

Table S1. Primer sequences and corresponding annealing temperatures used for quantitative real time PCR.

Gene	3' to 5' Primer	5' to 3' Primer	Amplicon size (bp)	Tm
<i>Arg 1</i>	TTTtagggTTACGGCCGGTG	CCTCGAGGCTGTCCTTTTGA	146	58
<i>β-actin</i>	CTGTCGAGTCGCGTCCACCC	ACATGCCGGAGCCGTTGTCG	128	58
<i>Cd206</i>	GGCTGATTACGAGCAGTGGA	ATGCCAGGGTCACCTTTCAG	184	58
<i>Il-6</i>	GCCTTCTTGGGACTGATGCT	TGCCATTGCACAACTCTTTTCT	181	58
<i>Il-10</i>	GGTTGCCAAGCCTTATCGGA	GAGAAATCGATGACAGCGCC	156	58
<i>Tgf-β1</i>	AGCTGCGCTTGCAGAGATTA	AGCCCTGTATTCCGTCTCCT	189	58
<i>Tnf-α</i>	ACGTCGTAGCAAACCACCAA	ATAGCAAATCGGCTGACGGT	208	58
<i>Vegfa</i>	CTGCTGTAAACGATGAAGCCCTG	GCTGTAGGAAGCTCATCTCTCC	119	58
<i>Ym1</i>	AGAAGCTCTCCAGAAGCAATCC	CAGTGTTCTTGTCTTTCAGACC	297	58

Table S2. Fold change of proteins detected in the conditioned media of bone marrow cells grown in LLCM + Asc over LLCM only. Isolated bone marrow cells were grown with LLCM or LLCM + Asc for 7 days at ambient air (21% O₂) or subjected to hypoxia on day 6 for ~18 h (1% O₂). Media from 3 independent experiments were pooled for a chemiluminescent protein array of 308 analytes. The table below shows the relative luminescent ratio of proteins detected in the LLCM + Asc over LLCM only group. Proteins that had relative luminescent signals below the threshold of 250 units were omitted from the final analysis, these are highlighted in red.

21% O ₂		1% O ₂	
Protein	Fold LLCM + Asc / LLCM	Protein	Fold LLCM + Asc / LLCM
VE-cadherin	3.46	TRAIL / TNFSF10	9.43
MMP-2	2.11	IGFBP-7 / IGFBP-rp1	3.27
LRP-6	2.04	Dtk	3.16
IL-1 R6 / IL-1 R rp2	1.98	MMP-2	2.85
Neurturin	1.74	TIMP-1	2.29
IL-17R	1.65	Granzyme D	1.97
Osteoporotegerin	1.54	IL-13	1.82
NGF R / TNFRSF16	1.54	NGF R / TNFRSF16	1.81
IFN-gamma R1	1.51	IL-17E	1.80
PF-4	1.49	MCP-1	1.74
IL-1 alpha	1.49	IGFBP-5	1.73
TCCR / WSX-1	1.48	FCrRIIB / CD32b	1.64
CXCR6	1.43	IGFBP-6	1.58
LIGHT / TNFSF14	1.42	IL-1 RII	1.57
EG-VEGF / PK1	1.40	TROY	1.45
Follistatin like 1	1.38	Osteoporotegerin	1.45
TGF-beta RII	1.38	Neurturin	1.44
Osteoactivin / GPNMB	1.37	Urokinase	1.38
GFR alpha-4 / GDNF R alpha 4	1.36	TNR RI / TNFRSF1A	1.36
IL-23 R	1.32	ICAM-2 / CD102	1.34
TGF-beta 2	1.32	Thrombospondin	1.34
GDF-5	1.32	uPAR	1.33
IL-27	1.31	Thymus chemokine-1	1.30
WISP-1 / CCN4	1.29	SDF-1	1.29
Lungkine	1.29	6kine	1.27
bFGF	1.27	VEGF	1.26
Pentraxin3 / TSG-14	1.27	IL-22 BP	1.25
CCR9	1.26	MCP-5	1.23
IL-11	1.25	GFR alpha-3 / GDNF R alpha 3	1.23
LIX	1.25	Osteopontin	1.19
IGF-II	1.25	IGFBP-2	1.18
CCL28	1.23	Activin A	1.18
Glut2	1.22	MMP-9	1.18
Lymphotoxin beta R / TNFRSF3	1.22	IL-17D	1.17
CXCL14 / BRAK	1.22	GDF-8	1.16
TIMP-2	1.21	P-selectin	1.16
IL-31	1.21	TGF-beta 3	1.16
CD195	1.21	Galectin-3	1.15
CD11b	1.20	CTLA-4 / CD152	1.15
IL-15 R alpha	1.19	CCR6	1.14
Angiopoietin-like 2	1.19	Leptin (OB)	1.14
MFRP	1.18	MMP-3	1.12

