SUPPLEMENTAL MATERIAL

Supplemental Table 1. Description of myocardial gene expression datasets. Sample accession numbers and clinical characteristics, as listed in Gene Expression Omnibus (GEO), are given.

manuscript ID	GEO accession	Species	comparison	microarray	normalization
1	GSE1145	human	non-failing (n=14) vs. ICM+NICM (n=80)	Affymetrix	RMA
2	GSE3586	human	non-failing (n=15) vs. NICM (n=13)	cDNA, 37K	VSN
3	GSE5406	human	non-failing (n=16) vs. ICM+NICM (n=194)	Affymetrix	RMA
4	GSE9800	human	non-failing (n=11) vs. ICM+NICM (n=19)	Agilent	Lowess
5	GSE10161	human	non-failing (n=7) vs. aortic stenosis (n=20)	Affymetrix	MAS5.0
6	GSE21610	human	non-failing (n=8) vs. heart failure, pre-LVAD implantation (n=30)	Affymetrix	MAS5.0
7	GSE3530	mouse	wild-type (n=3) vs. MKK7D transgenic (n=6)	Affymetrix	MAS5.0
8	GSE3530	mouse	wild-type (n=6) vs. MKK3bE transgenic (n=5)	Affymetrix	MAS5.0
9	GSE8000	mouse	wild-type (n=8) vs. LMNA TG (n=6)	Affymetrix	MAS5.0
10	GSE11887	mouse	wild-type (n=6) vs. AC5-beta1-adrenergic receptor overexpressing transgenic mice (n=6)	Affymetrix	RMA
11	GSE12413	mouse	FVB-non-failing (n=10) vs. FVB-ISO-heart failure (n=12)	Affymetrix	MAS5.0
12	GSE6970	mouse	non-failing (n=8) vs. transverse aortic constriction (n=8)	Affymetrix	MAS5.0
13	GSE16909	mouse	wild-type (n=11), EP4-knock-out (n=6)	Illumina	quantile
14	GSE17363	mouse	control (n=4) vs. chagasic hearts (n=4)	Operon 30k	in-house algorithm
15	GSE14327	dog	non-failing (n=11) vs. heart failure (n=10)	Agilent	quantile
16	GSE5247	dog	non-failing (n=4) vs. heart failure (n=8)	Affymetrix	MAS5.0
17	GSE9794	dog	non-failing (n=3) vs. heart failure (n=12)	Affymetrix	MAS5.0
18	GSE11015	dog	non-failing (n=3) vs. heart failure (n=3)	Affymetrix	MAS5.0
19	GSE20665	dog	non-failing atrium (n=11) vs. heart failure atrium (n=7)	Agilent	quantile
20	GSE14338	dog	biventricular pacing HF (n=5) vs. dyssynchronous HF (n=5)	Agilent	quantile
21	GSE21021	rat	control (n=6) vs. coronary ligation (n=6)	Illumina	quantile
22	GSE17050	rat	control (n=5) vs. chronic aortic regurgitation (n=5)	Illumina	quantile
23	GSE4963	rat	non-failing (n=4) vs. heart failure (n=10)	Operon	Lowess
24	GSE4963	rat	non-failing (n=4) vs. heart failure+DITPA (n=6)	Operon	Lowess

