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Long-term culture initiating cell (LTC-IC) assay

For LTC-IC assays $CD34^+$ cells were plated in limiting dilution in a 96-wells plate precoated with MS5 stromal cells. Cells were expanded in LTC medium (α-minimum essential medium supplemented with heat-inactivated 12.5% fetal calf serum (Sigma, Zwijndrecht, The Netherlands), heat-inactivated 12.5% horse serum (Sigma), penicillin and streptomycin, 2 mM glutamine, 57.2 μM β-mercaptoethanol (Sigma) and 1 μM hydrocortisone (Sigma) supplemented with 20 ng/ml IL-3, 20 ng/ml granulocyte colony-stimulating factor (G-CSF) (Rhone-Poulenc Rorer, Amstelveen, The Netherlands) and 20 ng/ml thrombopoietin (TPO) (Kirin, Tokyo, Japan). Cultures were kept at 37 ºC and 5% CO2. Cultures were demi-depopulated weekly for medium change. After five weeks suspension cells were removed and methylcellulose (StemCell Technologies) supplemented with 20 ng/ml of interleukin-3, 20 ng/ml of interleukin-6 (both from Gist-Brocades), 20 ng/ml of G-CSF (Rhone-Poulenc Rorer), 20 ng/ml of c-kit ligand (Amgen), and 6 U/ml of erythropoietin was added. Wells containing CFCs were scored as positive and the LTC-IC frequency was calculated using L-Calc Limiting Dilution Software (StemCell Technologies).

Measurement of intracellular ROS levels

Intracellular ROS levels were determined by staining cells with the probe 5- (and 6)-chloromethyl-2',7'-dichlorodihydrofluorescein diacetate (CM-H2DCFDA; Invitrogen). Cells were suspended in a concentration of 10^6 cells/ml and CM-H2DCFDA was added to the cell suspension in a final concentration of 5 μM, followed by incubation at 37˚C for 30 minutes. Cells were washed and FcR blocking at 4˚C for 10 minutes was performed, followed by staining with CD34-PeCy7 and CD38-APC at 4˚C for 20 minutes. Thereafter cells were washed and analyzed on an LSR II flow cytometer (Becton Dickinson (BD), Alpen a/d Rijn, The Netherlands). The mean fluorescence intensity (MFI) of CM-H2DCFDA was calculated using FlowJo and compared between groups.

In vitro treatment with buthionine sulfoximine (BSO)

$CD34^+$ normal bone marrow, post-ASCT bone marrow or PBSC cells were isolated and cultured in HPGM supplemented with 20 ng/ml IL3 and increasing concentrations of BSO. After three days of culture, cells were harvested, washed and counted for living cells. Thereafter colony forming cell (CFC) assays were performed in methylcellulose (StemCell Technologies) supplemented with 20 ng/ml of interleukin-3, 20 ng/ml of interleukin-6 (both from Gist-Brocades), 20 ng/ml of G-CSF (Rhone-Poulenc Rorer), 20 ng/ml of c-kit ligand (Amgen), and 6 U/ml of erythropoietin was added. Two weeks later, colonies were counted.

To get insight in the sensitivity of human hematopoietic $CD34^+$ cells for BSO, the experiments were preceded by a titration experiment with $CD34^+$ cord blood cells incubated with increasing concentrations of BSO.

Gene expression profiling

Total RNA was isolated using the RNeasy micro kit from Qiagen (Venlo, The Netherlands) according to the manufacturer's recommendations. RNA quality was examined using the Agilent 2100 Bioanalyzer (Agilent Technologies, Waldbronn, Germany). Genome-wide expression analysis was performed on Illumina (Illumina, Inc., San Diego, CA) BeadChip Arrays Sentrix Human-12 v3 (46k probesets). Typically, 200ng mRNA for amplification with Illumina TotalPrep RNA Amplification Kit (Ambion) and 750ng of cRNA was used in labeling reactions and hybridization with the arrays according to the manufacturer's instructions. Data were analyzed using the BeadStudio v3 Gene Expression Module (Illumina, Inc.) and Genespring (Agilent, Amstelveen, The Netherlands). Clustering analyses were performed using Genespring GX10 software.

