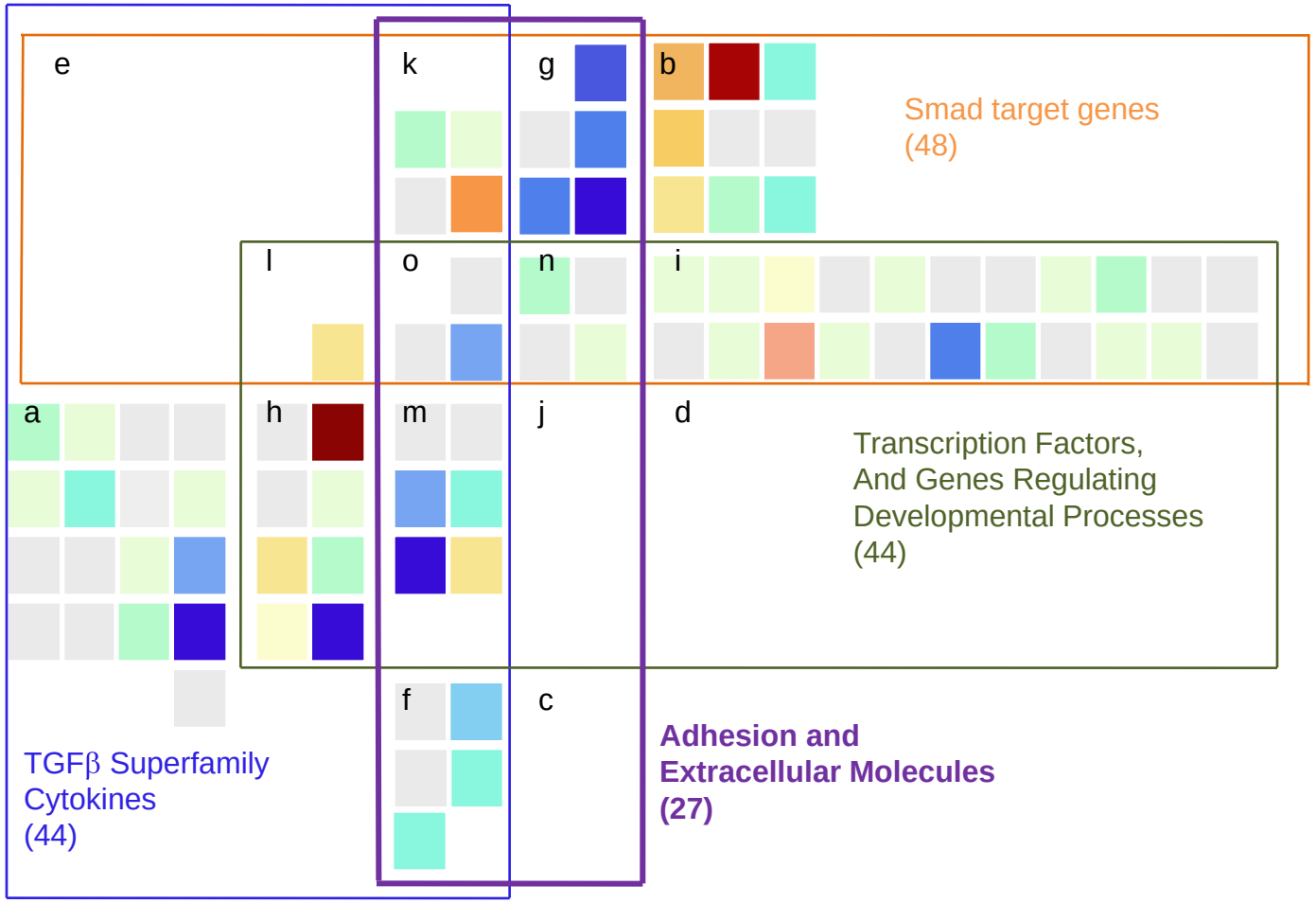
Gene Expressional Differences in MCF-7 vs. MCF-10A cells, Venn Groups



Minimum Fold expression values

Supplemental Fig. 1

Supplemental Table 1.

Change of Basal Gene Expressional values in MCF-7 as compared to MCF-10A cell line.

