

**Supplementary Table S1:** PCR array for stress and toxicity-associated genes (PARN-003ZA, Qiagen). Differentially expressed genes downregulated at least two-fold are printed in red, while the genes upregulated by at least two-fold are printed in green. Young (y) and old (o) rats treated with 0.1% (y.1, o.1) or 0.5% FF (y.5, o.5) were tested against their age controls. Measurements were performed on cDNA pools of 5 animals *per* group.

Symbol	Description	Molecular pathway	y.1FF /yC	y.5FF /yC	o.1FF /oC	o.5FF /oC
<b>Fth1</b>	Ferritin, heavy polypeptide 1	Oxidative Stress	1,12	-1,53	1,01	-1,63
<b>Gclc</b>	Glutamate-cysteine ligase, catalytic subunit	Oxidative Stress	-2,18	-2,90	-1,46	-3,67
<b>Gclm</b>	Glutamate cysteine ligase, modifier subunit	Oxidative Stress	-1,65	-1,49	-1,68	-2,80
<b>Gsr</b>	Glutathione reductase	Oxidative Stress	-1,59	-1,82	-1,27	-1,54
<b>Gstp1</b>	Glutathione S-transferase pi 1	Oxidative Stress	-2,31	-1,75	-1,35	-1,38
<b>Hmox1</b>	Heme oxygenase (decycling) 1	Oxidative Stress	-1,21	-1,82	1,28	3,23
<b>Hspa1b</b>	Heat shock 70kD protein 1B (mapped)	Oxidative Stress	-1,31	9,30	-6,14	6,76
<b>Nqo1</b>	NAD(P)H dehydrogenase, quinone 1	Oxidative Stress	-1,68	-1,28	-1,42	1,31
<b>Prdx1</b>	Peroxiredoxin 1	Oxidative Stress	-1,41	-1,61	-1,23	-1,20
<b>Sqstm1</b>	Sequestosome 1	Oxidative Stress	-1,51	-1,74	-1,39	-1,31
<b>Txn1</b>	Thioredoxin 1	Oxidative Stress	-1,40	-1,44	-1,17	-1,26
<b>Txnrd1</b>	Thioredoxin reductase 1	Oxidative Stress	-1,96	-2,06	-1,74	-1,12
<b>Adm</b>	Adrenomedullin	Hypoxia Signalling	-1,16	1,16	-1,31	2,10
<b>Arnt</b>	Aryl hydrocarbon receptor nuclear translocator	Hypoxia Signalling	-1,92	1,27	-2,20	1,90
<b>Bnip3l</b>	BCL2/adenovirus E1B interacting protein 3-like	Hypoxia Signalling	-1,50	-2,04	-1,32	-1,48
<b>Car9</b>	Carbonic anhydrase 9	Hypoxia Signalling	-1,87	5,92	-1,11	10,15
<b>Epo</b>	Erythropoietin	Hypoxia Signalling	-2,28	2,85	-2,19	8,95
<b>Ldha</b>	Lactate dehydrogenase A	Hypoxia Signalling	-1,08	-1,12	1,05	1,17
<b>Mmp9</b>	Matrix metalloproteinase 9	Hypoxia Signalling	-1,99	1,28	-1,17	5,00
<b>Serpine1 (Pai-1)</b>	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), memb. 1	Hypoxia Signalling	-1,91	1,66	-2,15	3,37

