

SUPPLEMENTARY INFORMATION

Supplementary Table 1- Differential expression of stress-related genes.

Feature Number	Probe Name	Systematic Name	Gene Name	Description	Average normalized log2ratio (4 arrays)
30248	A_52_P342860	NM_007954	Es1	Mus musculus esterase 1 (Es1), mRNA [NM_007954]	1.83
27228	A_52_P501007	NM_009467	Ugt2b5	Mus musculus UDP glucuronosyltransferase 2 family, polypeptide B5 (Ugt2b5), mRNA [NM_009467]	1.74
4984	A_51_P435198	NM_009968	Cryz	Mus musculus crystallin, zeta (Cryz), mRNA [NM_009968]	1.46
31117	A_51_P394172	NM_007954	Es1	Mus musculus esterase 1 (Es1), mRNA [NM_007954]	1.27
5587	A_52_P594636	NM_201410	Ugt1a6b	Mus musculus UDP glucuronosyltransferase 1 family, polypeptide A6B (Ugt1a6b), mRNA [NM_201410]	1.24
22160	A_51_P103706	NM_007815	Cyp2c29	Mus musculus cytochrome P450, family 2, subfamily c, polypeptide 29 (Cyp2c29), mRNA [NM_007815]	1.08
25178	A_51_P106799	NM_011146	Pparg	Mus musculus peroxisome proliferator activated receptor gamma (Pparg), mRNA [NM_011146]	1.07
34198	A_51_P106799	NM_011146	Pparg	Mus musculus peroxisome proliferator activated receptor gamma (Pparg), mRNA [NM_011146]	1.06
18415	A_51_P207921	NM_008898	Por	Mus musculus P450 (cytochrome) oxidoreductase (Por), mRNA [NM_008898]	1.06
15073	A_51_P106799	NM_011146	Pparg	Mus musculus peroxisome proliferator activated receptor gamma (Pparg), mRNA [NM_011146]	1.06
31975	A_51_P106799	NM_011146	Pparg	Mus musculus peroxisome proliferator activated receptor gamma (Pparg), mRNA [NM_011146]	1.05
13544	A_51_P106799	NM_011146	Pparg	Mus musculus peroxisome proliferator activated receptor gamma (Pparg), mRNA [NM_011146]	1.05
32807	A_51_P119077	NM_011018	Sqstm1	Mus musculus sequestosome 1 (Sqstm1), mRNA [NM_011018]	1.04
39929	A_51_P106799	NM_011146	Pparg	Mus musculus peroxisome proliferator activated receptor gamma (Pparg), mRNA [NM_011146]	1.04
803	A_51_P106799	NM_011146	Pparg	Mus musculus peroxisome proliferator activated receptor gamma (Pparg), mRNA [NM_011146]	1.03
8686	A_51_P106799	NM_011146	Pparg	Mus musculus peroxisome proliferator activated receptor gamma (Pparg), mRNA [NM_011146]	1.03
36283	A_51_P106799	NM_011146	Pparg	Mus musculus peroxisome proliferator activated receptor gamma (Pparg), mRNA [NM_011146]	1.03
528	A_51_P263965	NM_010442	Hmox1	Mus musculus heme oxygenase (decycling) 1 (Hmox1), mRNA [NM_010442]	1.03
37909	A_51_P106799	NM_011146	Pparg	Mus musculus peroxisome proliferator activated receptor gamma (Pparg), mRNA [NM_011146]	1.03
42134	A_51_P467410	NM_008722	Npm1	Mus musculus nucleophosmin 1 (Npm1), mRNA [NM_008722]	0.87
38409	A_52_P44914	NM_177406	Cyp4a12a	Mus musculus cytochrome P450, family 4, subfamily a, polypeptide 12a (Cyp4a12a), mRNA [NM_177406]	0.84
24862	A_51_P267969	NM_011259	Reg3a	Mus musculus regenerating islet-derived 3 alpha (Reg3a), mRNA [NM_011259]	0.70
32384	A_51_P341832	NM_008743	Nthl1	Mus musculus nth (endonuclease III)-like 1 (E.coli) (Nthl1), mRNA [NM_008743]	0.66
40921	A_51_P366161	NM_010822	Mpg	Mus musculus N-methylpurine-DNA glycosylase (Mpg), mRNA [NM_010822]	0.65
9419	A_51_P367381	NM_011434	Sod1	Mus musculus superoxide dismutase 1, soluble (Sod1), mRNA [NM_011434]	0.65