Gene # /Position	GeneBank	Symbol	Fold Up/Down Regulation	T-test p-Value	Description
Venn Group a					
01 /A01	NM_001105	ACVR1	**-4.96**	**0.0000**	Activin A receptor, type I
02 /A02	NM_001616	ACVR2A	**-2.62**	**0.0007**	Activin A receptor, type IIA
03 /A03	NM_000020	ACVRL1	-1.25	0.7013	Activin A receptor type II-like 1
05 /A05	NM_020547	AMHR2	1.08	0.8043	Anti-Mullerian hormone receptor, type II
16 /B04	NM_004329	BMPR1A	-2.40	0.0011	Bone morphogenetic protein receptor, type IA
17 /B05	NM_001203	BMPR1B	**-7.37**	**0.0000**	Bone morphogenetic protein receptor, type IB
36 /C12	NM_000557	GDF5	-1.38	0.4911	Growth differentiation factor 5 (cartilage-derived morphogenetic protein-1)
37 /D01	NM_001001557	GDF6	1.12	0.9002	Growth differentiation factor 6
38 /D02	NM_182828	GDF7	-1.52	0.4995	Growth differentiation factor 7
53 /E05	NM_020997	LEFTY1	-1.76	0.0529	Left-right determination factor 1
59 /E11	NM_018055	NODAL	**-3.62**	**0.1290**	Nodal homolog (mouse)
77 /G05	NM_003238	TGFB2	**-4.52**	**0.0566**	Transforming growth factor, beta 2
78 /G06	NM_003239	TGFB3	-1.12	0.2902	Transforming growth factor, beta 3
80 /G08	NM_004612	TGFBR1	**-2.53**	**0.0000**	Transforming growth factor, beta receptor I (activin A receptor type II-like kinase, 53kDa)
81 /G09	NM_003242	TGFBR2	**-36.72**	**0.0001**	Transforming growth factor, beta receptor II (70/80kDa)
82 /G10	NM_003243	TGFBR3	**-268.88**	**0.0000**	Transforming growth factor, beta receptor III (betaglycan, 300kDa)
83 /G11	NM_004257	TGFBRAP1	-1.34	0.1339	Transforming growth factor, beta receptor associated protein 1
Venn Group b					
06 /A06	NM_012342	BAMBI	**25.26**	**0.0000**	BMP and activin membrane-bound inhibitor homolog (Xenopus laevis)
15 /B03	NM_133468	BMPER	**11.24**	**0.0000**	BMP binding endothelial regulator
19 /B07	NM_001789	CDC25A	**5.45**	**0.0018**	Cell division cycle 25A
21 /B09	NM_004936	CDKN2B	**651.26**	**0.0000**	Cyclin-dependent kinase inhibitor 2B (p15, inhibits CDK4)
22 /B10	NM_005454	CER1	-1.68	**0.4798**	Cerberus 1, cysteine knot superfamily, homolog (Xenopus laevis)
27 /C03	NM_000099	CST3	**-4.81**	**0.0010**	Cystatin C (amyloid angiopathy and cerebral hemorrhage)
31 /C07	NM_004116	FKBP1B	**-14.45**	**0.0001**	FK506 binding protein 1B, 12.6 kDa
42 /D06	NM_002166	ID2	1.08	**0.5613**	Inhibitor of DNA binding 2, dominant negative helix-loop-helix protein
58 /E10	NM_005380	NBL1	**-13.16**	**0.0000**	Neuroblastoma, suppression of tumorigenicity 1
Venn Group f					
34 /C10	NM_016204	GDF2	-1.27	0.6842	Growth differentiation factor 2
35 /C11	NM_020634	GDF3	1.10	0.8533	Growth differentiation factor 3
54 /E06	NM_000627	LTBP1	**-9.20**	**0.0000**	Latent transforming growth factor beta binding protein 1
55 /E07	NM_000428	LTBP2	**-16.70**	**0.0003**	Latent transforming growth factor beta binding protein 2
56 /E08	NM_003573	LTBP4	**-7.69**	**0.0000**	Latent transforming growth factor beta binding protein 4
Venn Group g					
26 /C02	NM_000090	COL3A1	**19.06**	**0.0116**	Collagen, type III, alpha 1 (Ehlers-Danlos syndrome type IV, autosomal dominant)
29 /C05	NM_000118	ENG	**-76.91**	**0.0000**	Endoglin (Osler-Rendu-Weber syndrome 1)
63 /F03	NM_002658	PLAU	**-163.80**	**0.0000**	Plasminogen activator, urokinase
65 /F05	NM_000602	SERPINE1	**-48.87**	**0.0004**	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1
79 /G07	NM_000358	TGFBI	**-246.19**	**0.0000**	Transforming growth factor, beta-induced, 68kDa