M-CSF	1.17
Frizzled-6	1.15
Prolactin	1.15
IL-28 / IFN-lambda	1.15
IGFBP-1	1.15
P-selectin	1.14
FGF R5 beta	1.14
Endocan	1.13
IL-1 RI	1.13
IGFBP-5	1.11
TNF-beta / TNFSF1B	1.10
Granzyme B	1.10
TCA-3	1.10
VEGF-B	1.09
IL-1 R4 / ST2	1.09
HGF R	1.09
ICAM-1	1.06
MIP-2	1.05
LIF	1.05
IL-12p70	1.04
Fas / TNFRSF6	1.01
TWEAK R / TNFRSF12	1.00
IL-16	1.00
6kine	1.00
CCL1 / I-309/ TCA-3	1.00
IGFBP-3	0.99
IL-3 R alpha	0.98
TIMP-1	0.95
IGFBP-2	0.95
CTACK	0.94
Soggy-1	0.93
TROY	0.93
GDF-8	0.93
IL-1 RII	0.92
IL-2 R gamma / common gamma chain	0.91
SPARC	0.90
Endostatin	0.88
MCP-5	0.88
AgRP	0.82
TGF-beta 3	0.81
DKK-4	0.81
Progranulin	0.76
ICK	0.75
L-selectin	0.73
CCL7 / MCP-3 / MARC	0.71
ICAM-2 / CD102	0.70
Osteopontin	0.68
Urokinase	0.64
IL-22 BP	0.63
FADD	0.60
MMP-3	0.57
Neuregulin-3 / NRG3	0.57

ICAM-1	1.11
Follistatin like 1	1.11
PIGF-2	1.11
M-CSF	1.10
L-selectin	1.10
VCAM-1	1.10
Neuregulin-3 / NRG3	1.10
Endostatin	1.09
Prolactin	1.09
IL-6 R	1.09
AgRP	1.09
GFR alpha-4 / GDNF R alpha 4	1.08
TFPI	1.08
TWEAK R / TNFRSF12	1.08
IL-4	1.08
CTACK	1.07
Glut2	1.07
Frizzled-6	1.07
Pentraxin3 / TSG-14	1.06
IL-31	1.05
ICK	1.04
IL-16	1.04
PDGF R beta	1.04
IL-2 R gamma / common gamma chain	1.04
Soggy-1	1.04
IL-23	1.04
IGFBP-1	1.03
FGF R5 beta	1.03
CCL1 / I-309/ TCA-3	1.03
TCA-3	1.03
IL-15 R alpha	1.02
CCL28	1.02
LIF	1.01
Lungkine	1.01
CD11b	1.01
Fas / TNFRSF6	0.99
MFG-E8	0.99
TNF-beta / TNFSF1B	0.99
KC	0.99
MMP-24 / MT5-MMP	0.99
IL-3 R alpha	0.99
Endocan	0.99
IL-1 RI	0.98
TGF-beta RII	0.98
MIP-1 gamma	0.98
Lymphotoxin beta R / TNFRSF3	0.97
LIX	0.97
Osteoactivin / GPNMB	0.96
IL-17R	0.96
IL-1 alpha	0.96
SPARC	0.96
Epigen	0.95