16369	A_51_P369784	NM_133660	Es22	Mus musculus esterase 22 (Es22), mRNA [NM_133660]	0.56
9133	A_52_P158090	NM_009093	Rps29	Mus musculus ribosomal protein S29 (Rps29), mRNA [NM_009093]	0.51
860	A_51_P433989	NM_009158	Mapk10	Mus musculus mitogen-activated protein kinase 10 (Mapk10), transcript variant 1, mRNA [NM_009158]	0.49
37048	A_52_P369232	NM_007636	Cct2	Mus musculus chaperonin subunit 2 (beta) (Cct2), mRNA [NM_007636]	0.49
44208	A_51_P424338	NM_008706	Nqo1	Mus musculus NAD(P)H dehydrogenase, quinone 1 (Nqo1), mRNA [NM_008706]	0.47
38440	A_51_P405565	NM_010830	Msh6	Mus musculus mutS homolog 6 (E. coli) (Msh6), mRNA [NM_010830]	0.47
27021	A_51_P201661	NM_009533	Xrcc5	Mus musculus X-ray repair complementing defective repair in Chinese hamster cells 5 (Xrcc5), mRNA [NM_009533]	0.44
2440	A_51_P283708	NM_008628	Msh2	Mus musculus mutS homolog 2 (E. coli) (Msh2), mRNA [NM_008628]	0.43
29070	A_52_P491849	NM_011640	Trp53	Mus musculus transformation related protein 53 (Trp53), mRNA [NM_011640]	0.42
43220	A_52_P491849	NM_011640	Trp53	Mus musculus transformation related protein 53 (Trp53), mRNA [NM_011640]	0.42
16644	A_51_P339503	NM_009837	Cct4	Mus musculus chaperonin subunit 4 (delta) (Cct4), mRNA [NM_009837]	0.42
11477	A_52_P491849	NM_011640	Trp53	Mus musculus transformation related protein 53 (Trp53), mRNA [NM_011640]	0.42
23073	A_52_P491849	NM_011640	Trp53	Mus musculus transformation related protein 53 (Trp53), mRNA [NM_011640]	0.41
11206	A_51_P392705	NM_009531	Xpc	Mus musculus xeroderma pigmentosum, complementation group C (Xpc), mRNA [NM_009531]	0.41
40928	A_52_P491849	NM_011640	Trp53	Mus musculus transformation related protein 53 (Trp53), mRNA [NM_011640]	0.41
19502	A_52_P491849	NM_011640	Trp53	Mus musculus transformation related protein 53 (Trp53), mRNA [NM_011640]	0.40
9306	A_52_P491849	NM_011640	Trp53	Mus musculus transformation related protein 53 (Trp53), mRNA [NM_011640]	0.40
26317	A_52_P679769	NM_009804	Cat	Mus musculus catalase (Cat), mRNA [NM_009804]	0.40
23592	A_52_P491849	NM_011640	Trp53	Mus musculus transformation related protein 53 (Trp53), mRNA [NM_011640]	0.40
23813	A_52_P491849	NM_011640	Trp53	Mus musculus transformation related protein 53 (Trp53), mRNA [NM_011640]	0.39
4065	A_52_P491849	NM_011640	Trp53	Mus musculus transformation related protein 53 (Trp53), mRNA [NM_011640]	0.39
33007	A_52_P566406	NM_009531	Xpc	Mus musculus xeroderma pigmentosum, complementation group C (Xpc), mRNA [NM_009531]	0.39
44903	A_52_P431920	AK017045	Rad54l	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4933433M02 product:RAD54 like (S. cerevisiae), full insert sequence. [AK017045]	0.38
37091	A_51_P473576	NM_009687	Apex1	Mus musculus apurinic/apyrimidinic endonuclease 1 (Apex1), mRNA [NM_009687]	0.37
27678	A_51_P430082	NM_009437	Tst	Mus musculus thiosulfate sulfurtransferase, mitochondrial (Tst), nuclear gene encoding mitochondrial protein, mRNA [NM_009437]	0.35
22805	A_52_P567905	NM_010957	Ogg1	Mus musculus 8-oxoguanine DNA-glycosylase 1 (Ogg1), nuclear gene encoding mitochondrial protein, mRNA [NM_010957]	0.33
11240	A_51_P468134	NM_008186	Gtf2h1	Mus musculus general transcription factor II H, polypeptide 1 (Gtf2h1), mRNA [NM_008186]	0.33
27731	A_52_P83233	NM_011728	Xpa	Mus musculus xeroderma pigmentosum, complementation group A (Xpa), mRNA [NM_011728]	0.33
19769	A_51_P144783	NM_007637	Cct5	Mus musculus chaperonin subunit 5	0.32

