTGG	NM_174201.2
	Reverse	GGCACCACCACACTGTGTCTA	
<i>MYC</i>	Forward	CATCCTGTGGTCCAAGCA	NM_001046074.2
	Reverse	CTCTTCTGCAACACGTCTATTTCTG	
<i>BAX</i>	Forward	CGCATCGGAGATGAATTGG	NM_173894.1
	Reverse	CCACAGCTGCGATCATCCT	
<i>BCL2</i>	Forward	GGAGCTGTATGGCCCTAGCAT	NM_001166486.1
	Reverse	CCTTCAGAGACAGCCAGGAGAA	
<i>NOX1</i>	Forward	TGATCCTGCCTCCTACTGCAA	NM_001191340.1
	Reverse	GTGCAAGGATCCATTTCCAAGA	
<i>GPX1</i>	Forward	TTTGGGCATCAGGAAAACG	NM_174076.3
	Reverse	CGGACGTACTTCAGGCAATTC	
<i>SOD1</i>	Forward	GTTGGAGACCTGGGCAATGT	NM_174615.2
	Reverse	ACAATATCCACGATGGCAACAC	
<i>SOD2</i>	Forward	GGGTGATGTTACAGCTCAGATAGCT	NM_201527.2
	Reverse	GGCCCCACCGTTGA	
<i>SOD3</i>	Forward	TGGAGGCCTTCTTCCACCTT	NM_001082610.1
	Reverse	TGGATGGCACGGTTTGTG	
<i>HIF</i>	Forward	GATCTCGTCGAAGTAAAGAGTCTGAA	NM_174339.3
	Reverse	AGCCTTATCAAGATGCGAGCTT	
<i>MAPK-14 (p38)</i>	Forward	TTTTGCACGTCTTGCTATTTGAG	NM_01102174.1
	Reverse	AGGTGACACGGTTCTGAACTAC	
<i>MAPK-3 (ERK1)</i>	Forward	GCACATTGCGAGAGATTCAGATT	NM_001110018.1
	Reverse	GGTGCCCGCAGAATGTCT	
<i>MAPK-1 (ERK2)</i>	Forward	GTGACCTCAAACCTTCCAACCT	NM_175793.2
	Reverse	GGCCAAGCCAAAGTCACAGA	
<i>MTOR</i>	Forward	CATGCTTCGTGTCTTCATGCA	XM_002694043.6
	Reverse	GGGCGTCAAATAACTTCACGAT	

Supplementary Table S2. Interaction effect of FBS and oxygen concentrations on the proliferation of SMCs by Two-way ANOVA.

	Day	Sum of	df	Mean Square	F	p	η^2	η^2p
2 days	FBS	0.00173	2	0.00087	12	0.001	0.433	0.667
	Oxygen	0.00109	1	0.00109	15.08	0.002	0.272	0.557
	FBS * Oxygen	3.11E-04	2	0.00016	2.15	0.159	0.078	0.264
	Residuals	8.67E-04	12	0.00007				
4 days	FBS	0.0313	2	0.01565	30.62	< .001	0.301	0.836
	Oxygen	0.05894	1	0.05894	115.3	< .001	0.568	0.906
	FBS * Oxygen	0.00748	2	0.00374	7.32	* 0.008	0.072	0.549
	Residuals	0.00613	12	0.00051				
6 days	FBS	0.4511	2	0.22557	58.6	< .001	0.336	0.907
	Oxygen	0.5512	1	0.55125	143.2	< .001	0.41	0.923
	FBS * Oxygen	0.2956	2	0.14782	38.4	* < .001	0.22	0.865
	Residuals	0.0462	12	0.00385				
8 days	FBS	4.123	2	2.06150	98.1	< .001	0.432	0.942
	Oxygen	4.59	1	4.59050	218.5	< .001	0.481	0.948
	FBS * Oxygen	0.576	2	0.28780	13.7	* < .001	0.06	0.695
	Residuals	0.252	12	0.02100				
10 days	FBS	14.68	2	7.33900	51.5	< .001	0.48	0.896
	Oxygen	7.97	1	7.97300	55.9	< .001	0.261	0.823
	FBS * Oxygen	6.19	2	3.09600	21.7	* < .001	0.203	0.783
	Residuals	1.71	12	0.14300				

* $p < 0.05$

Supplementary Table S3. Interaction effect of FBS and oxygen concentration of myogenetic-transcription factor genes in cells cultured in vitro with GM for 7 days by two-way ANOVA.