Patient characteristics of patients one year post-ASCT

ID	Diagnosis	Sex	Age	Therapy prior to ASCT	Mob	Infused $CD34^+$ cell number ($x10^6$ cells/kg)
BM224	AL-amyloidosis*	F	56	Dexamethasone, Thalidomide, Bortezomib	CAD	4.22
BM225	MM	M	60	3x TAD	CAD	10.91
BM226	Scleromyxoedema*	F	47	Thalidomide/Dexamethasone	CAD	4.49
BM227	NHL	M	61	R-CHOP	Ara-C	7.82
BM230	MM	F	46	3x TAD	CAD	5.08
BM231	MM	M	53	3x TAD, Bortezomib/Dexamethasone	CAD	8.26
BM233	MM	M	60	3x TAD	CAD	5.05
BM240	POEMS syndrome*	M	50	-	CAD	11.15
BM243	NHL	F	55	R-CHOP	Ara-C	12.78
BM245	MM	M	59	3x TAD	CAD	4.48
BM248	NHL	M	54	R-CHOP	Ara-C	25.0
BM249	MM	M	54	3x VAD, Thalidomide/Dexa	CAD	4.90
BM250	MM	M	57	3x TAD	CAD	6.46
BM251	NHL	M	46	R-CHOP	Ara-C	10.14
BM261	MM	F	63	3x TAD	CAD	6.48
BM262	MM	M	53	3x TAD	CAD	4.36
BM289	NHL	M	50	R-CHOP	Ara-C	4.00
BM295	MM	M	61	8x VAD, Lenalidomide	CAD	7.45
BM296	MM	F	54	3x TAD	CAD	7.14
BM298	MM	M	61	3x Bortezomib/Dexa	CAD	8.95
BM299	MM	M	58	3x TAD	CAD	6.13
BM312	MM	M	68	3x TAD	CAD	4.89
BM314	MM	F	52	3x TAD	CAD	6.70
BM315	MM	M	46	3x PAD	CAD	6.14
BM319	MM	M	60	3x TAD	CAD	6.84
BM320	MM	M	44	6x Bortezomib/Dexa	CAD	6.92
BM323	MM	F	52	3x TAD	CAD	6.38
BM324	MM	M	67	2x TAD + 1x AD	CAD	6.71
BM325	B-CLL	M	54	RVP, RFC, R-DHAP	NDA	NDA
BM326	NHL	M	51	3x R-CHOP	Ara-C	5.85
BM327	AL-amyloidosis*	M	57	Thalidomide/Dexamethasone, Lenalidomide	CAD	5.86
BM328	MM	F	66	3x TAD	CAD	6.16
BM274	MM	M	54	3x TAD	CAD	6.89
BM264	SLE	M	44	MTX, Prednisone	CAD	6.47
BM269	NHL	M	49	R-DHAP/R-VIM/R-DHAP	Ara-C	8.13
BM270	MM	M	60	3x TAD	CAD	5.65
BM271	NHL	M	66	8x R-CHOP, DHAP, R-VIM	R-VIM	11.27

Abbreviations: MM = multiple myeloma; NHL = non-Hodgkin lymphoma; SLE = systemic lupus erythematosus; F = female; M = male; TAD = Thalidomide, Doxorubicin and Dexamethasone (Dexa); R = Rituximab; CHOP = Cyclophosphamide, Hydroxydaunorubicin (Doxorubicin), Oncovin (Vincristine) and Prednisone; VAD = Vincristine, Doxorubicin and Dexamethasone; DHAP = Cisplatin, Cytarabine and Dexamethasone; VIM = Etoposide, Ifosfamide and Methotrexate (MTX); Mob = mobilisation regime; CAD = Cyclophosphamide, Adriamycin and Dexamethasone; Ara-C = Arabinofuranosyl Cytidine (Cytarabine); NDA = no data available.
* for conditionering these patients were treated like MM patients with high dose (HD) Melphalan.