VEGF	0.57
DKK-1	0.56
VCAM-1	0.52
MIP-1 gamma	0.49
TFPI	0.49
IL-13	0.46
FGF R4	0.44
PIGF-2	0.42
GFR alpha-3 / GDNF R alpha 3	0.40
CTLA-4 / CD152	0.33
SDF-1	0.33
Thrombospondin	0.32
DR3 / TNFRSF25	0.30
Activin A	0.28
KC	0.27
MMP-12	0.24
IL-10	0.23
IGFBP-7 / IGFBP-rp1	0.23
CCR6	0.22
Dtk	0.22
TNR RI / TNFRSF1A	0.20
Thymus chemokine-1	0.20
uPAR	0.20
GFR alpha-2 / GDNF R alpha 2	0.20
Galectin-3	0.20
CCL8 / MCP-2	0.19
MMP-24 / MT5-MMP	0.19
Epigen	0.19
CCR3	0.17
Epiregulin	0.15
Amphiregulin (AR)	0.11
MMP-14 / LEM-2	0.10
CXCL16	0.10
IL-5 R alpha	0.08
TLR4	0.07
MCP-1	0.05
Granzyme D	0.05
FGF R3	0.03
Insulin	N/A
TLR3	N/A
TL1A / TNFSF15	N/A
TSLP	N/A
IL-2 R alpha	N/A
S100A10	N/A
MIP-3 beta	N/A
Resistin	N/A
E selectin	N/A
SCF	N/A
Lefty-1	N/A
IGF-1	N/A
IL-17BR	N/A
Shh-N	N/A
PDGF R alpha	N/A

IL-28 / IFN-lambda	0.95
VE-cadherin	0.95
IL-1 R4 / ST2	0.95
CXCL14 / BRAK	0.95
PF-4	0.94
VEGF-B	0.94
CCL8 / MCP-2	0.93
IGFBP-3	0.93
DR3 / TNFRSF25	0.93
GFR alpha-2 / GDNF R alpha 2	0.92
MFRP	0.92
MIP-2	0.91
IL-27	0.91
Epiregulin	0.91
LRP-6	0.91
DKK-1	0.91
IL-11	0.90
IL-12p70	0.89
IL-23 R	0.88
ICAM-5	0.88
CXCR6	0.88
IFN-gamma R1	0.87
TIMP-2	0.87
MMP-12	0.87
CCL7 / MCP-3 / MARC	0.85
CCR9	0.85
LIGHT / TNFSF14	0.85
Progranulin	0.83
Amphiregulin (AR)	0.82
TCCR / WSX-1	0.82
TGF-beta 2	0.81
CXCL16	0.81
DAN	0.81
FADD	0.78
EG-VEGF / PK1	0.77
SLPI	0.76
TLR4	0.76
IGF-II	0.76
IL-24	0.75
CCR3	0.74
CD195	0.74
FGF R4	0.74
Activin RIB / ALK-4	0.73
GDF-1	0.72
GDF-3	0.71
MMP-14 / LEM-2	0.66
CCR10	0.65
Granzyme B	0.65
IFN-alpha / beta R1	0.63
HGF R	0.62
IL-1 R6 / IL-1 R rp2	0.62
GDF-5	0.61
Angiopoietin-like 2	0.61

Serum amyloid A1	N/A
IL-17RD	N/A
Granzyme G	N/A
IL-9 R	N/A
CD18 / Integrin beta 2	N/A
CD40	0.20
TRAIL / TNFSF10	0.01
Crossveinless-2	0.00
IFN-gamma	0.00
Kremen-2	0.00
TLR2	0.01
SIGIRR	0.01
TNF RII	0.01
CXCR4	0.02
Tie-2	0.02
IL-2 R alpha	0.06
MIP-3 alpha	0.05
VEGF-D	0.04
ubiquitin	0.04
IL-17C	0.02
IGFBP-6	0.01
Flt3 Ligand	0.03
ALCAM	0.02
Eotaxin-2	0.02
I-TAC	0.09
IL-20	0.04
Adiponectin / Acrp30	0.04
VEGF-C	0.04
RAGE	0.07
FCrRIIB / CD32b	0.05
Angiopoietin-like 3	0.13
IL-3	0.10
G-CSF	0.05
TREM-1	0.09
IL-17	0.07
SCF R / c-kit	0.14
HGF R	0.09
Leptin R	0.14
Fas Ligand	0.08
TRAIL R2 / TNFRSF10B	0.34
GITR Ligand / TNFSF18	0.38
GITR	0.75
CD30	0.29
TGF-beta 1	0.29
CCR7	0.17
IL-10 R alpha	0.42
MAdCAM-1	0.23
BCMA / TNFRSF17	0.17
IL-1 R9	0.42
Gremlin	0.15
BTC (betacellulin)	0.14
IL-22	0.43
IL-21 R	0.26
Fractalkine	0.21
Frizzled-1	0.29