	Genes	Sum of Squares	df	Mean Square	F	p	η^2	η^2p
PAX7	FBS	0.377	2	0.18849	98.44	<.001	0.212	0.916
	Oxygen	0.0262	2	0.01308	6.83	0.006	0.015	0.432
	FBS * Oxygen	1.3395	4	0.33488	174.89	<.001	0.754	0.975
	Residuals	0.0345	18	0.00191				
MYF5	FBS	23.1057	2	11.55287	7998.1	<.001	0.935	0.999
	Oxygen	0.1401	2	0.07003	48.5	<.001	0.006	0.843
	FBS * Oxygen	1.4502	4	0.36255	251	<.001	0.059	0.982
	Residuals	0.026	18	0.00144				
MYOD1	FBS	153.9932	2	76.99658	69529	<.001	0.986	1
	Oxygen	0.3456	2	0.1728	156	<.001	0.002	0.945
	FBS * Oxygen	1.7599	4	0.43998	397	<.001	0.011	0.989
	Residuals	0.0199	18	0.00111				
MYOG	FBS	494.5958	2	247.29789	19466	<.001	0.994	1
	Oxygen	0.6007	2	0.30036	236	<.001	0.001	0.963
	FBS * Oxygen	2.1354	4	0.53386	420	<.001	0.004	0.989
	Residuals	0.0229	18	0.00127				
MYF6	FBS	1.5462	2	0.7731	193.09	<.001	0.405	0.955
	Oxygen	0.00447	2	0.00223	0.558	0.582	0.001	0.058
	FBS * Oxygen	2.19213	4	0.54803	136.88	<.001	0.575	0.968
	Residuals	0.07207	18	0.004				
MYH1	FBS	141.922	2	70.9612	1676.9	<.001	0.953	0.995
	Oxygen	5.111	2	2.5556	60.4	<.001	0.034	0.87
	FBS * Oxygen	1.053	4	0.2633	6.22	0.003	0.007	0.58
	Residuals	0.762	18	0.0423				

* $p < 0.05$

Supplementary Table S4. Interaction effect of FBS and oxygen concentration of myogenetic-transcription factor genes in cells cultured in vitro with GM for 14 days by two-way

	Genes	Sum of Squares	df	Mean Square	F	p	η^2	η^2p
PAX7	FBS	1.9174	2	0.95868	398.2	<.001	0.271	0.978
	Oxygen	0.0486	2	0.02431	10.1	0.001	0.007	0.529
	FBS * Oxygen	5.0674	4	1.26684	526.2	<.001	0.716	0.992
	Residuals	0.0433	18	0.00241				
MYF5	FBS	11.4128	2	5.70641	2399.89	<.001	0.703	0.996
	Oxygen	0.0443	2	0.02214	9.31	0.002	0.003	0.508
	FBS * Oxygen	4.7439	4	1.18597	498.77	<.001	0.292	0.991
	Residuals	0.0428	18	0.00238				
MYOD1	FBS	2.7015	2	1.35077	793	<.001	0.344	0.989
	Oxygen	0.4608	2	0.2304	135	<.001	0.059	0.938
	FBS * Oxygen	4.6588	4	1.16469	684	<.001	0.593	0.993
	Residuals	0.0307	18	0.0017				
MYOG	FBS	14.6482	2	7.324	8635	<.001	0.832	0.999
	Oxygen	1.1668	2	0.583	688	<.001	0.066	0.987
	FBS * Oxygen	1.771	4	0.443	522	<.001	0.101	0.991
	Residuals	0.0153	18	8.48E-04				
MYF6	FBS	2.8022	2	1.40108	399.5	<.001	0.373	0.978
	Oxygen	0.3702	2	0.18509	52.8	<.001	0.049	0.854
	FBS * Oxygen	4.2728	4	1.0682	304.6	<.001	0.569	0.985
	Residuals	0.0631	18	0.00351				
MYH1	FBS	217.382	2	108.6908	8952.6	<.001	0.971	0.999
	Oxygen	3.555	2	1.7773	146.4	<.001	0.016	0.942
	FBS * Oxygen	2.638	4	0.6595	54.3	<.001	0.012	0.923
	Residuals	0.219	18	0.0121				

* $p < 0.05$

Supplementary Table S5. Interaction effect of FBS and oxygen concentration on proliferation and apoptosis genes in cells cultured in vitro with GM for 14 days.