manuscript ID (continued)	GEO accession	Species	comparison	microarray	normalization
25	GSE6104	rat	RV PE 2h (n=5) vs. RV PE 18h (n=5)	Affymetrix	RMA
26	GSE6104	rat	RV 6h vehicle control (n=5) vs. RV PE 6h (n=5)	Affymetrix	RMA
27	GSE6104	rat	RV 18h vehicle control (n=5) vs. RV PE 18h (n=5)	Affymetrix	RMA
28	GSE11851	rat	vehicle ctrl. RVOT 6wks. (n=5) vs. RVOT PE 6wks. (n=5)	Affymetrix	RMA
29	GSE2051, 2061, 2062	human	adult (n=7) vs. fetal (n=11)	Agilent	Lowess
30	GSE1145	human	OXPHOS high (n=10) vs. OXPHOS low (n=10)	Affymetrix	RMA
31	GSE5406	human	OXPHOS high (n=10) vs. OXPHOS low (n=10)	Affymetrix	RMA
32	GSE2240	human	ventricle (n = 5) vs. atria (n=30)	Affymetrix	RMA
33	GSE14327, 20665	dog	ventricle (n = 58) vs. atria (n=18)	Agilent	quantile
34	mousedevelopment.org	mouse	ventricle (n = 3) vs. atria (n=3)	cDNA	dye-bias
35	GSE12758	rat	ventricle (n=6) vs. atria (n=6)	Affymetrix	RMA
36	GSE13614	mouse	working (n=12) vs. AV-node myocardium (n=12)	Affymetrix	RMA
37	GSE11851	rat	RV apex PE 6wks. (n=5) vs. RVOT PE 6wks. (n=5)	Affymetrix	RMA
38	GSE6880	rat	control (n=3) vs. diabetes (n=3)	Affymetrix	MAS5.0
39	GSE19290	rat	control (n=6) vs. colchicine (n=6)	Affymetrix	RMA
40	GSE21023	rat	control (n=7) vs. octaonate fatty acid (n=7)	Illumina	quantile
41	GSE21640	rat	control (n=6) vs. DEHP (n=6)	Affymetrix	RMA
42	GSE4386	human	pre- and post-CABG paired samples (n=20)	Affymetrix	MAS5.0
43	GSE14970	human	acyanotic (n=5) vs. cyanotic (n=7)	Affymetrix	MAS5.0
44	GSE2240	human	sinus rhythm (n=20) vs. permanent atrial fibrillation (n=10)	Affymetrix	RMA
45	GSE9377	human	acute rejection, stage 0-1A (n=14) vs. stage 3A+3B (n=8)	Agilent	dye-bias
46	GSE4989	zebrafish	control (n=5) vs. hypoxia (n=5)	Affymetrix	RMA
47	GSE21096	pig	control (n=5) vs. ischemia/reperfusion (n=5)	Affymetrix	RMA
48	GSE21096	pig	control (n=5) vs. repeated coronary stenosis (n=5)	Affymetrix	RMA

ICM = ischemic cardiomyopathy, **NICM =** non-ischemic cardiomyopathy, **HF=** heart failure, **FVB =** nouse strain, **MKK7D and MKK3bE** are MAPK genes; **LMNA =** lamin A, **DITPA =** Thyroid Hormone Analog, **RVOT =** right ventricular outflow tract, **PE =** experimental pulmonary embolism with 2.0 x 10 million microspheres; **RV =** right ventricle, **RMA =** robust multi-array average, **VSN =** variance-stabilizing normalization, **DEHP =** Di-(2-ethyl hexyl) phthalate

Supplemental Table 2. Phenotypic information for dataset #3 (GSE5406)