				(epsilon) (Cct5), mRNA [NM_007637]	
34762	A_52_P363718	NM_009838	Cct6a	Mus musculus chaperonin subunit 6a (zeta) (Cct6a), mRNA [NM_009838]	0.32
436	A_51_P489903	NM_010957	Ogg1	Mus musculus 8-oxoguanine DNA-glycosylase 1 (Ogg1), nuclear gene encoding mitochondrial protein, mRNA [NM_010957]	0.32
38226	A_51_P105017	NM_011236	Rad52	Mus musculus RAD52 homolog (S. cerevisiae) (Rad52), mRNA [NM_011236]	0.30
19319	A_51_P279100	NM_008969	Ptgs1	Mus musculus prostaglandin-endoperoxide synthase 1 (Ptgs1), mRNA [NM_008969]	0.29
23755	A_51_P283456	NM_021282	Cyp2e1	Mus musculus cytochrome P450, family 2, subfamily e, polypeptide 1 (Cyp2e1), mRNA [NM_021282]	0.28
23460	A_51_P254855	NM_011198	Ptgs2	Mus musculus prostaglandin-endoperoxide synthase 2 (Ptgs2), mRNA [NM_011198]	0.23
44979	A_51_P201346	NM_010786	Mdm2	Mus musculus transformed mouse 3T3 cell double minute 2 (Mdm2), mRNA [NM_010786]	0.22
10455	A_51_P425205	AK080908	Sod1	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430204E11 product:superoxide dismutase 1, soluble, full insert sequence [AK080908]	0.22
1916	A_51_P290981	NM_007824	Cyp7a1	Mus musculus cytochrome P450, family 7, subfamily a, polypeptide 1 (Cyp7a1), mRNA [NM_007824]	0.20
36906	A_51_P164030	NM_013686	Tcp1	Mus musculus t-complex protein 1 (Tcp1), mRNA [NM_013686]	0.19
25989	A_51_P118704	NM_007823	Cyp4b1	Mus musculus cytochrome P450, family 4, subfamily b, polypeptide 1 (Cyp4b1), mRNA [NM_007823]	0.19
44127	A_51_P451106	NM_009765	Brca2	Mus musculus breast cancer 2 (Brca2), transcript variant 2, mRNA [NM_009765]	0.19
22325	A_51_P425205	AK080908	Sod1	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430204E11 product:superoxide dismutase 1, soluble, full insert sequence [AK080908]	0.19
25673	A_52_P456279	NM_009840	Cct8	Mus musculus chaperonin subunit 8 (theta) (Cct8), mRNA [NM_009840]	0.19
7448	A_51_P392687	NM_011701	Vim	Mus musculus vimentin (Vim), mRNA [NM_011701]	0.18
13840	A_51_P363914	NM_007636	Cct2	Mus musculus chaperonin subunit 2 (beta) (Cct2), mRNA [NM_007636]	0.18
34946	A_52_P113591	NM_011236	Rad52	Mus musculus RAD52 homolog (S. cerevisiae) (Rad52), mRNA [NM_011236]	0.17
12949	A_51_P508156	NM_007774	Cryga	Mus musculus crystallin, gamma A (Cryga), mRNA [NM_007774]	0.17
17021	A_52_P54561	NM_010829	Msh3	Mus musculus mutS homolog 3 (E. coli) (Msh3), mRNA [NM_010829]	0.15
28672	A_51_P201346	NM_010786	Mdm2	Mus musculus transformed mouse 3T3 cell double minute 2 (Mdm2), mRNA [NM_010786]	0.15
28021	A_51_P425205	AK080908	Sod1	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430204E11 product:superoxide dismutase 1, soluble, full insert sequence [AK080908]	0.14
34177	A_51_P367220	NM_009012	Rad50	Mus musculus RAD50 homolog (S. cerevisiae) (Rad50), mRNA [NM_009012]	0.14
8722	A_51_P392040	NM_009839	Cct6b	Mus musculus chaperonin subunit 6b (zeta) (Cct6b), mRNA [NM_009839]	0.13
35884	A_51_P425205	AK080908	Sod1	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430204E11 product:superoxide dismutase 1, soluble, full insert sequence [AK080908]	0.13
40903	A_51_P308362	NM_201410	Ugt1a6b	Mus musculus UDP glucuronosyltransferase	0.13

				1 family, polypeptide A6B (Ugt1a6b), mRNA [NM_201410]	
36444	A_51_P486738	NM_010247	Xrcc6	Mus musculus X-ray repair complementing defective repair in Chinese hamster cells 6 (Xrcc6), mRNA [NM_010247]	0.12
43200	A_51_P425205	AK080908	Sod1	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430204E11 product:superoxide dismutase 1, soluble, full insert sequence [AK080908]	0.12
40885	A_51_P201346	NM_010786	Mdm2	Mus musculus transformed mouse 3T3 cell double minute 2 (Mdm2), mRNA [NM_010786]	0.12
35883	A_51_P276404	NM_009408	Top1	Mus musculus topoisomerase (DNA) I (Top1), mRNA [NM_009408]	0.11
18922	A_52_P600625	NM_009011	Rad23b	Mus musculus RAD23b homolog (S. cerevisiae) (Rad23b), mRNA [NM_009011]	0.10
4402	A_51_P201346	NM_010786	Mdm2	Mus musculus transformed mouse 3T3 cell double minute 2 (Mdm2), mRNA [NM_010786]	0.10
33153	A_52_P252258	NM_013871	Mapk12	Mus musculus mitogen-activated protein kinase 12 (Mapk12), mRNA [NM_013871]	0.09
38113	A_52_P781398	NM_011640	Trp53	Mus musculus transformation related protein 53 (Trp53), mRNA [NM_011640]	0.09
986	A_51_P201346	NM_010786	Mdm2	Mus musculus transformed mouse 3T3 cell double minute 2 (Mdm2), mRNA [NM_010786]	0.09
984	A_51_P431985	NM_031202	Tyrp1	Mus musculus tyrosinase-related protein 1 (Tyrp1), mRNA [NM_031202]	0.09
40464	A_51_P201346	NM_010786	Mdm2	Mus musculus transformed mouse 3T3 cell double minute 2 (Mdm2), mRNA [NM_010786]	0.08
324	A_51_P314273	X14206	Parp1	Mouse mRNA for poly (ADP-ribose) polymerase (EC 2.4.2.30). [X14206]	0.08
35561	A_51_P201346	NM_010786	Mdm2	Mus musculus transformed mouse 3T3 cell double minute 2 (Mdm2), mRNA [NM_010786]	0.08
18993	A_52_P84027	NM_007824	Cyp7a1	Mus musculus cytochrome P450, family 7, subfamily a, polypeptide 1 (Cyp7a1), mRNA [NM_007824]	0.07
40240	A_52_P170509	NM_011075	Abcb1b	Mus musculus ATP-binding cassette, sub-family B (MDR/TAP), member 1B (Abcb1b), mRNA [NM_011075]	0.07
16005	A_51_P314277	NM_007415	Parp1	Mus musculus poly (ADP-ribose) polymerase family, member 1 (Parp1), mRNA [NM_007415]	0.07
33370	A_52_P4271	AK152633	Tcp1	Mus musculus bone marrow macrophage cDNA, RIKEN full-length enriched library, clone:I830081I21 product:t-complex protein 1, full insert sequence [AK152633]	0.07
38699	A_51_P454166	NM_010829	Msh3	Mus musculus mutS homolog 3 (E. coli) (Msh3), mRNA [NM_010829]	0.07
5298	A_52_P415299	NM_011623	Top2a	Mus musculus topoisomerase (DNA) II alpha (Top2a), mRNA [NM_011623]	0.07
18626	A_51_P201346	NM_010786	Mdm2	Mus musculus transformed mouse 3T3 cell double minute 2 (Mdm2), mRNA [NM_010786]	0.06
36617	A_52_P225260	NM_011740	Ywhaz	Mus musculus tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta polypeptide (Ywhaz), mRNA [NM_011740]	0.06
25417	A_51_P201346	NM_010786	Mdm2	Mus musculus transformed mouse 3T3 cell double minute 2 (Mdm2), mRNA [NM_010786]	0.06
6556	A_51_P516085	NM_009345	Dntt	Mus musculus deoxynucleotidyltransferase, terminal (Dntt), transcript variant 1, mRNA [NM_009345]	0.06
3542	A_52_P3581	AK080908	Sod1	Mus musculus 4 days neonate male adipose	0.05