<b>Slc2a1</b>	Solute carrier family 2 (facilitated glucose transporter), member 1	Hypoxia Signalling	-2,33	-1,92	-1,39	-1,43
<b>Vegfa</b>	Vascular endothelial growth factor A	Hypoxia Signalling	-2,49	-1,13	-2,50	1,03
<b>Aqp1</b>	Aquaporin 1	Osmotic Stress	-2,10	-1,78	-1,76	-1,61
<b>Aqp2</b>	Aquaporin 2 (collecting duct)	Osmotic Stress	-1,40	1,14	-1,55	-1,45
<b>Aqp4</b>	Aquaporin 4	Osmotic Stress	-1,77	2,14	-1,96	2,29
<b>Cftr</b>	Cystic fibrosis transmembrane conductance regulator homolog (human)	Osmotic Stress	1,92	30,15	-4,54	6,55
<b>Edn1</b>	Endothelin 1	Osmotic Stress	-2,20	1,43	-1,68	2,70
<b>Hspa4l</b>	Heat shock protein 4	Osmotic Stress	-1,41	1,02	-1,33	2,00
<b>Nfat5</b>	Nuclear factor of activated T-cells 5	Osmotic Stress	-1,71	1,86	-1,72	2,88
<b>Slc5a3</b>	Solute carrier family 5 (sodium/myo-inositol cotransporter), member 3	Osmotic Stress	-3,10	-2,25	1,32	-2,33
<b>Slc9a3</b>	Solute carrier family 9 (sodium/hydrogen exchanger), member 3	Osmotic Stress	-3,28	1,58	-2,08	3,23
<b>Ccl12</b>	Chemokine (C-C motif) ligand 12	Inflammatory Response	-1,02	12,21	-3,96	8,52
<b>Cd40lg</b>	CD40 ligand	Inflammatory Response	1,08	8,19	-3,25	8,72
<b>Crp</b>	C-reactive protein, pentraxin-related	Inflammatory Response	-3,02	2,88	-4,62	7,86
<b>Ifng</b>	Interferon gamma	Inflammatory Response	-1,11	18,08	-8,22	5,81
<b>Il1a</b>	Interleukin 1 alpha	Inflammatory Response	-1,02	-1,23	-1,20	-1,24
<b>Il1b</b>	Interleukin 1 beta	Inflammatory Response	1,59	2,24	-2,48	4,32
<b>Il6</b>	Interleukin 6	Inflammatory Response	3,68	9,81	-4,04	6,21
<b>Tlr4</b>	Toll-like receptor 4	Inflammatory Response	1,18	3,49	-1,87	5,14
<b>Tnf</b>	Tumor necrosis factor (TNF superfamily, member 2)	Inflammatory Response	-2,99	1,85	-2,09	6,18
<b>Cdkn1a (Cip1, Waf1)</b>	Cyclin-dependent kinase inhibitor 1A	Cell Cycle Arrest & Checkpoints	-1,06	-2,05	-1,05	-1,14
<b>Chek1</b>	CHK1 checkpoint homolog (S. pombe)	Cell Cycle Arrest & Checkpoints	-1,67	6,34	-2,32	5,69
<b>Chek2</b>	CHK2 checkpoint homolog (S. pombe)	Cell Cycle Arrest & Checkpoints	-1,57	3,17	-2,15	4,59

<b>Ddit3 (Gadd153, Chop)</b>	DNA-damage inducible transcript 3	Cell Cycle Arrest & Checkpoints	-2,45	-1,92	-1,44	1,47
<b>Hus1</b>	HUS1 checkpoint homolog (S. pombe)	Cell Cycle Arrest & Checkpoints	-1,49	1,13	-1,45	2,11
<b>Mre11a</b>	meiotic recombination 11 homolog A (S. cerevisiae)	Cell Cycle Arrest & Checkpoints	-1,63	2,08	-2,60	3,39
<b>Nbn (Nbs1)</b>	Nibrin	Cell Cycle Arrest & Checkpoints	-1,08	1,23	1,32	1,34
<b>Rad17</b>	RAD17 homolog (S. pombe)	Cell Cycle Arrest & Checkpoints	-1,45	-1,17	-1,38	1,37
<b>Rad9</b>	RAD9 homolog (S. pombe)	Cell Cycle Arrest & Checkpoints	-1,87	1,15	-1,76	1,52
<b>Atm</b>	Ataxia telangiectasia mutated homolog (human)	Other DNA Damage Responses	-1,45	2,57	-2,21	3,18
<b>Ddb2</b>	Damage specific DNA binding protein 2	Other DNA Damage Responses	-1,60	-1,07	-1,99	1,48
<b>Gadd45a</b>	Growth arrest and DNA-damage-inducible, alpha	Other DNA Damage Responses	-1,24	-1,19	-1,31	-1,26
<b>Gadd45g</b>	Growth arrest and DNA-damage-inducible, gamma	Other DNA Damage Responses	-1,52	2,01	-3,54	-1,08
<b>Rad51</b>	RAD51 homolog (RecA homolog, E. coli) (S. cerevisiae)	Other DNA Damage Responses	-1,32	5,68	-2,63	5,66
<b>Tp53 (p53)</b>	Tumor protein p53	Other DNA Damage Responses	-1,40	-1,15	-1,36	1,08
<b>Xpc</b>	Xeroderma pigmentosum, complementation group C	Other DNA Damage Responses	-1,64	-1,12	-1,85	1,01
<b>Casp1 (Ice)</b>	Caspase 1	Apoptosis	1,11	2,25	-1,60	2,55
<b>Casp7</b>	Caspase 7	Apoptosis	-1,78	-2,00	-1,46	1,25
<b>Fas</b>	Fas (TNF receptor superfamily, member 6)	Apoptosis	1,04	1,25	-1,26	1,08
<b>Mcl1</b>	Myeloid cell leukemia sequence 1	Apoptosis	-1,29	-2,50	-1,04	-1,36
<b>Tnfrsf10b</b>	G03 Rn.105558 NM_001108873 Tumor necrosis factor receptor superfamily, memb. 10b	Apoptosis	-1,44	-3,18	-1,44	-1,32
<b>Tnfrsf1a (Tnfr1)</b>	Tumor necrosis factor receptor superfamily, member 1a	Apoptosis	-1,45	-1,29	-2,14	1,10
<b>Grb2</b>	Growth factor receptor bound protein 2	Necrosis	-1,54	-1,82	-1,39	-1,02
<b>Parp1 (Adprt1)</b>	Poly (ADP-ribose) polymerase 1	Necrosis	-1,29	-1,23	-1,10	1,27
<b>Parp2</b>	Poly (ADP-ribose) polymerase 2	Necrosis	-1,18	1,16	-1,78	1,51
<b>Pvr</b>	Poliovirus receptor	Necrosis	-3,11	-1,74	-2,13	2,62