Blood cell counts and performed experiments of patients one year post-ASCT

ID	Hb (mmol/l)	Leukocyte ($x10^9$/l)	Granulocyte ($x10^9$/l)	Platelet ($x10^9$/l)	Q	LTC-IC	ROS	BSO	GEP	HMOX1 qPCR
BM224	8.6	5.0	2.55	102			x		x	
BM225	8.6	5.7	3.63	182			x		x	
BM226	7.8	3.7	2.66	120					x	
BM227	7.5	3.4	1.87	97					x	
BM230	7.8	4.2	1.88	185					x	
BM231	8.6	3.5	1.33	223					x	
BM233	8.2	4.8	2.83	127			x			
BM240	7.3	4.8	2.63	89	x		x			
BM243	7.3	7.2	NDA	87	x		x			
BM245	8.1	2.8	1.77	149	x		x			
BM248	8.7	5.5	4.27	192	x		x			
BM249	8.6	5.1	3.07	172			x			
BM250	7.7	2.6	1.47	199	x		x			
BM251	7.6	3.9	2.09	126	x		x			
BM261	8.2	3.7	1.90	121			x			x
BM262	8.5	4.4	2.08	150			x			
BM289	7.9	4.4	2.29	64		x				
BM295	8.4	6.4	3.62	217		x				
BM296	8.3	6.3	2.35	202		x				
BM298	6.2	3.4	2.42	59		x				
BM299	10	8.2	4.98	239		x				
BM312	7.6	4.6	3.29	94				x		
BM314	8.6	5.0	1.97	175				x		
BM315	8.9	6.1	5.60	194				x		
BM319	7.9	4.1	2.11	32				x		
BM320	8.6	4.3	4.41	98				x		
BM323	7.9	5.2	2.84	126				x		
BM324	7.4	3.8	3.76	144				x		
BM325	8.4	5.5	4.24	178				x		
BM326	8.5	3.6	2.36	119				x		
BM327	7.9	5.3	4.49	122				x		
BM328	8.3	4.1	2.11	80				x		
BM274	8.5	6.5	4.10	120						x
BM264	7.4	4.0	2.75	146						x
BM269	9.3	6.6	4.57	171						x
BM270	9	3.5	1.98	134						x
BM271	7.8	2.4	2.69	89						x

Abbreviations: Hb = hemoglobin; Q = quiescence analysis; LTC-IC = long-term culture initiating cell assay; ROS = analysis of reactive oxygen species; BSO = treatment with buthionine sulfoximine; GEP = gene expression profiling by micro-array analysis.

