Table S1: Expression level of genes coding proteins associated with excitation contraction coupling and Ca^{2+} Signaling and regulation. Genes showing significant change in their expression levels (+ / - 0.7 Log_2 ratio to control) are presented. AC-heat acclimated, EX-exercise training under normothermic conditions, EXAC-combined heat acclimation and exercise training.

Gene Bank	Swissprot	Gene Name	AC	EX	EXAC
M26643	P15390	skeletal muscle sodium channel protein alpha subunit (SCN4A); MU-1	1.905	2.086	1.708
M57682	P27732; Q63491; Q62691; Q01542 O09022	voltage-dependent L-type calcium channel alpha 1D subunit (CACNA1D); L-type calcium channel alpha 1 polypeptide isoform 2 (CCHL1A2); rat brain class D (RBD); CACH3; CACN4	2.385	2.619	2.496
M88751	P54287	voltage-gated dihydropyridine-sensitive L-type calcium channel beta 3 subunit (CCHB3)	1.410	0.813	0.963
U53420	P70549	sodium/calcium exchanger NCX3	2.657	1.108	1.917
J03753	P11505	brain calcium-transporting plasma membrane type ATPase class 1 isoform (PMCA1AB); calcium pump	1.247	0.651	1.147
J04629	P13638	sodium/potassium-transporting ATPase beta 2 subunit (ATP1B2)	1.143	0.981	0.986
M30581; J05086	P18596	calcium-transporting sarcoplasmic reticulum type ATPase class 3 isoform (SERCA3; ATP2A3); endoplasmic reticulum class 3 Ca++ ATPase; calcium pump	1.136	1.224	1.439
U02534	Q62600	nitric oxide synthase 3 (NOS3); endothelial NOS (ENOS)	0.956	1.611	1.812
M63837	P20786	platelet-derived growth factor receptor alpha (PDGFR-alpha; PDGFRA)	1.476	1.205	1.260
D28498	P53767	vascular endothelial growth factor receptor 1 (VEGFR1); fms-related tyrosine kinase 1 (FLT1)	1.274	1.044	1.180
M37394	none	epidermal growth factor receptor (EGF receptor; EGFR)	1.582	1.723	1.324
U69278	O08680	rat embryo tyrosine-protein kinase 4 (REK4); ephrin type A receptor 3 (EPHA3)	1.411	1.326	1.240

U21954	P54759	Ehk 3; ephrin type-A receptor 7; tyrosine kinase (Eph-related); EphA7	1.985	2.456	2.616
M91590	P29067	beta-arrestin 2 (ARRB2)	1.119	0.964	1.665
X74227	P42335	inositol 1,4,5-triphosphate 3-kinase receptor 1	1.618	1.902	2.050
J04563	P14646	DPDE4; cAMP-dependent 3',5'-cyclic phosphodiesterase 4B	0.780	1.284	0.963
D84450	Q63377	Na,K-ATPase beta 3 subunit	1.284	1.176	
M18332	P09217	protein kinase C zeta (PKC-zeta; PKCZ)	0.755	0.801	
X68400	Q64617	PKC-eta; protein kinase C eta type		1.830	1.255
M63334	P13234	calcium/calmodulin-dependent protein kinase type IV (CAMK IV; catalytic chain);CAM kinase-GR		1.640	0.773
U34958	P54311	transducin beta-1 subunit; GTP-binding protein G(i)/G(s)/G(t) beta subunit 1		0.779	1.749
U27767	P49799	Rgs4; regulator of G-protein signaling 4 (RGP4)		1.344	3.468
U09457	P14270	cAMP-dependent 3',5'-cyclic phosphodiesterase 4D (PDE4D); DPDE3		1.891	2.870
M80633	P26770	adenylyl cyclase 4		1.893	1.874
L11586	Q64604	leukocyte common antigen-related tyrosine phosphatase (LAR)		2.432	2.954
M64373	P54282; Q01541	voltage-dependent P/Q-type calcium channel alpha-1A subunit (CACNA1A); L type calcium channel alpha-1 polypeptide isoform 4 (CACNL1A4; CACH4); brain calcium channel I; rat brain class A (RBA-1); CACN3	1.627		1.197
M59786 M34364	P22002 P27733; Q62816; Q63271;	voltage-dependent L-type calcium channel alpha 1C subunit (CACNA1); cardiac muscle L-type calcium channel alpha 1 polypeptide isoform 1 (CCHL1A1); rat brain class C (RBC); CACH2; CACN2	1.283		0.749