	Genes	Sum of	df	Mean	F	p	η^2	η^2p
<i>TERT</i>	FBS	8.2368	2	4.118	6178	<.001	0.817	0.999
	Oxygen	0.6462	2	0.323	485	<.001	0.064	0.982
	FBS *	1.1879	4	0.297	445	<.001	0.118	0.99
	Residuals	0.012	18	6.67E-04				
<i>CDKN1A(P21)</i>	FBS	20.39867	2	10.199	21684	<.001	0.786	1
	Oxygen	1.99103	2	0.996	2116	<.001	0.077	0.996
	FBS *	3.56404	4	0.891	1894	<.001	0.137	0.998
	Residuals	0.00847	18	4.70E-04				
<i>TP53</i>	FBS	5.84436	2	2.922	8576	<.001	0.773	0.999
	Oxygen	0.32202	2	0.161	473	<.001	0.043	0.981
	FBS *	1.39136	4	0.348	1021	<.001	0.184	0.996
	Residuals	0.00613	18	3.41E-04				
<i>MYC</i>	FBS	5.5214	2	2.761	12219	<.001	0.483	0.999
	Oxygen	4.52136	2	2.261	10006	<.001	0.395	0.999
	FBS *	1.39484	4	0.349	1543	<.001	0.122	0.997
	Residuals	0.00407	18	2.26E-04				
<i>BAX</i>	FBS	3.17472	2	1.587	7026	<.001	0.643	0.999
	Oxygen	0.62512	2	0.313	1383	<.001	0.127	0.994
	FBS *	1.13195	4	0.283	1253	<.001	0.229	0.996
	Residuals	0.00407	18	2.26E-04				
<i>BCL2</i>	FBS	0.03721	2	0.0186	56.4	<.001	0.006	0.862
	Oxygen	2.00501	2	1.0025	3041.3	<.001	0.331	0.997
	FBS *	4.01699	4	1.0042	3046.6	<.001	0.662	0.999
	Residuals	0.00593	18	3.30E-04				

* $p < 0.05$

Supplementary Table S6. Interaction effect of FBS and oxygen concentration on reactive oxygen species (ROS) genes in cells cultured in vitro with GM for 14 days.

Genes	Sum of Squares	df	Mean Square	F	p	η^2	η^2p
<i>NOX4</i> FBS	2.4779	2	1.239	7965	< .001	0.411	0.999
Oxygen	0.52676	2	0.263	1693	< .001	0.087	0.995
FBS * Oxygen	3.01773	4	0.754	4850	< .001	0.501	0.999
Residuals	0.0028	18	1.56E-04				
<i>GPX1</i> FBS	6.8595	2	3.42975	14936	< .001	0.999	0.999
Oxygen	8.30E-04	2	4.15E-04	1.81	0.193	0	0.167
FBS * Oxygen	0.00468	4	0.00117	5.1	0.006	0.001	0.531
Residuals	0.00413	18	2.30E-04				
<i>SOD1</i> FBS	2.84749	2	1.424	5339	< .001	0.427	0.998
Oxygen	1.9608	2	0.98	3676	< .001	0.294	0.998
FBS * Oxygen	1.86311	4	0.466	1747	< .001	0.279	0.997
Residuals	0.0048	18	2.67E-04				
<i>SOD2</i> FBS	11.53479	2	5.767	20763	< .001	0.742	1
Oxygen	0.86214	2	0.431	1552	< .001	0.055	0.994
FBS * Oxygen	3.15164	4	0.788	2836	< .001	0.203	0.998
Residuals	0.005	18	2.78E-04				
<i>SOD3</i> FBS	45.3579	2	22.68	92778	< .001	0.876	1
Oxygen	2.35512	2	1.18	4817	< .001	0.045	0.998
FBS * Oxygen	4.04441	4	1.01	4136	< .001	0.078	0.999
Residuals	0.0044	18	2.44E-04				

* $p < 0.05$

Supplementary Table S7. Interaction effect of FBS and oxygen concentration on the regulation of myogenic regulators by SMCs differentiation medium.