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symbol	av NBM total	av mobPBSC	av postASCT	fold mobPBSC/total NBM	t-test mobPBSC/total NBM	fold postASCT/NBM total	t-test postASCT/NBM total
ABCA13	8,32155129	5,999754286	5,689663333	0,16	2,42E-06	0,20	1,42E-04
ACP5	6,76467	5,336478571	5,654982222	0,46	8,19E-05	0,37	3,77E-05
ACPL2	6,553984194	5,848374286	6,026832222	0,69	3,18E-04	0,61	4,45E-04
ACTB	6,433759355	5,327465714	5,724086667	0,61	5,42E-04	0,46	3,19E-04
ADAM15	6,27578129	5,36007	5,659836667	0,65	9,78E-04	0,53	4,00E-04
ADAP1	6,225530323	4,536252857	4,600932222	0,32	9,21E-06	0,31	1,61E-04
ADAP2	7,435997742	5,701255714	4,625523333	0,14	8,08E-09	0,30	4,29E-04
ADSS	6,527470323	5,951797143	5,871286667	0,63	4,61E-04	0,44	2,29E-04
AGTRAP	6,934542258	5,624915714	4,594802222	0,20	6,79E-10	0,38	2,59E-04
AIF1	6,907847742	5,039271429	4,368733333	0,17	8,52E-10	0,55	2,03E-07
ALDH3B1	6,222241613	5,179077143	5,227152222	0,50	2,20E-04	0,49	7,22E-04
ANKRD22	7,705605484	6,043281429	5,647971111	0,24	1,77E-05	0,24	2,54E-04
ANKRD33	6,75255871	5,184742857	5,052297778	0,31	4,38E-08	0,34	6,85E-06
AOAH	6,741820645	5,485464286	5,254214444	0,36	3,74E-07	0,42	3,54E-04
APOBEC3A	7,499654839	5,650437143	5,530254444	0,26	2,33E-05	0,28	6,18E-04
APOE	9,586209677	7,207002857	5,011938889	0,04	1,84E-10	0,19	2,57E-04
ARAP3	7,228887419	5,186987143	4,728911111	0,18	1,20E-06	0,24	3,90E-04
ARG1	8,999475806	5,811642857	6,320593333	0,16	3,35E-04	0,11	1,66E-04
ARL6IP6	6,33015871	5,747415714	5,64162	0,62	8,26E-05	0,67	8,66E-04
ASCL2	6,714362258	5,641412857	5,859483333	0,55	2,69E-04	0,48	8,02E-04
ATP6V0E1	6,121984194	5,551238571	5,580114444	0,69	6,94E-05	0,54	9,97E-06
AZU1	9,983795484	6,845784286	3,079217778	0,01	5,48E-18	0,11	1,36E-05
B4GALT5	7,152230323	5,647335714	5,935271111	0,43	2,89E-04	0,35	4,30E-04
BCL6	7,33904129	5,871352857	5,669984444	0,31	9,98E-05	0,36	6,18E-04
BOK	6,395825484	5,514185714	5,669725556	0,60	1,18E-04	0,54	6,40E-05
BPI	10,43141065	6,130787143	5,632613333	0,04	2,13E-07	0,05	3,42E-05
C13orf15	6,843102581	4,800715714	4,602318889	0,21	9,00E-06	0,24	5,93E-04
C1orf162	7,054526774	5,199387143	5,501986667	0,34	1,05E-07	0,28	2,03E-06
C1QB	9,37478129	6,73427	4,900116667	0,04	6,56E-10	0,16	1,61E-04
C1QC	9,008492903	6,357537143	4,860121111	0,06	4,35E-09	0,16	1,55E-04
C5AR1	8,266470323	5,186018571	5,270234444	0,13	1,96E-06	0,12	1,85E-05
CA4	8,550195484	5,67056	6,569916667	0,25	8,71E-04	0,14	2,92E-05
CAMP	12,90178516	7,284908571	5,168162222	0,00	1,59E-13	0,02	3,16E-07
CD14	8,039202581	5,302457143	5,310414444	0,15	1,13E-05	0,14	4,16E-05
CD163	8,325372258	5,96316	4,230138889	0,06	3,76E-11	0,19	4,48E-05
CD300LF	6,615145484	5,213845714	5,755066667	0,55	3,54E-04	0,38	2,81E-05
CD33	6,164205161	5,130498571	4,523775556	0,32	1,52E-09	0,49	5,99E-04
CD68	7,184172258	4,793604286	4,824476667	0,19	3,91E-10	0,19	9,53E-08
CD93	6,873858387	5,296404286	4,927566667	0,26	6,09E-07	0,34	4,76E-04
CDA	8,41279871	5,209201429	5,857672222	0,17	2,62E-05	0,11	7,48E-06
CEACAM1	9,433828065	6,36261	6,835011111	0,17	6,38E-05	0,12	5,10E-05
CEACAM6	10,75947387	7,471102857	5,228363333	0,02	1,26E-09	0,10	3,26E-04
CEACAM8	11,57860645	6,890141429	5,921261111	0,02	8,92E-09	0,04	1,62E-05
CEBPD	7,384032903	4,945225714	4,280571111	0,12	8,48E-12	0,18	2,85E-06
CEBPE	8,351650645	6,260814286	5,613513333	0,15	2,63E-07	0,23	2,94E-04
CFD	6,396419677	4,620204286	3,334488889	0,12	4,85E-13	0,29	1,24E-04
CFP	6,850367097	4,574797143	5,258247778	0,33	3,48E-05	0,21	1,99E-06
CITED4	7,485838387	5,864884286	4,838752222	0,16	9,18E-09	0,33	6,35E-04
CKAP4	8,095048065	5,453762857	6,202692222	0,27	4,08E-04	0,16	5,10E-05

Supplemental table Woolthuis et al. 2013 (continued)