	Q64178				
M91589	P29066	beta-arrestin 1 (ARRB1)	1.307		1.772
U13396	Q62689	Janus tyrosine-protein kinase 2 (JAK2)	2.714		5.990
L35771	P48548	G protein-activated inward rectifier potassium channel 4 (GIRK4); inward rectifier potassium channel subfamily J member 5 (KCNJ5); heart KATP channel; KATP-1; cardiac inward rectifier (CIR); KIR3.4	1.38		
M92905	Q02294	calcium channel, alpha 1 beta	0.921		
J03754	P11506	sodium/potassium-transporting ATPase isoform 2 beta polypeptide 2 (Na+/K+ ATPase 2 beta 2; ATP2B2)	1.039		
X02341	P01283	vasoactive intestinal peptide	1.033		
V01228	P01257	calcitonin	1.168		
M26744	P20607	interleukin 6 (IL6)	1.617		
M31837	P15473	insulin-like growth factor binding protein 3 (IGF-binding protein 3; IGFBP3)	0.854		
J04022	P11507	calcium-transporting sarcoplasmic reticulum type ATPase class 2 isoform (SERCA2; ATP2A2); endoplasmic reticulum class 2 Ca++ ATPase; calcium pump		0.716	
L26986	P40146	adenylyl cyclase type VIII (ADCY8); ATP pyrophosphate lyase; Ca2+/calmodulin-activated adenylyl cyclase		2.183	
X61394	P54283	calcium channel, beta subunit, brain			4.237
M18330	P09215	protein kinase C delta type (PKC-delta; PRKCD; PKCD)			2.166
X07320	P13286	phosphorylase B kinase gamma subunit			4.884
M16112	P08413	calcium/calmodulin-dependent protein kinase type II beta subunit (CAM-kinase II beta; CAMK-II beta)			1.748
L23219	P43425	GTP-binding protein G(i)/G(s)/G(o) gamma 7 subunit (GNG7; GNGT7)			2.683

J03806	P10686	phospholipase C gamma 1 (PLC-gamma 1; PLCG1)			2.365
M99567	none	phospholipase C beta 3 (PLC-beta 3; PLCB3)			2.560
M80550	P26769	adenylyl cyclase type II			2.485
M55075	P21932	adenylyl cyclase (olfactive type) type III			2.411
M96159	Q04400	Adenylyl cyclase type V			1.225
M64092	P27775	cAMP-dependent protein kinase inhibitor 2 (PKI-beta; PKIB)			2.487

Table S2: Expression level of genes associated with carbohydrates and lipids metabolic pathways. Genes showing significant change in their expression levels (+ / - 0.7 Log_2 ratio to control) are presented. AC-heat acclimated, EX-exercise training under normothermic conditions, EXAC-combined heat acclimation and exercise training.

Sub category	Gene bank	Swissprot	Protein/gene	AC	EX	EXAC
Carbohydrate	X15546	P23739	Sucrase isomaltase	1.076	0.735	0.926
Carbohydrate	M86240	P19112; Q64594	Fructose-16-bisphosphatase, liver	0.772	1.012	0.913
Carbohydrate	M64797	P25114	Testis fructose-6-phosphate 2-kinase/fructose 2,6-biphosphate	0.809		0.797
Carbohydrate	L26010	Q10984	Galactoside 2-L- fucosyltransferase 2	0.781	0.817	
Carbohydrate	M10149	P00884; P70706	Fructose-bisphosphate aldolase B		0.810	
Carbohydrate	M12919	P05065	Fructose-bisphosphate aldolase A		0.740	
Carbohydrate	U25651	P47858	Muscle 6-phosphofructokinase (PFKM)		0.701	
Carbohydrate	X07467	P05370	Glucose-6-phosphate dehydrogenase			0.772
Carbohydrate	M17701	P04797; P09328	Glyceraldehyde 3-phosphate dehydrogenase (GAPDH)			0.834
Lipids	L09216	P54318	pancreatic lipase related protein 2 precursor; secretory glycoprotein GP-	1.070	0.942	0.757
Lipids	L26043	P43884	perilipin A/B (PERIA/PERIB); lipid droplet-associated proteins A/B	1.074	1.038	0.881
Lipids	U07683	Q09426	2-hydroxyacylsphingosine 1-beta-galactosyltransferase precursor	2.006	1.494	1.362
Lipids	M73714	P30839	aldehyde dehydrogenase 3, microsomal	1.164	1.808	1.738