				cDNA, RIKEN full-length enriched library, clone:B430204E11 product:superoxide dismutase 1, soluble, full insert sequence [AK080908]	
10679	A_51_P425205	AK080908	Sod1	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430204E11 product:superoxide dismutase 1, soluble, full insert sequence [AK080908]	0.05
36331	A_51_P425205	AK080908	Sod1	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430204E11 product:superoxide dismutase 1, soluble, full insert sequence [AK080908]	0.05
36935	A_51_P425205	AK080908	Sod1	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430204E11 product:superoxide dismutase 1, soluble, full insert sequence [AK080908]	0.05
32191	A_52_P496596	NM_007597	Canx	Mus musculus calnexin (Canx), transcript variant 1, mRNA [NM_007597]	0.05
26002	A_51_P249118	NM_008830	Abcb4	Mus musculus ATP-binding cassette, subfamily B (MDR/TAP), member 4 (Abcb4), mRNA [NM_008830]	0.05
9867	A_51_P113026	NM_009965	Cryba1	Mus musculus crystallin, beta A1 (Cryba1), mRNA [NM_009965]	0.05
11396	A_51_P281568	NM_009286	C730007P19Rik	Mus musculus RIKEN cDNA C730007P19 gene (C730007P19Rik), mRNA [NM_009286]	0.05
24622	A_51_P480136	NM_021541	Cryba2	Mus musculus crystallin, beta A2 (Cryba2), mRNA [NM_021541]	0.03
7315	A_51_P455416	NM_013871	Mapk12	Mus musculus mitogen-activated protein kinase 12 (Mapk12), mRNA [NM_013871]	0.02
5020	A_51_P116813	NM_007809	Cyp17a1	Mus musculus cytochrome P450, family 17, subfamily a, polypeptide 1 (Cyp17a1), mRNA [NM_007809]	0.02
22447	A_52_P685666	NM_009836	Cct3	Mus musculus chaperonin subunit 3 (gamma) (Cct3), mRNA [NM_009836]	0.01
7476	A_51_P406638	NM_011258	Rfc1	Mus musculus replication factor C (activator 1) 1 (Rfc1), mRNA [NM_011258]	0.00
34292	A_52_P15008	NM_008551	Mapkapk2	Mus musculus MAP kinase-activated protein kinase 2 (Mapkapk2), mRNA [NM_008551]	0.00
16972	A_51_P469449	NM_001040691	Ung	Mus musculus uracil DNA glycosylase (Ung), transcript variant 1, mRNA [NM_001040691]	0.00
301	A_52_P416147	NM_009011	Rad23b	Mus musculus RAD23b homolog (S. cerevisiae) (Rad23b), mRNA [NM_009011]	-0.01
29574	A_51_P435506	NM_008637	Nudt1	Mus musculus nudix (nucleoside diphosphate linked moiety X)-type motif 1 (Nudt1), mRNA [NM_008637]	-0.01
7909	A_51_P367125	NM_011131	Pold1	Mus musculus polymerase (DNA directed), delta 1, catalytic subunit (Pold1), mRNA [NM_011131]	-0.02
41222	A_52_P48206	NM_009010	Rad23a	Mus musculus RAD23a homolog (S. cerevisiae) (Rad23a), mRNA [NM_009010]	-0.02
40863	A_52_P236176	AK011873	Cct4	Mus musculus 10 days embryo whole body cDNA, RIKEN full-length enriched library, clone:2610204B21 product:unclassifiable, full insert sequence [AK011873]	-0.03
9377	A_52_P469842	NM_010786	Mdm2	Mus musculus transformed mouse 3T3 cell double minute 2 (Mdm2), mRNA [NM_010786]	-0.03
22138	A_51_P390397	NM_007948	Ercc1	Mus musculus excision repair cross-complementing rodent repair deficiency, complementation group 1 (Ercc1), mRNA [NM_007948]	-0.03
19995	A_51_P242143	NM_007597	Canx	Mus musculus calnexin (Canx), transcript variant 1, mRNA [NM_007597]	-0.04
5871	A_51_P425205	AK080908	Sod1	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library,	-0.05