symbol	av NBM total	av mobPBSC	av postASCT	fold mobPBSC/total NBM	t-test mobPBSC/total NBM	fold postASCT/NBM total	t-test postASCT/NBM total
CLEC11A	7,396072903	6,256988571	5,952588889	0,37	1,77E-05	0,45	9,21E-04
CLEC12A	7,388551613	4,767001429	4,257395556	0,11	4,30E-11	0,16	1,75E-06
CLEC4A	7,088718387	5,776238571	4,882418889	0,22	1,86E-07	0,32	8,15E-04
CLEC7A	7,012329355	5,558738571	5,189013333	0,28	7,26E-06	0,37	7,15E-04
CNPY3	6,360948387	5,832562857	5,78011	0,67	5,17E-05	0,44	1,29E-04
CRISP3	8,451386129	6,284521429	6,131411111	0,20	1,62E-05	0,22	3,54E-04
CRISPLD2	7,706393226	5,196975714	5,262096667	0,18	2,82E-05	0,18	1,13E-04
CSF2RA	6,428432258	5,05829	4,803051111	0,32	8,17E-07	0,31	6,21E-05
CSF2RB	6,581914839	5,904125714	5,994752222	0,67	2,43E-04	0,63	1,69E-04
CSF3R	7,538340968	5,390611429	6,373773333	0,45	4,62E-05	0,26	2,38E-06
CST3	6,58557129	4,804612857	5,4445	0,45	1,56E-04	0,29	1,05E-05
CST7	8,086287097	5,884287143	5,303156667	0,15	1,52E-08	0,22	3,33E-04
CTSC	6,185276129	5,374482857	5,535371111	0,64	1,29E-05	0,54	8,90E-06
CTSG	9,539474516	7,51146	2,841586667	0,01	3,24E-20	0,25	1,29E-04
CTSH	7,372160323	4,957478571	3,537851111	0,07	1,07E-11	0,19	6,46E-05
CTSS	6,957854516	5,25395	5,39636	0,34	1,35E-04	0,31	3,54E-04
CTSZ	6,435780323	3,886177143	5,240101111	0,44	6,69E-07	0,17	1,73E-11
CXCL12	9,184455161	6,341402857	5,608622222	0,08	1,41E-08	0,14	1,89E-05
CXCL16	7,681224516	5,283495714	4,843554444	0,14	6,51E-08	0,19	2,77E-05
CYBA	6,77667	5,739181429	5,482881111	0,41	3,04E-08	0,49	8,39E-05
CYBB	8,093080968	5,260067143	4,334415556	0,07	1,36E-10	0,14	4,25E-06
CYP1B1	6,642945806	5,00504	5,019193333	0,32	9,76E-05	0,32	4,52E-04
CYP27A1	6,919475806	5,348717143	5,355222222	0,34	8,77E-05	0,34	5,25E-04
CYP4F3	9,514725484	6,116344286	5,922851111	0,08	4,04E-06	0,09	8,37E-05
DEFA1	13,35606323	9,521881429	7,562327778	0,02	1,13E-10	0,07	1,21E-05
DEFA1B	13,24448065	8,5971	6,925622222	0,01	1,07E-10	0,04	4,32E-06
DEFA3	13,41171839	9,259731429	7,168496667	0,01	7,09E-11	0,06	1,06E-05
DEFA4	12,5101671	7,550672857	5,627101111	0,01	9,04E-10	0,03	1,94E-05
DEGS1	6,452909677	5,59355	5,593623333	0,55	6,33E-05	0,55	3,73E-04
DYSF	8,157889677	5,080131429	5,229673333	0,13	8,57E-06	0,12	3,24E-05
EFHD2	6,48290871	5,644554286	5,452984444	0,49	3,37E-06	0,56	7,09E-04
EGR1	6,505464516	4,244062857	5,174267778	0,40	6,17E-04	0,21	2,18E-07
EHD4	6,282728065	4,988695714	5,245682222	0,49	1,22E-04	0,41	3,82E-05
ENTPD1	7,466179677	5,741952857	5,902563333	0,34	9,00E-05	0,30	2,06E-04
ERP29	6,393853226	5,229297143	5,683146667	0,61	8,92E-05	0,45	1,07E-04
FCER1G	7,393659677	4,624608571	5,771586667	0,32	2,18E-04	0,15	9,61E-06
FCGR2A	7,068353548	5,079382857	5,344476667	0,30	4,58E-04	0,25	3,36E-04
FCGRT	7,322214839	6,04799	5,330575556	0,25	5,80E-09	0,41	4,31E-04
FCN1	9,003022581	5,431441429	4,936313333	0,06	1,48E-08	0,08	1,87E-06
FEZ1	7,60754	5,854854286	5,216478889	0,19	3,48E-07	0,30	3,73E-04
FGL2	7,383285806	5,163545714	5,325901111	0,24	1,25E-05	0,21	7,98E-05
FGR	7,954832258	4,974152857	5,267331111	0,16	1,50E-06	0,13	1,93E-05
FOLR3	8,990517097	5,695772857	6,33366	0,16	1,81E-04	0,10	2,49E-05
FOS	7,190941935	6,217215714	5,291681111	0,27	7,54E-11	0,51	2,52E-04
FPR2	7,877283226	5,991318571	5,600273333	0,21	4,94E-06	0,24	2,07E-04
FTH1	6,466706452	4,905645714	5,20565	0,42	2,49E-05	0,34	2,68E-05
FTH1P3	6,453817097	5,160238571	5,422273333	0,49	2,80E-04	0,41	2,02E-04
FTL	6,511530968	5,462154286	5,717146667	0,58	2,48E-08	0,45	1,09E-09
FYB	6,794941935	4,651355714	4,605976667	0,22	3,33E-08	0,23	4,84E-06
G0S2	7,851855484	5,52589	5,700942222	0,23	2,50E-04	0,20	3,96E-04