	Genes	Sum of	df	Mean Square	F	p	η^2	η^2p
F10 DM <i>MYF5</i>	FBS	0.42503	2	0.213	390	<.001	0.201	0.977
	Oxygen	1.09081	2	0.545	1002	<.001	0.516	0.991
	FBS * Oxygen	0.5865	4	0.147	269	<.001	0.278	0.984
	Residuals	0.0098	18	5.44E-04				
F10 DM <i>MYOD1</i>	FBS	1.40643	2	0.7032	5933	<.001	0.725	0.998
	Oxygen	0.09283	2	0.0464	392	<.001	0.048	0.978
	FBS * Oxygen	0.43906	4	0.1098	926	<.001	0.226	0.995
	Residuals	0.00213	18	1.19E-04				
F10 DM <i>MYOG</i>	FBS	1.6091	2	0.8045	940.4	<.001	0.552	0.991
	Oxygen	1.0007	2	0.5003	584.8	<.001	0.343	0.985
	FBS * Oxygen	0.2902	4	0.0726	84.8	<.001	0.1	0.95
	Residuals	0.0154	18	8.56E-04				
F10 DM <i>MYF6</i>	FBS	3.2132	2	1.6066	2507	<.001	0.694	0.996
	Oxygen	1.0805	2	0.5402	843	<.001	0.233	0.989
	FBS * Oxygen	0.3225	4	0.0806	126	<.001	0.07	0.965
	Residuals	0.0115	18	6.41E-04				
F10 DM <i>MYH1</i>	FBS	1.6469	2	0.82345	453	<.001	0.47	0.981
	Oxygen	0.8412	2	0.4206	231	<.001	0.24	0.963
	FBS * Oxygen	0.9816	4	0.2454	135	<.001	0.28	0.968
	Residuals	0.0327	18	0.00182				
F10 DM <i>MSTN</i>	FBS	2.1531	2	1.07656	830	<.001	0.66	0.989
	Oxygen	0.4874	2	0.24369	188	<.001	0.149	0.954
	FBS * Oxygen	0.5987	4	0.14968	115	<.001	0.184	0.962
	Residuals	0.0233	18	0.0013				
DMEM/F12 DM <i>MYF5</i>	FBS	0.1624	2	0.0812	76.9	<.001	0.004	0.895
	Oxygen	34.8731	2	17.43656	16518.8	<.001	0.932	0.999
	FBS * Oxygen	2.3438	4	0.58594	555.1	<.001	0.063	0.992
	Residuals	0.019	18	0.00106				
DMEM/F12 DM <i>MYOD1</i>	FBS	3.4503	2	1.725	2948	<.001	0.649	0.997
	Oxygen	1.0611	2	0.531	907	<.001	0.2	0.99
	FBS * Oxygen	0.7956	4	0.199	340	<.001	0.15	0.987
	Residuals	0.0105	18	5.85E-04				
DMEM/F12 DM <i>MYOG</i>	FBS	2.8835	2	1.442	1582	<.001	0.355	0.994
	Oxygen	4.58	2	2.29	2513	<.001	0.565	0.996
	FBS * Oxygen	0.6313	4	0.158	173	<.001	0.078	0.975
	Residuals	0.0164	18	9.11E-04				
DMEM/F12 DM <i>MYF6</i>	FBS	1.4	2	0.7	566	<.001	0.162	0.984
	Oxygen	1.8853	2	0.94267	762	<.001	0.218	0.988
	FBS * Oxygen	5.3219	4	1.33047	1076	<.001	0.617	0.996
	Residuals	0.0223	18	0.00124				
DMEM/F12 DM <i>MYH1</i>	FBS	1.4356	2	0.718	941	<.001	0.042	0.991
	Oxygen	31.7912	2	15.896	20834	<.001	0.938	1
	FBS * Oxygen	0.667	4	0.167	219	<.001	0.02	0.98
	Residuals	0.0137	18	7.63E-04				
DMEM/F12 DM <i>MSTN</i>	FBS	4.992	2	2.496	950.52	<.001	0.575	0.991
	Oxygen	3.595	2	1.79751	684.53	<.001	0.414	0.987
	FBS * Oxygen	0.0524	4	0.01311	4.99	0.007	0.006	0.526
	Residuals	0.0473	18	0.00263				