				clone:B430204E11 product:superoxide dismutase 1, soluble, full insert sequence [AK080908]	
19392	A_51_P380260	NM_008448	Kif5b	Mus musculus kinesin family member 5B (Kif5b), mRNA [NM_008448]	-0.05
24812	A_52_P333178	NM_011131	Pold1	Mus musculus polymerase (DNA directed), delta 1, catalytic subunit (Pold1), mRNA [NM_011131]	-0.06
44344	A_52_P337679	NM_007597	Canx	Mus musculus calnexin (Canx), transcript variant 1, mRNA [NM_007597]	-0.06
6763	A_52_P4937	NM_010716	Lig3	Mus musculus ligase III, DNA, ATP-dependent (Lig3), nuclear gene encoding mitochondrial protein, mRNA [NM_010716]	-0.07
21013	A_51_P363947	NM_007669	Cdkn1a	Mus musculus cyclin-dependent kinase inhibitor 1A (P21) (Cdkn1a), transcript variant 1, mRNA [NM_007669]	-0.08
220	A_52_P256914	NM_010000	Cyp2b9	Mus musculus cytochrome P450, family 2, subfamily b, polypeptide 9 (Cyp2b9), mRNA [NM_010000]	-0.08
25905	A_51_P261146	NM_010716	Lig3	Mus musculus ligase III, DNA, ATP-dependent (Lig3), nuclear gene encoding mitochondrial protein, mRNA [NM_010716]	-0.08
7956	A_51_P396351	NM_011045	Pcna	Mus musculus proliferating cell nuclear antigen (Pcna), mRNA [NM_011045]	-0.10
21183	A_51_P368332	NM_011729	Ercc5	Mus musculus excision repair cross-complementing rodent repair deficiency, complementation group 5 (Ercc5), mRNA [NM_011729]	-0.10
27711	A_51_P234303	D00812	Rpa2	Mus musculus mRNA for 30-kDa subunit of replication protein A, complete cds. [D00812]	-0.11
4275	A_51_P172573	NM_013671	Sod2	Mus musculus superoxide dismutase 2, mitochondrial (Sod2), nuclear gene encoding mitochondrial protein, mRNA [NM_013671]	-0.13
6945	A_51_P285446	NM_010715	Lig1	Mus musculus ligase I, DNA, ATP-dependent (Lig1), transcript variant 2, mRNA [NM_010715]	-0.13
27610	A_51_P415905	NM_008892	Pola1	Mus musculus polymerase (DNA directed), alpha 1 (Pola1), mRNA [NM_008892]	-0.14
25594	A_51_P343900	NM_009532	Xrcc1	Mus musculus X-ray repair complementing defective repair in Chinese hamster cells 1 (Xrcc1), mRNA [NM_009532]	-0.14
5847	A_51_P118902	NM_008551	Mapkapk2	Mus musculus MAP kinase-activated protein kinase 2 (Mapkapk2), mRNA [NM_008551]	-0.14
10097	A_51_P388325	NM_009904	Clgn	Mus musculus calnegin (Clgn), mRNA [NM_009904]	-0.14
5767	A_52_P652704	NM_011020	Hspa4l	Mus musculus heat shock protein 4 like (Hspa4l), mRNA [NM_011020]	-0.15
19354	A_51_P197259	NM_007638	Cct7	Mus musculus chaperonin subunit 7 (eta) (Cct7), mRNA [NM_007638]	-0.15
18910	A_51_P148105	NM_011234	Rad51	Mus musculus RAD51 homolog (S. cerevisiae) (Rad51), mRNA [NM_011234]	-0.15
14037	A_51_P471440	NM_009157	Map2k4	Mus musculus mitogen-activated protein kinase kinase 4 (Map2k4), mRNA [NM_009157]	-0.17
21715	A_51_P366024	NM_133658	Ercc3	Mus musculus excision repair cross-complementing rodent repair deficiency, complementation group 3 (Ercc3), mRNA [NM_133658]	-0.17
4708	A_52_P159095	AK051960	Msh2	Mus musculus 12 days embryo eyecall cDNA, RIKEN full-length enriched library, clone:D230024H20 product:mutS homolog 2 (E. coli), full insert sequence. [AK051960]	-0.17
18040	A_51_P363947	NM_007669	Cdkn1a	Mus musculus cyclin-dependent kinase inhibitor 1A (P21) (Cdkn1a), transcript variant 1, mRNA [NM_007669]	-0.18
29374	A_52_P488471	NM_008019	Fkbp1a	Mus musculus FK506 binding protein 1a (Fkbp1a), mRNA [NM_008019]	-0.18