GEO-ID	sex	race	age	CABG	duration	DM	inotropes	ACE-I	BB	IABP	EF
Idiopathic1	Female	N/A	51	no	60	no	yes	no	no	no	7.5
Idiopathic10	Male	C	43	no	9	no	yes	yes	no	no	7.5
Idiopathic11	Male	AA	39	no	30	no	yes	no	no	no	5
Idiopathic12	Male	C	67	no	N/A	no	yes	yes	no	no	12.5
Idiopathic13	Male	AA	46	no	12	no	yes	yes	yes	no	10
Idiopathic14	Male	C	66	no	60	yes	yes	no	no	no	12.5
Idiopathic15	Female	C	64	no	33	no	yes	yes	no	no	12.5
Idiopathic16	Male	C	N/A	no	26	no	no	no	no	no	N/A
Idiopathic17	Male	C	58	no	15	yes	yes	no	no	no	17.5
Idiopathic18	Male	AA	43	no	36	no	yes	no	no	no	7.5
Idiopathic19	Male	C	57	yes	129	yes	yes	no	no	no	N/A
Idiopathic2	Male	N/A	46	no	83	no	yes	yes	no	no	5
Idiopathic20	Male	AA	41	no	4	no	yes	yes	no	no	7.5
Idiopathic21	Female	C	31	no	35	no	yes	yes	no	no	12.5
Idiopathic22	Female	C	59	no	24	no	yes	yes	no	no	N/A
Idiopathic23	Female	C	64	no	66	no	yes	yes	no	no	7.5
Idiopathic24	Female	C	60	no	84	yes	yes	no	no	yes	7.5
Idiopathic25	Female	C	61	no	69	yes	yes	yes	yes	no	10
Idiopathic26	Male	AA	54	no	183	yes	yes	no	no	no	5
Idiopathic27	Male	C	59	no	48	no	yes	no	no	yes	7.5
Idiopathic28	Male	C	54	no	101	no	yes	yes	no	no	7.5
Idiopathic29	Male	AA	54	no	6	no	yes	yes	yes	no	7.5
Idiopathic3	Female	AA	56	no	72	no	yes	no	no	no	7.5
Idiopathic30	Female	H	53	no	N/A	no	yes	yes	no	no	7.5
Idiopathic31	Female	C	51	no	67	no	yes	yes	no	yes	N/A
Idiopathic32	Male	C	38	no	58	no	yes	yes	no	yes	10
Idiopathic33	Male	C	28	no	25	no	yes	yes	no	no	7.5
Idiopathic34	Female	AA	51	no	28	no	yes	yes	no	no	12.5
Idiopathic35	Male	C	63	no	21	yes	no	yes	yes	no	22.5
Idiopathic36	Male	C	25	no	17	no	yes	yes	no	no	7.5
Idiopathic37	Male	AA	54	no	96	no	yes	yes	no	no	N/A
Idiopathic38	Female	AA	42	no	66	no	yes	yes	no	no	7.5
Idiopathic39	Male	C	53	no	96	no	no	yes	yes	no	7.5
Idiopathic4	Female	AA	52	no	144	no	yes	yes	no	no	22.5
Idiopathic4	Male	C	48	no	85	no	yes	yes	no	no	7.5
Idiopathic41	Male	C	19	no	24	no	yes	yes	yes	no	20
Idiopathic42	Male	C	16	no	30	no	yes	yes	no	no	7.5
Idiopathic43	Male	AA	51	no	6	no	yes	yes	yes	no	15
Idiopathic44	Male	N/A	34	no	96	no	yes	yes	yes	no	7.5
Idiopathic45	Male	H	54	no	11	yes	yes	no	no	no	12.5
Idiopathic46	Female	C	37	no	108	no	yes	yes	yes	no	30
Idiopathic47	Female	C	65	no	22	no	yes	yes	yes	no	10
Idiopathic48	Female	AA	54	no	120	no	no	yes	no	no	17.5
Idiopathic49	Male	AA	37	no	24	no	yes	no	no	yes	10
Idiopathic5	Male	C	58	no	54	no	yes	yes	no	no	25
Idiopathic50	Male	C	55	no	32	no	yes	yes	yes	no	7.5
Idiopathic51	Male	C	18	no	4	no	yes	yes	no	no	7.5