WISP-1 / CCN4	0.59
IL-5	0.55
IL-5 R alpha	0.52
Fas Ligand	0.48
BAFF R / TNFRSF13C	0.45
DKK-4	0.42
IL-6	0.42
Decorin	0.41
bFGF	0.40
IL-2	0.24
CCR4	0.15
IL-21	98.00
IL-20	2.48
TL1A / TNFSF15	7.53
VEGF R2	8.19
TLR1	0.50
IL-7	1.29
SCF	0.69
TRAIL R2 / TNFRSF10B	2.25
IFN-beta	1.67
Insulin	N/A
TGF-beta 1	0.85
PDGF R alpha	1.36
RAGE	0.57
VEGF R3	1.86
Tie-2	0.88
MAdCAM-1	0.35
blank	0.41
TRANCE / TNFSF11	2.33
S100A10	0.01
TPO	2.47
OX40 Ligand / TNFSF4	1.23
IL-22	0.24
CD18 / Integrin beta 2	0.94
Lymphotactin	1.26
CXCR2 / IL-8 RB	0.63
VEGF-D	0.15
Gremlin	0.15
IL-2 R alpha	0.64
IFN-gamma	1.10
TREM-1	1.55
IL-21 R	0.58
VEGF-R1	1.99
IL-12 R beta 1	1.49
TSLP	1.01
Resistin	0.13
DKK-3	0.08
IL-20 R alpha	1.50
IL-31 RA	0.33
Chordin-like 2	0.49
WIF-1	N/A
TLR3	0.95
TECK	0.60
IFN-alpha / beta R2	0.29
CXCR3	0.20

TWEAK / TNFSF12	0.22
HVEM / TNFRSF14	0.37
IL-21	1.49
Chordin-like 2	0.25
CD30 L	0.37
IL-12 R beta 1	0.42
DKK-3	0.27
Tissue factor / coagulation factor III	0.29
TRANCE / TNFSF11	0.39
Growth Hormone R	0.23
Spinesin Ectodomain	0.80
IL-13 R alpha2	0.36
RANTES	0.26
CRG-2	0.43
DPPIV / CD26	0.43
EGF R	0.37
CD27 Ligand TNFSF7	0.17
Kremen-1	0.25
GDF-9	0.28
Cryptic	0.48
IL-7	0.63
TACI / TNFRSF13B	0.32
VEGF R2	0.79
beta Catenin	0.58
EDAR	0.58
B7-1/CD80	0.36
IL-6 R	0.28
CXCR2 / IL-8 RB	0.87
MDC	0.45
CD 40 Ligand / TNFSF5	0.41
TMEFF1 / Tomoregulin-1	0.23
BAFF R / TNFRSF13C	0.36
VEGF R3	0.27
Lymphotactin	0.49
CCR4	0.21
IFN-alpha / beta R2	0.34
TLR1	2.15
Activin C	0.30
IL-2	0.39
TPO	0.58
TGF-beta RI / ALK-5	0.79
Follistatin (FLRG)	0.45
Frizzled-7	1.22
TARC	0.39
CCR10	0.28
CD27 /TNFRSF7	0.46
MIP-1 alpha	0.39
FGF-21	0.62
WIF-1	0.55
PDGF C	0.47
Cerberus 1	0.31
Cardiotrophin-1	0.45
IL-3 R beta	0.49