12232	A_52_P537527	AK078775	Msh2	Mus musculus 15 days embryo male testis cDNA, RIKEN full-length enriched library, clone:8030473G08 product:mutS homolog 2 (E. coli), full insert sequence. [AK078775]	-0.19
26807	A_51_P363947	NM_007669	Cdkn1a	Mus musculus cyclin-dependent kinase inhibitor 1A (P21) (Cdkn1a), transcript variant 1, mRNA [NM_007669]	-0.19
33304	A_51_P363947	NM_007669	Cdkn1a	Mus musculus cyclin-dependent kinase inhibitor 1A (P21) (Cdkn1a), transcript variant 1, mRNA [NM_007669]	-0.20
15253	A_51_P363947	NM_007669	Cdkn1a	Mus musculus cyclin-dependent kinase inhibitor 1A (P21) (Cdkn1a), transcript variant 1, mRNA [NM_007669]	-0.20
27704	A_52_P513394	NM_009765	Brca2	Mus musculus breast cancer 2 (Brca2), transcript variant 2, mRNA [NM_009765]	-0.20
38540	A_51_P478303	NM_010006	Cyp2d9	Mus musculus cytochrome P450, family 2, subfamily d, polypeptide 9 (Cyp2d9), mRNA [NM_010006]	-0.20
2504	A_51_P363947	NM_007669	Cdkn1a	Mus musculus cyclin-dependent kinase inhibitor 1A (P21) (Cdkn1a), transcript variant 1, mRNA [NM_007669]	-0.21
9836	A_51_P363947	NM_007669	Cdkn1a	Mus musculus cyclin-dependent kinase inhibitor 1A (P21) (Cdkn1a), transcript variant 1, mRNA [NM_007669]	-0.21
2268	A_51_P363947	NM_007669	Cdkn1a	Mus musculus cyclin-dependent kinase inhibitor 1A (P21) (Cdkn1a), transcript variant 1, mRNA [NM_007669]	-0.21
25113	A_51_P363947	NM_007669	Cdkn1a	Mus musculus cyclin-dependent kinase inhibitor 1A (P21) (Cdkn1a), transcript variant 1, mRNA [NM_007669]	-0.21
3502	A_52_P101496	BC002033	Rad50	Mus musculus RAD50 homolog (S. cerevisiae), mRNA (cDNA clone IMAGE:3491597), complete cds. [BC002033]	-0.21
35603	A_51_P433360	NM_172306	Cyp4a12b	Mus musculus cytochrome P450, family 4, subfamily a, polypeptide 12B (Cyp4a12b), mRNA [NM_172306]	-0.21
21713	A_52_P368008	NM_010829	Msh3	Mus musculus mutS homolog 3 (E. coli) (Msh3), mRNA [NM_010829]	-0.22
36944	A_51_P363947	NM_007669	Cdkn1a	Mus musculus cyclin-dependent kinase inhibitor 1A (P21) (Cdkn1a), transcript variant 1, mRNA [NM_007669]	-0.23
24783	A_51_P213706	NM_011341	Sdf4	Mus musculus stromal cell derived factor 4 (Sdf4), mRNA [NM_011341]	-0.24
19427	A_52_P30406	AK084917	Rad23b	Mus musculus 13 days embryo lung cDNA, RIKEN full-length enriched library, clone:D430011I09 product:RAD23b homolog (S. cerevisiae), full insert sequence. [AK084917]	-0.26
23719	A_51_P416869	NM_008683	Nedd8	Mus musculus neural precursor cell expressed, developmentally down-regulated gene 8 (Nedd8), mRNA [NM_008683]	-0.28
37116	A_52_P533146	NM_007837	Ddit3	Mus musculus DNA-damage inducible transcript 3 (Ddit3), mRNA [NM_007837]	-0.28
37512	A_51_P480709	NM_011740	Ywhaz	Mus musculus tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta polypeptide (Ywhaz), mRNA [NM_011740]	-0.31
17862	A_52_P508991	NM_010231	Fmo1	Mus musculus flavin containing monooxygenase 1 (Fmo1), mRNA [NM_010231]	-0.34
3500	A_51_P328300	NM_009787	Pdia4	Mus musculus protein disulfide isomerase associated 4 (Pdia4), mRNA [NM_009787]	-0.35
15285	A_52_P606297	NM_011664	Ubb	Mus musculus ubiquitin B (Ubb), mRNA [NM_011664]	-0.35
12073	A_51_P513041	AK014639	Dnajc1	Mus musculus 10 days neonate skin cDNA, RIKEN full-length enriched library, clone:4733401K02 product:unclassifiable, full insert sequence [AK014639]	-0.36