GEO-ID (continued)	sex	race	age	CABG	duration	DM	inotropes	ACE-I	BB	IABP	EF
Idiopathic52	Male	C	44	no	33	no	yes	yes	no	no	12.5
Idiopathic53	Male	AA	49	no	12	no	yes	no	no	no	5
Idiopathic54	Male	C	63	no	56	no	yes	no	no	no	5
Idiopathic55	Male	C	61	no	120	no	yes	yes	no	no	12.5
Idiopathic56	Male	C	44	no	43	no	yes	yes	no	no	17.5
Idiopathic57	Male	C	66	no	78	no	yes	yes	yes	no	12.5
Idiopathic58	Male	C	51	no	37	no	yes	yes	no	no	5
Idiopathic59	Male	C	67	no	220	no	yes	yes	yes	no	12.5
Idiopathic6	Female	C	69	no	91	yes	yes	yes	no	yes	7.5
Idiopathic60	Male	AA	46	no	8	no	no	no	no	no	20
Idiopathic61	Female	AA	28	no	49	no	yes	yes	yes	no	7.5
Idiopathic62	Male	C	66	no	120	no	yes	yes	no	no	20
Idiopathic63	Male	C	64	no	131	no	yes	yes	no	no	12.5
Idiopathic64	Male	C	47	no	34	no	yes	yes	no	no	17.5
Idiopathic65	Female	AA	47	no	88	no	no	yes	yes	no	17.5
Idiopathic66	Male	C	57	no	60	no	yes	yes	no	yes	7.5
Idiopathic67	Male	AA	36	no	4	no	yes	yes	no	yes	7.5
Idiopathic68	Female	AA	39	no	96	yes	yes	no	no	no	5
Idiopathic69	Male	C	49	no	126	no	yes	no	no	no	12.5
Idiopathic7	Male	C	29	no	55	yes	yes	yes	no	no	12.5
Idiopathic70	Female	C	58	no	72	no	yes	yes	no	no	12.5
Idiopathic71	Male	AA	56	no	108	no	yes	yes	yes	no	12.5
Idiopathic72	Male	C	57	no	72	no	yes	no	no	no	12.5
Idiopathic73	Male	AA	44	no	12	no	yes	yes	no	no	7.5
Idiopathic74	Male	AA	57	no	64	no	yes	yes	no	no	25
Idiopathic75	Male	C	66	no	1010	no	yes	yes	no	no	17.5
Idiopathic76	Male	C	53	no	60	no	yes	yes	no	no	10
Idiopathic77	Male	C	63	no	7	no	yes	yes	no	no	7.5
Idiopathic78	Female	AA	48	no	37	no	yes	no	no	no	7.5
Idiopathic79	Female	C	52	no	156	no	yes	yes	no	no	7.5
Idiopathic8	Male	C	23	no	11	no	yes	yes	no	no	7.5
Idiopathic80	Female	AA	63	no	120	yes	yes	yes	yes	no	17.5
Idiopathic81	Male	C	49	no	110	no	yes	yes	no	no	22.5
Idiopathic82	Male	C	32	no	42	no	yes	yes	yes	no	12.5
Idiopathic83	Male	C	71	no	132	no	yes	no	no	no	7.5
Idiopathic84	Female	C	53	no	6	yes	yes	yes	no	no	10
Idiopathic85	Male	AA	63	no	50	no	yes	yes	no	no	7.5
Idiopathic86	Female	C	54	no	41	yes	no	no	no	no	12.5
Idiopathic9	Male	AA	27	no	21	no	yes	yes	no	no	N/A
Ischemic1	Male	N/A	62	yes	36	yes	yes	yes	no	no	12
Ischemic10	Male	AA	62	no	43	no	yes	no	no	no	12.5
Ischemic100	Male	C	60	no	N/A	no	yes	yes	no	no	17.5
Ischemic101	Female	C	45	yes	N/A	no	yes	yes	yes	no	15
Ischemic102	Male	C	66	yes	N/A	no	yes	yes	yes	no	12.5
Ischemic103	Male	H	57	no	54	yes	yes	yes	no	no	32.5
Ischemic104	Female	C	64	yes	15	yes	yes	no	yes	no	40
Ischemic105	Male	C	60	yes	4	no	yes	no	no	no	7.5
Ischemic106	Female	C	61	no	108	yes	yes	yes	yes	no	7.5

GEO-ID (continued)	sex	race	age	CABG	duration	DM	inotropes	ACE-I	BB	IABP	EF
Ischemic107	Male	AA	58	no	N/A	no	no	no	no	no	7.5
Ischemic108	Male	C	65	yes	19	yes	yes	yes	yes	no	7.5
Ischemic11	Male	C	64	yes	20	no	yes	yes	no	no	12.5
Ischemic12	Female	C	59	yes	N/A	yes	yes	yes	no	yes	5
Ischemic13	Male	AA	45	no	N/A	no	yes	yes	no	no	10
Ischemic14	Male	C	62	yes	N/A	no	no	yes	yes	no	17.5
Ischemic15	Male	C	68	no	60	no	yes	yes	yes	no	7.5
Ischemic16	Male	C	63	yes	24	no	yes	yes	yes	no	25
Ischemic17	Male	AA	58	yes	15	yes	yes	yes	yes	no	7.5
Ischemic18	Male	C	62	yes	11	yes	no	yes	yes	no	32.5
Ischemic19	Male	C	58	yes	63	no	no	yes	yes	no	10
Ischemic2	Male	N/A	62	no	N/A	no	yes	yes	no	no	17.5
Ischemic20	Male	C	55	yes	22	no	no	yes	yes	no	12.5
Ischemic21	Male	C	63	yes	10	yes	yes	yes	yes	no	N/A
Ischemic22	Male	C	64	yes	28	no	yes	no	no	yes	10
Ischemic23	Male	AA	62	no	96	no	yes	yes	yes	no	7.5
Ischemic24	Male	C	54	yes	28	yes	yes	yes	no	no	12.5
Ischemic25	Male	C	65	no	48	no	yes	yes	no	no	5
Ischemic26	Female	C	68	yes	8	yes	yes	yes	yes	no	12.5
Ischemic27	Female	C	47	yes	N/A	yes	no	no	yes	no	32.5
Ischemic28	Male	AA	60	yes	N/A	yes	yes	no	no	no	30
Ischemic29	Male	C	58	yes	3	no	no	no	yes	no	10
Ischemic3	Male	C	61	yes	N/A	yes	yes	no	no	no	10
Ischemic30	Male	C	68	yes	22	no	yes	yes	yes	no	12.5
Ischemic31	Male	C	59	yes	36	no	yes	no	yes	no	12.5
Ischemic32	Male	C	66	yes	68	no	yes	yes	no	no	7.5
Ischemic33	Male	AA	63	yes	41	yes	yes	no	yes	yes	12.5
Ischemic34	Male	C	56	no	N/A	yes	yes	yes	no	yes	12.5
Ischemic35	Female	C	65	no	1	yes	yes	no	no	yes	17.5
Ischemic36	Male	C	68	yes	90	no	yes	no	no	no	7.5
Ischemic37	Male	C	63	yes	3	no	yes	no	no	no	5
Ischemic38	Male	AA	62	no	60	no	yes	no	no	no	N/A
Ischemic39	Male	C	47	no	1	no	yes	yes	no	yes	10
Ischemic4	Male	AA	65	yes	1	no	yes	yes	yes	no	7.5
Ischemic40	Male	N/A	49	no	1	no	yes	yes	yes	yes	7.5
Ischemic41	Male	C	37	yes	N/A	no	yes	no	no	yes	5
Ischemic42	Male	C	63	no	9	yes	yes	yes	no	yes	5
Ischemic43	Male	C	67	yes	4	no	yes	yes	no	no	22.5
Ischemic44	Male	C	27	yes	13	no	yes	yes	no	no	22.5
Ischemic45	Male	AA	61	no	18	no	yes	yes	yes	no	7.5
Ischemic46	Male	C	68	yes	N/A	no	yes	yes	yes	no	7.5
Ischemic47	Male	C	64	no	175	no	yes	yes	no	no	N/A
Ischemic48	Male	C	67	no	16	yes	yes	yes	no	no	7.5
Ischemic49	Male	C	59	no	9	no	yes	yes	yes	no	20
Ischemic5	Male	C	57	no	5	yes	yes	no	yes	no	15
Ischemic50	Male	AA	56	no	212	yes	yes	yes	no	no	17.5
Ischemic51	Male	C	63	yes	2	yes	yes	yes	no	yes	5
Ischemic52	Male	C	53	no	17	no	yes	yes	no	no	10