Lipids	U17901	P54319	phospholipase A-2-activating protein (PLAP)	1.515	2.541	2.311
Lipids	M19967	P07150; Q64664	annexin I (ANX1) phospholipase A2 inhibitory protein	1.158	0.814	
Lipids	U90556	O08564	phosphatidate phosphohydrolase type 2		1.175	0.982
Lipids	M95591	Q02769	squalene synthetase, hepatic		1.283	1.198
Lipids	M38178	P22071	Hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase		3.176	2.289
Lipids	U03763	P51433	calcium-dependent phospholipase A2 precursor (PLA2)		0.786	0.929
Lipids	J05030	P15651	short chain acyl-CoA dehydrogenase precursor (SCAD; ACADS)	0.710	0.782	
Lipids	M34728	P11915; Q63383	nonspecific lipid-transfer protein precursor (NSL-TP);		0.745	
Lipids	D90109	P18163	long chain acyl-CoA synthetase 2 (LACS2); liver long chain fatty acid-CoA ligase (FACL2)		0.840	
Lipids	D88890	Q64559; O09041; O08652	cytosolic acyl-CoA thioester hydrolase (ACT); long chain acyl-CoA hydrolase (LACH1; ACH1		0.751	
Lipids	D37920	P52020	squalene monooxygenase; squalene epoxidase (SQLE; SE); ERG1		1.099	
Lipids	D63885	P70470	lysophospholipase		0.951	
Lipid	L22294	Q63065	Pyruvate dehydrogenase kinase kinase		0.887	
Lipids	U07798	P39878	phospholipase A2, group IIC		2.467	
Lipids	U76205	P97943	CD36 antigen			1.446
Lipids	U38376	P50393	phospholipase A2, group IVA (cytosolic, calcium-dependent)			1.239
Lipids	U11760	P46462	ATPase, transitional endoplasmic reticulum			0.749

Lipids	U89529	P97849	fatty acid transport protein			1.670
Lipids	M16235	P07867	triacylglycerol lipase precursor (hepatic)			1.354
Lipids	D10041	P33124	brain long-chain fatty acid-CoA ligase (LACS); acyl-CoA synthetase			0.994
Lipids	U62803	O35849	11-beta-hydroxysteroid dehydrogenase			1.944
Lipids	S81448	P24008	3-oxo-5-alpha-steroid 4-dehydrogenase 1 (SRD5A1);			0.740

Table S3: Expression level of genes associated with stress and cytoprotection. Genes showing significant change in their expression levels (+ / - 0.7 Log_2 ratio to control) are presented.

Subcategory	Gene bank	Swissprot	Protein/gene	AC	EX	EXAC
MAPKs	U37462	Q62862; Q62863; Q62864	MAP kinase kinase 5	2.473	2.277	2.493
MAPKs	L27112	P49186	c-Jun N-terminal kinase 2 (JNK2);		1.842	1.533
MAPKs	Z16415	Q01986	MAP kinase kinase 1; MAPKK1	1.197		
MAPKs	D14592	P36506	MAP kinase kinase 2; MAPKK2	1.222		
Pro Apoptotic	D00680	P23764	plasma glutathione peroxidase (GSHPX-P; GPX3); selenoprotein	2.073	1.755	1.769
Pro Apoptotic	AF003523	O35147	BCL2-associated death promoter (BAD)	0.811	1.695	1.216
Pro Apoptotic	U49729	Q63690 Q62995 Q64383	BCL2-associated X protein membrane isoform alpha (BAX-alpha)	1.194	1.397	1.088
Pro Apoptotic	D83697	P70678	activator of apoptosis harakiri (HRK); neuronal death protein 5 (DP5); BID3	1.702	1.204	1.821
Pro Apoptotic	X80477	P47824	P2X purinoceptor 1 (P2RX1; P2X1); ATP receptor; RP-2 protein	2.727	1.213	2.490
Pro Apoptotic	X05137	P07174	low-affinity nerve growth factor receptor (NGF receptor; NGFR)	2.312	1.715	1.707
Pro Apoptotic	U49930	P55213 P70543 Q62993 P97699	caspase 3 (CASP3); apopain; cysteine protease CPP32; YAMA protein; SREBP cleavage activity 1 (SCA1); IL1-beta-converting enzyme-like protein (LICE)	.	3.068	4.343
Pro Apoptotic	X13058	P10361	cellular tumor antigen p53 (TP53)	1.026		1.535