21854	A_52_P88648	NM_009996	Cyp24a1	Mus musculus cytochrome P450, family 24, subfamily a, polypeptide 1 (Cyp24a1), nuclear gene encoding mitochondrial protein, mRNA [NM_009996]	-0.36
20504	A_51_P291347	NM_013614	Odc1	Mus musculus ornithine decarboxylase, structural 1 (Odc1), mRNA [NM_013614]	-0.37
41711	A_52_P594116	NM_009995	Cyp21a1	Mus musculus cytochrome P450, family 21, subfamily a, polypeptide 1 (Cyp21a1), mRNA [NM_009995]	-0.37
17104	A_51_P256665	NM_173006	Pon3	Mus musculus paraoxonase 3 (Pon3), mRNA [NM_173006]	-0.38
17233	A_52_P126055	NM_183308	Pon2	Mus musculus paraoxonase 2 (Pon2), mRNA [NM_183308]	-0.38
17571	A_52_P273177	NM_008448	Kif5b	Mus musculus kinesin family member 5B (Kif5b), mRNA [NM_008448]	-0.39
2104	A_52_P436238	NM_013614	Odc1	Mus musculus ornithine decarboxylase, structural 1 (Odc1), mRNA [NM_013614]	-0.40
32910	A_51_P234174	NM_008886	Pms2	Mus musculus postmeiotic segregation increased 2 (<i>S. cerevisiae</i>) (Pms2), mRNA [NM_008886]	-0.41
22781	A_51_P291135	NM_007996	Fdx1	Mus musculus ferredoxin 1 (Fdx1), nuclear gene encoding mitochondrial protein, mRNA [NM_007996]	-0.41
31635	A_52_P662226	NM_173006	Pon3	Mus musculus paraoxonase 3 (Pon3), mRNA [NM_173006]	-0.42
28973	A_51_P475523	NM_009764	Brca1	Mus musculus breast cancer 1 (Brca1), mRNA [NM_009764]	-0.43
8110	A_51_P464234	NM_008020	Fkbp2	Mus musculus FK506 binding protein 2 (Fkbp2), mRNA [NM_008020]	-0.45
15776	A_51_P355301	NM_007818	Cyp3a11	Mus musculus cytochrome P450, family 3, subfamily a, polypeptide 11 (Cyp3a11), mRNA [NM_007818]	-0.45
19105	A_52_P291588	NM_008020	Fkbp2	Mus musculus FK506 binding protein 2 (Fkbp2), mRNA [NM_008020]	-0.45
16545	A_52_P582105	NM_007996	Fdx1	Mus musculus ferredoxin 1 (Fdx1), nuclear gene encoding mitochondrial protein, mRNA [NM_007996]	-0.46
38019	A_52_P496397	AK014190	Pms2	Mus musculus 13 days embryo head cDNA, RIKEN full-length enriched library, clone:3110048A06 product:postmeiotic segregation increased 2 (<i>S. cerevisiae</i>), full insert sequence. [AK014190]	-0.47
14047	A_52_P874080	NM_201645	Ugt1a1	Mus musculus UDP glucuronosyltransferase 1 family, polypeptide A1 (Ugt1a1), mRNA [NM_201645]	-0.48
16137	A_52_P239735	NM_011341	Sdf4	Mus musculus stromal cell derived factor 4 (Sdf4), mRNA [NM_011341]	-0.49
25186	A_51_P436002	NM_007772	Hivep1	Mus musculus human immunodeficiency virus type I enhancer binding protein 1 (Hivep1), mRNA [NM_007772]	-0.49
29138	A_51_P280928	NM_183308	Pon2	Mus musculus paraoxonase 2 (Pon2), mRNA [NM_183308]	-0.51
19637	A_51_P108767	NM_009015	Rad54l	Mus musculus RAD54 like (<i>S. cerevisiae</i>) (Rad54l), transcript variant 1, mRNA [NM_009015]	-0.54
13168	A_52_P590546	NM_011631	Hsp90b1	Mus musculus heat shock protein 90, beta (Grp94), member 1 (Hsp90b1), mRNA [NM_011631]	-0.54
19396	A_51_P425205	AK080908	Sod1	Mus musculus 4 days neonate male adipose cDNA, RIKEN full-length enriched library, clone:B430204E11 product:superoxide dismutase 1, soluble, full insert sequence [AK080908]	-0.59
44465	A_51_P271556	NM_011145	Ppard	Mus musculus peroxisome proliferator activator receptor delta (Ppard), mRNA [NM_011145]	-0.59
18915	A_51_P325343	NM_011951	Mapk14	Mus musculus mitogen-activated protein kinase 14 (Mapk14), mRNA [NM_011951]	-0.59