<b>Ripk1</b>	Receptor (TNFRSF)-interacting serine-threonine kinase 1	Necrosis	-2,00	-1,15	-1,55	1,30
<b>Ripk3</b>	Receptor-interacting serine-threonine kinase 3	Necrosis	-1,52	1,62	-1,85	2,58
<b>Txn14b</b>	Thioredoxin-like 4B	Necrosis	-1,67	1,18	-1,78	2,04
<b>Atg12</b>	ATG12 autophagy related 12 homolog (S. cerevisiae)	Autophagy	-1,12	-1,26	-1,29	1,26
<b>Atg7</b>	ATG7 autophagy related 7 homolog (S. cerevisiae)	Autophagy	-1,46	1,02	-1,31	1,73
<b>Becn1</b>	Beclin 1, autophagy related	Autophagy	-1,34	-1,11	-1,75	-1,46
<b>Ulk1</b>	Unc-51 like kinase 1 (C. elegans)	Autophagy	-1,94	1,13	-1,98	1,63
<b>Atf4</b>	Activating transcription factor 4 (tax-responsive enhancer element B67)	Unfolded Protein Response	-2,19	-1,46	-1,53	1,08
<b>Atf6</b>	Activating transcription factor 6	Unfolded Protein Response	-1,69	1,89	-2,83	1,79
<b>Bbc3</b>	Bcl-2 binding component 3	Unfolded Protein Response	-1,71	-1,24	-2,19	1,04
<b>Bid</b>	BH3 interacting domain death agonist	Unfolded Protein Response	-1,71	-1,00	-1,63	2,57
<b>Calr</b>	Calreticulin	Unfolded Protein Response	-1,91	-1,47	-1,49	-1,47
<b>Dnajc3</b>	DnaJ (Hsp40) homolog, subfamily C, member 3	Unfolded Protein Response	-1,31	-1,06	-1,31	-1,04
<b>Hsp90aa1</b>	Heat shock protein 90, alpha (cytosolic), class A member 1	Unfolded Protein Response	-1,55	-1,75	1,00	1,50
<b>Hsp90b1</b>	Heat shock protein 90, beta, member 1	Unfolded Protein Response	-1,87	-2,00	-1,29	-1,52
<b>Hspa4 (Hsp70)</b>	Heat shock protein 4-like	Unfolded Protein Response	-1,23	-1,51	-1,38	-1,12
<b>Hspa5 (Grp78)</b>	Heat shock protein 5	Unfolded Protein Response	-2,28	-2,76	-1,01	-1,55
<b>Xbp1</b>	X-box binding protein 1	Unfolded Protein Response	-2,07	-2,37	1,01	-1,57
<b>Hprt1</b>	Hypoxanthine phosphoribosyltransferase 1	<i>Housekeeping gene</i>	-1,03	-1,11	-1,03	-1,04
<b>Rplp1</b>	Ribosomal protein, large, P1	<i>Housekeeping gene</i>	1,03	1,11	1,03	1,04