IL-10 R alpha	0.27
MIP-1 alpha	1.12
I-TAC	0.24
Angiopoietin-like 3	0.95
Serum amyloid A1	1.14
DPPIV / CD26	0.04
TARC	0.80
EDAR	0.19
IL-4 R	0.42
IL-17RD	0.29
IL-13 R alpha2	1.57
IL-17C	1.56
TGF-beta RI / ALK-5	0.54
B7-1/CD80	0.25
IL-17	0.23
CD30 L	0.50
ubiquitin	0.76
beta Catenin	0.98
IL-3	0.54
Tissue factor / coagulation factor III	0.71
ALCAM	0.56
EGF R	0.56
CCR7	N/A
HGF R	N/A
CCL4 / MIP-1 beta	1.30
GITR	N/A
FAM3B	0.32
VEGF-C	0.93
RANTES	1.68
TWEAK / TNFSF12	0.78
CD27 /TNFRSF7	0.44
IL-7 R alpha	1.00
Shh-N	0.57
Frizzled-7	0.41
MDC	0.50
BCMA / TNFRSF17	0.19
E selectin	0.02
Adiponectin / Acrp30	0.27
Cardiotrophin-1	0.52
Endoglin / CD105	0.84
MIP-3 beta	0.20
IL-17BR	0.66
Granzyme G	0.79
MIP-3 alpha	0.43
IL-9 R	0.54
PDGF C	0.62
IL-17RC	0.39
SCF R / c-kit	0.35
Eotaxin	0.81
CRG-2	0.79
HVEM / TNFRSF14	0.60
GM-CSF	0.81
Csk	0.83

CXCR3	0.73
PDGF R beta	0.40
IFN-beta	0.68
TNF-alpha	0.38
IL-24	0.69
MMP-9	0.40
DAN	0.45
BLC	0.36
Endoglin / CD105	3.48
Artemin	0.42
IL-31 RA	2.98
IL-9	0.72
Erythropoeitin (EPO)	N/A
IL-17RC	1.00
IL-17E	0.70
Eotaxin	0.79
OX40 Ligand / TNFSF4	1.16
IL-4	0.44
IL-1 beta	0.88
Decorin	0.72
Axl	0.68
TSLP R	1.11
IL-4 R	1.28
Csk	0.95
NOV / CCN3	1.78
MFG-E8	0.89
IL-23	0.84
IL-12p40/p70	0.75
TIMP-4	1.51
CD14	0.70
Leptin (OB)	0.61
SLPI	0.68
MIG	1.03
GDF-3	0.74
IL-15	1.24
ICAM-5	0.64
IL-7 R alpha	1.02
RELM beta	0.97
IFN-alpha / beta R1	1.05
blank	0.81
FAM3B	2.14
IL-6	0.86
IL-18 R alpha / IL-1 R5	0.88
IL-20 R alpha	1.21
GDF-1	0.89
IL-17D	0.67
VEGF-R1	1.39
GM-CSF	7.66
CCL4 / MIP-1 beta	1.60
IL-17F	1.59
IL-5	0.88
Activin RIB / ALK-4	0.85
TECK	1.61

IL-1 R9	0.54
GITR Ligand / TNFSF18	0.61
IL-18 R alpha / IL-1 R5	0.56
TIMP-4	0.91
CD14	0.37
Kremen-1	0.28
Erythropoeitin (EPO)	N/A
Follistatin (FLRG)	0.10
IL-17F	0.01
TLR2	0.92
RELM beta	1.13
CXCR4	0.09
TNF RII	0.68
Flt3 Ligand	0.53
FGF-21	0.36
NOV / CCN3	0.52
IL-15	0.93
Crossveinless-2	0.15
TACI / TNFRSF13B	0.65
IL-3 R beta	1.01
BTC (betacellulin)	0.66
Artemin	1.01
FGF R3	0.67
Frizzled-1	0.69
IL-12p40/p70	0.80
IL-10	0.84
Leptin R	0.68
CD40	0.20
IL-2 R alpha	0.09
CD 40 Ligand / TNFSF5	0.34
CD27 Ligand TNFSF7	0.45
IGF-1	0.25
TNF-alpha	0.91
Axl	0.37
Spinesin Ectodomain	0.54
CD30	0.55
Growth Hormone R	0.21
Fractalkine	0.67
GDF-9	0.97
G-CSF	0.77
IL-1 beta	0.53
Activin C	0.26
SIGIRR	0.30
Lefty-1	N/A
Kremen-2	0.64
Cryptic	0.29
TSLP R	1.00
IL-9	0.56
TMEFF1 / Tomoregulin-1	0.91
MIG	0.81
Eotaxin-2	0.74
BLC	0.66
Cerberus 1	0.87