Pro Apoptotic	M63122	P22934	tumor necrosis factor receptor 1 (TNFR1)	0.870		
Pro Apoptotic	U03470	P36940	fas antigen ligand (FASL); apoptosis antigen ligand (APTL; APT1LG1); tumor necrosis factor superfamily member 6 (TNFSF6)	.	1.869	
Anti - Apoptotic	Z27118	Q63718	heat shock 70-kDa protein (HSP70)	1.151	1.702	0.959
Anti - Apoptotic	U72350	P53563 Q62678 P70613 P70614	BCL2-like protein 1 (BCL2L1); BCLX	1.161	1.211	1.395
Anti - Apoptotic	D83697	P70678	activator of apoptosis harakiri (HRK); neuronal death protein 5 (DP5); BID3	1.702	1.204	1.821
Anti - Apoptotic	U62326	P30904	macrophage migration inhibitory factor (MIF); glutathione-binding 13-kDa protein		0.880	0.892
Anti - Apoptotic	U06099	P35704	thioredoxin peroxidase 1 (TDPX1); thioredoxin-dependent peroxide reductase 1; thiol-specific antioxidant protein (TSA)	1.914		
Oxidation	Z27118	Q63718	heat shock 70-kDa protein (HSP70)	1.151	1.702	0.96
Oxidation	D00680	P23764	plasma glutathione peroxidase (GSHPX-P; GPX3); selenoprotein	2.073	1.754	1.768
Oxidation	M18335	P05179	cytochrome P450 2C7 (CYP2C7); P450F; PTF1	2.703	1.862	2.134
Oxidation	M33936	P20817	cytochrome P450 4A3 (CYP4A3); lauric acid omega-hydroxylase; P450-LA-omega 3	2.773	2.208	2.95
Oxidation	M37828	P24464	cytochrome P450 IVA8 (CYP4A8); P450-KP1; P450-PP1	1.707	1.618	1.603
Oxidation	U73174	P70619	glutathione reductase (GRase; GSR; GR)	1.428	1.476	1.066
Oxidation	X00469	P00185	cytochrome P450 IA1 (CYPIA1); 3-methylcholanthrene-inducible cytochrome P450 (P450MC)	2.254	2.196	
Oxidation	J02627	P05182	cytochrome P450 2E1 (CYP2E1); P450-J; P450RLM6	1.496	1.228	
Oxidation	J02852	P20812	cytochrome P450 2A3 (CYP2A3); coumarin 7-hydroxylase	3.4	3.393	
Oxidation	M94548	P33274	cytochrome P450 IVF1 (CYP4F1); P450-A3	1.09	1.013	
Oxidation	U39206	P51869	cytochrome P-450 4F4	0.939	1.062	

Oxidation	U39207	P51870	cytochrome P450 4F5	1.965	1.297	
Oxidation	J02669	P11711	cytochrome P450 IIA1 (CYP2A1); 3-methylcholanthrene-inducible cytochrome P450; testosterone 7-alpha-hydroxylase	3.043	1.791	
Oxidation	M29853	P15129	cytochrome P450 4B1 (CYP4B1); P450-isozyme 5		0.8747	1.129
Oxidation	J02657	P08683 Q63141 Q64554	cytochrome P450 IIC11 (CYP2C11); P450(M-1); P450H; P450-UT-A; UT2		2.41	1.738
Oxidation	M58041	P19225	cytochrome P450 IIC22 (CYP2C22); P450 MD; P450 P49		2.720	2.522
Oxidation	X67654	Q01579	gluthathione S-transferase subunit 5 theta (GST5-5)	1.857		1.662
Oxidation	X02904	P04906	glutathione S-transferase P subunit; GST subunit 7 pi (GST7-7)	0.911		0.796
Oxidation	J05460	P18125 P51543	cytochrome P450 VII (CYP7); cholesterol 7-alpha-monooxygenase; cholesterol 7-alpha-hydroxylase	2.502		2.945
Oxidation	U17697	Q64654 Q64549	cytochrome P450 51 (CYP51); CYPL1; P450-14 DM; sterol 14-alpha demethylase; lanosterol 14-alpha demethylase (LDM)	0.955		1.266
Oxidation	U09540	Q64678	P450 IB1 (CYP1B1); C3H cytochrome P450	0.992		
Oxidation	J05460	P18125; P51543	cytochrome P450 VII (CYP7);	2.502		
Oxidation	M10161	P04800 Q64580	cytochrome P450 IIIA1 (CYP3A1); P450-PCN1		1.36	
Oxidation	U60085	P51538 Q64631 Q64557	olfactory cytochrome P450 IIIA9 (CYP3A9)		0.811	
Oxidation	X15030	P11240	cytochrome c oxidase, subunit Va, mitochondrial		0.809	
Oxidation	U39943	P51590	cytochrome P-450 2J3		2.077	
Oxidation	U60085	P51538; Q64631; Q64557	cytochrome P-450 3A9, olfactory		0.811	
Oxidation	S79304	P05503	cytochrome oxidase, subunit I			0.763