Venn Group h

10 /A10	NM_001201	BMP3	1.12	0.7571	Bone morphogenetic protein 3 (osteogenic)
11 /A11	NM_130851	BMP4	1.19	0.2907	Bone morphogenetic protein 4
12 /A12	NM_021073	BMP5	4.80	0.5417	Bone morphogenetic protein 5
13 /B01	NM_001718	BMP6	2.82	0.0201	Bone morphogenetic protein 6
14 /B02	NM_001719	BMP7	2234.86	0.0000	Bone morphogenetic protein 7 (osteogenic protein 1)
18 /B06	NM_001204	BMPR2	-3.38	0.0003	Bone morphogenetic protein receptor, type II (serine/threonine kinase)
61 /F01	NM_000475	NR0B1	-5.73	0.0319	Nuclear receptor subfamily 0, group B, member 1
74 /G02	NM_000660	TGFB1	-1.38	0.0509	Transforming growth factor, beta 1 (Camurati-Engelmann disease)

Venn Group i

20 /B08	NM_000389	CDKN1A	-2.26	0.0000	Cyclin-dependent kinase inhibitor 1A (p21, Cip1)
23 /B11	NM_003741	CHRD	1.84	0.0371	Chordin
28 /C04	NM_004405	DLX2	-2.03	0.0308	Distal-less homeobox 2
30 /C06	NM_005241	EVI1	-2.15	0.1681	Ecotropic viral integration site 1
32 /C08	NM_005252	FOS	2.08	0.0136	V-fos FBJ murine osteosarcoma viral oncogene homolog
39 /D03	NM_173849	GSC	43.78	0.0005	Goosecoid
40 /D04	NM_022740	HIPK2	-1.59	0.0486	Homeodomain interacting protein kinase 2
41 /D05	NM_002165	ID1	-2.84	0.0004	Inhibitor of DNA binding 1, dominant negative helix-loop-helix protein
51 /E03	NM_002228	JUN	-3.01	0.0015	V-jun sarcoma virus 17 oncogene homolog (avian)
52 /E04	NM_002229	JUNB	-1.70	0.0223	Jun B proto-oncogene
57 /E09	NM_002467	MYC	-1.72	0.0030	V-myc myelocytomatosis viral oncogene homolog (avian)
60 /E12	NM_005450	NOG	-90.39	0.0000	Noggin
64 /F04	NM_001754	RUNX1	1.05	0.7004	Runt-related transcription factor 1 (acute myeloid leukemia 1; aml1 oncogene)
66 /F06	NM_005900	SMAD1	-3.95	0.0001	SMAD, mothers against DPP homolog 1 (Drosophila)
67 /F07	NM_005901	SMAD2	-3.01	0.0001	SMAD, mothers against DPP homolog 2 (Drosophila)
68 /F08	NM_005902	SMAD3	-1.61	0.0352	SMAD, mothers against DPP homolog 3 (Drosophila)
69 /F09	NM_005359	SMAD4	-4.54	0.0006	SMAD, mothers against DPP homolog 4 (Drosophila)
70 /F10	NM_005903	SMAD5	-3.29	0.0001	SMAD, mothers against DPP homolog 5 (Drosophila)
71 /F11	NM_020429	SMURF1	-1.12	0.3781	SMAD specific E3 ubiquitin protein ligase 1
72 /F12	NM_003107	SOX4	-3.16	0.0000	SRY (sex determining region Y)-box 4
84 /G12	NM_003244	TGIF	1.37	0.7693	TGFB-induced factor (TALE family homeobox)
76 /G04	NM_006022	TSC22D1	-1.30	0.0283	TSC22 domain family, member 1

Venn Group k

45 /D09	NM_000600	IL6	-4.98	0.0118	Interleukin 6 (interferon, beta 2)
49 /E01	NM_002213	ITGB5	1.05	0.6171	Integrin, beta 5
50 /E02	NM_000889	ITGB7	-2.80	0.0009	Integrin, beta 7
62 /F02	NM_002608	PDGFB	115.14	0.0000	Platelet-derived growth factor beta polypeptide (simian sarcoma viral (v-sis) oncogene homolog)

Venn Group l

73 /G01	NM_007315	STAT1	3.78	0.0003	Signal transducer and activator of transcription 1, 91kDa

Venn Group m

04 /A04	NM_000479	AMH	-1.08	0.3811	Anti-Mullerian hormone
08 /A08	NM_006129	BMP1	-44.45	0.0000	Bone morphogenetic protein 1
09 /A09	NM_001200	BMP2	-290.42	0.0000	Bone morphogenetic protein 2
46 /D10	NM_002191	INHA	1.87	0.0114	Inhibin, alpha
47 /D11	NM_002192	INHBA	-8.30	0.0002	Inhibin, beta A (activin A, activin AB alpha polypeptide)
48 /D12	NM_002193	INHBB	4.73	0.0001	Inhibin, beta B (activin AB beta polypeptide)