Supplemental table Woolthuis et al. 2013 (continued)

symbol	av NBM total	av mobPBSC	av postASCT	fold mobPBSC/total NBM	t-test mobPBSC/total NBM	fold postASCT/NBM total	t-test postASCT/NBM total
GPX3	7,41200871	5,8247	5,937015556	0,36	1,12E-05	0,33	2,87E-05
GRN	7,007592258	5,079741429	5,135801111	0,27	8,77E-08	0,16	4,31E-07
HAL	7,017868387	5,830785714	4,788112222	0,21	1,63E-10	0,44	9,38E-04
HK3	8,88449129	5,280164286	5,535441111	0,10	4,90E-06	0,08	2,68E-05
HMOX1	8,97203129	5,976285714	5,347821111	0,08	3,96E-08	0,13	1,56E-05
HNMT	6,908043871	5,502328571	5,100937778	0,29	6,98E-07	0,38	2,61E-04
HOMER3	6,120052258	5,048561429	5,002326667	0,46	1,54E-05	0,48	2,77E-04
HTRA1	6,83078871	6,01253	5,83147	0,50	7,08E-06	0,57	3,18E-04
IFNGR2	6,59785	5,713884286	5,867697778	0,60	2,99E-04	0,54	1,48E-04
IL18RAP	8,280394839	5,706041429	5,750535556	0,17	3,85E-05	0,17	2,82E-04
IL6R	6,531151613	5,323748571	5,802413333	0,60	4,03E-04	0,43	9,84E-06
IMPA2	6,880695806	6,120998571	6,284571111	0,66	1,96E-04	0,59	3,29E-04
ITGAM	8,044194516	4,680144286	4,805886667	0,11	7,52E-07	0,10	1,66E-05
ITGB2	6,57021129	4,929485714	5,11121	0,36	1,06E-07	0,31	8,79E-06
ITGB5	6,900738065	5,230602857	5,345705556	0,34	5,84E-06	0,31	9,05E-06
KIAA0513	7,188236774	5,268594286	5,376376667	0,28	1,95E-05	0,26	5,73E-05
LCN2	12,12132581	6,694864286	7,862237778	0,05	2,02E-05	0,02	2,49E-06
LCP1	6,332807419	5,699855714	5,716927778	0,65	4,27E-05	0,64	2,78E-04
LGALS3	7,198373226	5,288358571	4,848172222	0,20	1,05E-06	0,27	5,47E-04
LGMN	8,801117097	7,061114286	5,362393333	0,09	2,83E-10	0,30	4,72E-04
LILRA3	8,324970968	5,455302857	6,36006	0,26	6,88E-04	0,14	2,54E-05
LTF	11,6325271	6,02391	5,860855556	0,02	7,29E-09	0,02	9,19E-07
LYZ	7,791408065	4,952348571	3,517504444	0,05	3,42E-12	0,14	1,58E-05
MAFB	7,359000645	5,360817143	5,053543333	0,20	3,22E-06	0,25	7,40E-05
MCOLN1	7,02911129	5,899094286	5,537102222	0,36	3,66E-07	0,46	3,04E-04
MMP8	9,935624516	6,292375714	6,901345556	0,12	1,42E-04	0,08	9,44E-05
MMP9	11,50409129	5,590815714	8,070632222	0,09	2,22E-04	0,02	9,16E-08
MNDA	8,731834839	5,109307143	4,869721111	0,07	1,41E-08	0,08	7,66E-07
MOSC1	8,044412903	6,201458571	5,55423	0,18	1,54E-09	0,28	3,66E-05
MS4A3	9,387369355	7,563885714	5,431442222	0,06	1,50E-10	0,18	2,10E-04
MS4A6A	7,565710645	4,99228	3,484454444	0,06	2,12E-13	0,17	1,23E-06
MS4A7	7,447897097	5,506465714	4,380077778	0,12	4,86E-09	0,26	2,26E-04
NCF1	8,184285161	5,504988571	4,761453333	0,09	2,51E-08	0,16	2,15E-05
NCF1C	7,938707742	5,966288571	5,021478889	0,13	1,50E-07	0,25	4,99E-04
NINJ2	6,740538065	5,615101429	5,09247	0,32	1,68E-07	0,46	7,41E-04
NKG7	7,34954129	5,072721429	5,263127778	0,24	6,95E-06	0,21	2,57E-04
NLRP12	7,40795129	5,50582	5,834478889	0,34	5,71E-04	0,27	3,35E-04
NPL	7,466334194	5,670435714	4,983744444	0,18	2,95E-07	0,21	2,64E-05
OLFM4	11,19265032	6,630488571	6,302944444	0,03	1,11E-06	0,04	8,64E-06
OLR1	9,56291871	5,818692857	5,557134444	0,06	5,98E-07	0,07	2,82E-05
OSCAR	7,403493548	4,972667143	4,982076667	0,19	2,77E-06	0,19	3,31E-05
P2RY13	7,370380645	5,889328571	5,999263333	0,39	2,43E-04	0,36	3,96E-04
PADI4	8,672577742	5,389884286	6,48596	0,22	1,24E-04	0,10	4,43E-06
PGLYRP1	11,54059677	6,673087143	7,470905556	0,06	1,63E-05	0,03	1,05E-05
PILRA	7,278649032	5,516362857	5,516421111	0,29	2,25E-05	0,29	2,62E-04
PLA2G16	6,806897419	5,327072857	5,089137778	0,30	1,58E-05	0,36	6,36E-04
PLA2G7	8,002092258	6,13003	5,156807778	0,14	7,88E-09	0,27	1,73E-04
PLAUR	6,928939677	4,920398571	4,972526667	0,26	1,41E-04	0,25	2,11E-04
PLBD1	9,379760645	5,19762	5,504044444	0,07	1,80E-07	0,06	9,98E-07
PPAP2B	7,601979677	6,140031429	6,192674444	0,38	1,16E-04	0,36	2,57E-04