5929	A_51_P325343	NM_011951	Mapk14	Mus musculus mitogen-activated protein kinase 14 (Mapk14), mRNA [NM_011951]	-0.59
20629	A_51_P272817	NM_008928	Map2k3	Mus musculus mitogen-activated protein kinase kinase 3 (Map2k3), mRNA [NM_008928]	-0.66
43402	A_52_P122830	NM_021395	Hyou1	Mus musculus hypoxia up-regulated 1 (Hyou1), mRNA [NM_021395]	-0.67
24590	A_52_P624149	NM_011631	Hsp90b1	Mus musculus heat shock protein 90, beta (Grp94), member 1 (Hsp90b1), mRNA [NM_011631]	-0.68
16917	A_52_P89567	NM_007483	Rhob	Mus musculus ras homolog gene family, member B (Rhob), mRNA [NM_007483]	-0.75
29648	A_52_P9703	NM_009997	Cyp2a4	Mus musculus cytochrome P450, family 2, subfamily a, polypeptide 4 (Cyp2a4), mRNA [NM_009997]	-0.77
28838	A_52_P18267	NM_009764	Brca1	Mus musculus breast cancer 1 (Brca1), mRNA [NM_009764]	-0.81
20123	A_52_P452747	NM_010018	Dao1	Mus musculus D-amino acid oxidase 1 (Dao1), mRNA [NM_010018]	-0.82
20426	A_52_P340187	BC021887	Pon2	Mus musculus paraoxonase 2, mRNA (cDNA clone MGC:11614 IMAGE:3154583), complete cds. [BC021887]	-0.85
28073	A_51_P296608	NM_007836	Gadd45a	Mus musculus growth arrest and DNA-damage-inducible 45 alpha (Gadd45a), mRNA [NM_007836]	-0.85
34428	A_52_P369581	NM_007499	Atm	Mus musculus ataxia telangiectasia mutated homolog (human) (Atm), mRNA [NM_007499]	-0.86
1078	A_52_P375076	BC019785	Hyou1	Mus musculus hypoxia up-regulated 1, mRNA (cDNA clone MGC:30561 IMAGE:5151731), complete cds. [BC019785]	-0.86
28816	A_51_P348334	NM_011144	Ppara	Mus musculus peroxisome proliferator activated receptor alpha (Ppara), transcript variant 1, mRNA [NM_011144]	-0.90
4200	A_52_P156502	AK082477	Top2a	Mus musculus 0 day neonate cerebellum cDNA, RIKEN full-length enriched library, clone:C230053N18 product:topoisomerase (DNA) II alpha, full insert sequence. [AK082477]	-0.99
13211	A_51_P114941	NM_007819	Cyp3a13	Mus musculus cytochrome P450, family 3, subfamily a, polypeptide 13 (Cyp3a13), mRNA [NM_007819]	-1.10
38709	A_51_P450140	NM_009993	Cyp1a2	Mus musculus cytochrome P450, family 1, subfamily a, polypeptide 2 (Cyp1a2), mRNA [NM_009993]	-1.19
36302	A_51_P168412	M73329	Pdia3	Mus musculus phospholipase C-alpha (PLC-alpha) mRNA, complete cds. [M73329]	-1.21
9028	A_52_P620100	AK031293	Cct3	Mus musculus 13 days embryo male testis cDNA, RIKEN full-length enriched library, clone:6030403E12 product:chaperonin subunit 3 (gamma), full insert sequence. [AK031293]	-1.25
44724	A_51_P116940	NM_007940	Ephx2	Mus musculus epoxide hydrolase 2, cytoplasmic (Ephx2), mRNA [NM_007940]	-1.58
28161	A_52_P571607	NM_001081219	Myo1a	Mus musculus myosin IA (Myo1a), mRNA [NM_001081219]	-1.69
32523	A_51_P489367	NM_019792	Cyp3a25	Mus musculus cytochrome P450, family 3, subfamily a, polypeptide 25 (Cyp3a25), mRNA [NM_019792]	-2.27
10764	A_52_P380314	NM_019792	Cyp3a25	Mus musculus cytochrome P450, family 3, subfamily a, polypeptide 25 (Cyp3a25), mRNA [NM_019792]	-2.28
23736	A_51_P354126	NM_011260	Reg3g	Mus musculus regenerating islet-derived 3 gamma (Reg3g), mRNA [NM_011260]	-2.95
34474	A_51_P279693	NM_009992	Cyp1a1	Mus musculus cytochrome P450, family 1, subfamily a, polypeptide 1 (Cyp1a1), mRNA [NM_009992]	-3.67
11405	A_51_P169671	NM_011036	Reg3b	Mus musculus regenerating islet-derived 3 beta (Reg3b), mRNA [NM_011036]	-4.44

Suppl. Table 1. Differential expression of stress-related genes.

133 stress-related genes (Atlas Mouse Stress Array, GEO platform No. GPL147) were analyzed. Average log₂ ratio of four expression arrays is shown (positive values: enriched in crypt organoids; negative values: enriched in freshly isolated crypts). Of these only 2 genes were significantly enriched in crypt organoids and 6 genes were enriched in freshly isolated small intestinal crypts. (Word file)

Suppl Movie 1. Differential interference contrast microscopy movie of the first three days of culture of a single crypt. (QuickTime file)

Suppl. Movie 2. Movie of a 7-day-old organoid derived from an *Lgr5-EGFP-ires-CreERT2/Rosa26-YFP* crypt. The organoid was stimulated by tamoxifen for 12 hr, and cultured and imaged for four consecutive days. *Lgr5*-stem cells are green; YFP fluorescence (red as false color) shows the production of single red offspring cells against the backdrop of the growth of the organoid followed by differential interference contrast imaging. Note that recombined *Lgr5*-stem cells (yellow; combination of red and green) stayed at crypt bottoms. 10 sets of optical sections through whole organoid were projected into single plane. (QuickTime file)