Venn Group n

07 /A07	NM_199173	BGLAP	-3.77	0.0001	Bone gamma-carboxyglutamate (gla) protein (osteocalcin)
24 /B12	NM_000088	COL1A1	-1.79	0.1686	Collagen, type I, alpha 1

25 /C01	NM_000089	COL1A2	-1.47	**0.3629**	Collagen, type I, alpha 2
33 /C09	NM_006350	FST	**-2.69**	**0.0014**	Follistatin

Venn Group o

43 /D07	NM_000618	IGF1	-1.34	0.6914	Insulin-like growth factor 1 (somatomedin C)
44 /D08	NM_000598	IGFBP3	1.11	0.3014	Insulin-like growth factor binding protein 3
75 /G03	NM_015927	TGFB1I1	**-37.76**	**0.0001**	Transforming growth factor beta 1 induced transcript 1

House-keeping gene controls

H01	NM_004048	B2M	**-4.76**	**0.0000**	Beta-2-microglobulin
H02	NM_000194	HPRT1	**6.57**	**0.0003**	Hypoxanthine phosphoribosyltransferase 1 (Lesch-Nyhan syndrome)
H03	NM_012423	RPL13A	**-2.08**	**0.0000**	Ribosomal protein L13a
H04	NM_002046	GAPDH	-1.10	0.3978	Glyceraldehyde-3-phosphate dehydrogenase
H05	NM_001101	ACTB	1.65	**0.0002**	Actin, beta

The sub-groups that contained no genes (**c, e, j, d in Figure 3**) are not listed.
The significant negative values are blue and the positive change is pink. The relevant p-values are highlighted in red.

Table 2

SuperArray Validation with TaqMan Assay
(Fold Change)

Genes	MCF-7/MCF-10A Un-treated controls		Treatment											
			CII				LAM				TGFβ			
			MCF-10A		MCF-7		MCF-10A		MCF-7		MCF-10A		MCF-7	
	SA	TaqMan	SA	TaqMan	SA	TaqMan	SA	TaqMan	SA	TaqMan	SA	TaqMan	SA	TaqMan
BMP2	-290.42	-15.43	-1.08	1.13	1.08	-1.05	-1.43	2.01	3.59	1.68	2.17	1.92	1.35	1.25
BMP7	2234.86	32360.94	1.10	1.59	1.02	1.22	4.33	10.59	2.43	3.28	-2.35	-2.01	1.16	1.84
CDKN2B	651.26	10890.94	1.37	1.03	-1.05	1.08	1.20	-1.02	-1.35	1.68	1.12	1.05	1.51	2.24
FST	-2.69	-2.16	1.05	1.28	1.06	1.36	-2.14	-1.85	-1.25	1.32	16.37	14.93	2.47	3.80
SERPINE1	-48.87	-14.56	1.63	1.71	1.27	1.07	13.95	16.38	5.02	4.61	120.85	118.03	7.56	10.69
PDGFB	115.14	79.71	1.32	N/A	1.02	-1.01	-2.03	N/A	-2.00	N/A	-1.60	N/A	1.57	1.16
PLAU	-163.8	-12.34	2.25	N/A	1.03	-1.39	1.61	N/A	-1.34	N/A	-1.06	N/A	2.67	2.29
TGFBR1	-2.53	-1.44	-1.21	N/A	-1.02	1.09	2.24	N/A	1.20	N/A	1.46	N/A	1.09	-1.09
TGFBR2	-36.72	-7.00	1.31	N/A	-1.01	N/A	-2.06	N/A	-1.09	N/A	-1.81	N/A	1.21	N/A
TGFBR3	-268.88	-67.21	1.09	N/A	-1.00	N/A	-1.45	N/A	1.74	N/A	-3.54	N/A	-1.06	N/A
TGFBI	-246.19	-39.46	1.10	N/A	1.06	N/A	-1.44	N/A	-1.50	N/A	1.36	N/A	1.12	N/A

TaqMan Probes Used:

BMP2	**Hs00154192_m1**
BMP7	**Hs00233476_m1**
CDKN2B	**Hs00793225_m1**
FST	**Hs00246260_m1**
SERPINE1	**Hs00167155_m1**
PDGFB	**Hs00234042_m1**
PLAU	**Hs00170182_m1**
TGFBR1	**Hs00610319_m1**
TGFBR2	**Hs00559661_m1**
TGFBR3	**Hs00234259_m1**
TGFBI	**Hs00165908_m1**