Supplemental table Woolthuis et al. 2013 (continued)

symbol	av NBM total	av mobPBSC	av postASCT	fold mobPBSC/total NBM	t-test mobPBSC/total NBM	fold postASCT/NBM total	t-test postASCT/NBM total
PRAM1	7,025868065	5,109927143	5,98634	0,49	6,44E-05	0,26	7,38E-07
PRG3	10,85645645	6,614412857	5,236997778	0,02	1,67E-07	0,05	1,80E-04
PSAP	6,637111613	5,769098571	5,403456667	0,43	1,34E-07	0,55	9,33E-04
QPCT	8,545605484	5,70516	6,181717778	0,19	2,80E-04	0,14	2,13E-04
RAB31	7,839076774	5,372378571	4,95241	0,14	1,22E-08	0,18	2,90E-05
RAB32	6,77827871	5,261714286	5,760652222	0,49	1,19E-07	0,35	5,64E-07
RBP7	7,75614871	5,877074286	5,370886667	0,19	2,06E-07	0,27	6,95E-05
RETN	9,043876452	6,019657143	6,380925556	0,16	2,22E-04	0,12	2,26E-04
RGL4	8,128333871	6,162081429	6,370785556	0,30	3,56E-04	0,26	5,02E-04
RGS18	6,705690323	4,67994	5,329241111	0,39	5,49E-05	0,25	5,50E-07
RNASE2	8,697770645	6,70394	4,50162	0,05	2,67E-13	0,25	3,58E-05
RNASE3	10,52843903	7,255307143	4,437505556	0,01	1,94E-14	0,10	3,20E-06
S100A12	10,2937629	5,539534286	7,557914444	0,15	1,50E-04	0,04	1,37E-08
S100A9	9,016390968	5,431782857	6,988052222	0,25	3,05E-04	0,08	1,16E-10
S100P	9,740353548	5,458047143	6,67716	0,12	2,07E-04	0,05	5,34E-06
SASH1	6,617753548	5,817318571	5,424138889	0,44	1,95E-05	0,46	2,69E-04
SCPEP1	7,104859355	5,755248571	4,77664	0,20	4,01E-09	0,39	6,12E-04
SEC23B	6,51861871	6,062927143	5,810617778	0,61	2,47E-07	0,73	3,13E-04
SERPINA1	6,272117097	6,462355714	6,839343333	1,48	2,00E-04	0,13	5,35E-05
SERPINB8	6,958112258	6,120288571	5,410771111	0,34	9,34E-12	0,56	4,87E-04
SFT2D1	6,237126129	5,64092	5,754038889	0,72	1,03E-04	0,66	6,70E-05
SIGLEC5	7,471673871	5,605458571	5,948626667	0,35	5,23E-04	0,27	2,17E-04
SIRPA	7,004375484	4,90337	5,390172222	0,33	3,17E-07	0,23	2,21E-06
SLC15A3	7,619209355	5,392571429	4,635843333	0,13	1,32E-09	0,21	1,30E-05
SLC2A9	6,147995161	5,233362857	5,218198889	0,52	8,37E-07	0,53	1,17E-04
SLC39A11	6,376212903	5,448975714	5,538823333	0,56	6,20E-06	0,53	3,71E-04
SLC7A7	7,678756774	5,744728571	4,751767778	0,13	2,81E-07	0,26	7,70E-04
SLPI	8,994098065	6,326867143	6,098386667	0,13	4,00E-05	0,16	7,16E-04
SMPDL3A	7,521134839	5,719011429	6,139718889	0,38	1,10E-04	0,29	1,27E-05
SRGN	6,901626129	5,096811429	5,561677778	0,40	2,81E-08	0,29	4,82E-06
TBC1D9	6,850230323	5,68037	5,399407778	0,37	5,68E-07	0,44	6,26E-04
TCN1	10,36771387	6,325244286	6,2915	0,06	5,97E-06	0,06	5,78E-05
TFF3	9,878856774	6,363618571	5,70559	0,06	4,92E-08	0,09	2,22E-05
THBS1	6,175740968	4,046318571	4,497812222	0,31	9,26E-05	0,23	9,28E-06
TLR4	6,734787097	5,616668571	5,211498889	0,35	9,41E-08	0,46	1,31E-04
TLR8	7,092310323	5,118855714	4,874555556	0,21	3,78E-06	0,25	3,76E-04
TNFSF13	6,459030968	6,124035714	5,732035556	0,60	7,93E-04	0,50	2,83E-05
TNFSF13B	6,775489677	5,223807143	6,140054444	0,64	2,16E-04	0,34	4,32E-07
TRIB1	6,78976	5,12821	5,017084444	0,29	4,72E-04	0,32	6,42E-04
TUBB1	7,934534516	5,027222857	4,797065556	0,11	1,96E-07	0,13	5,91E-06
TYMP	7,000493548	4,733952857	5,640708889	0,39	9,69E-04	0,21	6,75E-05
TYROBP	7,199457419	4,016692857	5,204813333	0,25	8,22E-07	0,11	1,01E-07
VCAM1	10,62881935	7,917477143	5,157543333	0,02	2,85E-12	0,15	1,55E-04
VSTM1	8,091714194	5,930032857	5,227975556	0,14	1,33E-06	0,22	8,84E-04
WDR1	6,520894194	5,056038571	5,528291111	0,50	3,93E-04	0,36	5,89E-05
WLS	7,33860871	5,74504	5,585931111	0,30	1,40E-05	0,33	3,25E-04

Supplemental material Woolthuis et al. 2013

GO analysis specific for cell cycle processes and oxidative stress

GO term	Count	%	PValue	Genes	FDR
GO:0006979~response to oxidative stress	6	3,125	0,047189	FOS, OLR1, APOE, HMOX1, GPX3, TLR4	55,22924
GO:0034599~cellular response to oxidative stress	3	1,5625	0,093614	FOS, HMOX1, GPX3	80,48596
GO:0034614~cellular response to reactive oxygen species	2	1,041667	0,303588	FOS, GPX3	99,75583
GO:0006800~oxygen and reactive oxygen species metabolic process	5	2,604167	0,008462	CYBA, CYBB, PRG3, NCF1, GPX3, NCF1C	13,17583
GO:0000302~response to reactive oxygen species	5	2,604167	0,012471	FOS, OLR1, APOE, HMOX1, GPX3	18,83041
GO:0070482~response to oxygen levels	3	1,5625	0,505582	HMOX1, SERPINA1, THBS1	99,99918
GO:0045786~negative regulation of cell cycle	2	1,041667	0,624222	PLA2G16, BCL6	99,99999
GO:0007050~cell cycle arrest	2	1,041667	0,712237	AIF1, THBS1	100
GO:0051726~regulation of cell cycle	3	1,5625	0,909788	PLA2G16, C13ORF15, BCL6	100
GO:0007049~cell cycle	5	2,604167	0,985355	AIF1, C13ORF15, G0S2, TUBB1, THBS1	100
GO:0022402~cell cycle process	3	1,5625	0,992216	AIF1, TUBB1, THBS1	100

FDR = false discovery rate