GEO-ID (continued)	sex	race	age	CABG	duration	DM	inotropes	ACE-I	BB	IABP	EF
Ischemic53	Male	C	56	yes	17	yes	yes	yes	yes	no	17.5
Ischemic54	Male	C	62	yes	5	no	yes	no	no	no	5
Ischemic55	Male	AA	58	yes	37	no	yes	yes	no	no	25
Ischemic56	Male	C	64	no	7	no	yes	yes	no	no	10
Ischemic57	Male	C	41	no	96	no	yes	no	yes	no	17.5
Ischemic58	Male	C	62	yes	144	yes	yes	no	no	no	12.5
Ischemic59	Male	C	59	no	28	no	yes	yes	no	no	20
Ischemic6	Male	C	52	no	32	yes	yes	yes	no	no	12.5
Ischemic60	Male	C	51	yes	9	no	yes	yes	no	no	12.5
Ischemic61	Male	C	54	yes	4	yes	yes	yes	yes	no	15
Ischemic62	Male	C	62	yes	6	no	yes	yes	yes	yes	32.5
Ischemic63	Female	C	65	yes	1	no	yes	yes	yes	no	25
Ischemic64	Male	C	53	no	9	no	yes	yes	no	no	7.5
Ischemic65	Male	AA	59	yes	8	no	yes	yes	no	no	20
Ischemic66	Male	C	29	yes	18	yes	no	no	yes	no	25
Ischemic67	Male	C	61	yes	26	yes	yes	yes	no	no	15
Ischemic68	Male	C	46	yes	5	no	yes	yes	yes	no	17.5
Ischemic69	Male	C	66	no	37	no	yes	yes	yes	yes	7.5
Ischemic7	Male	H	57	yes	56	no	yes	yes	yes	no	7.5
Ischemic70	Male	C	65	no	54	no	yes	yes	yes	no	15
Ischemic71	Male	C	58	yes	7	no	yes	yes	no	no	17.5
Ischemic72	Male	C	60	yes	N/A	no	yes	no	yes	no	52.5
Ischemic73	Male	C	60	yes	168	no	yes	yes	yes	no	15
Ischemic74	Male	C	50	yes	N/A	no	yes	no	yes	no	57.5
Ischemic75	Male	C	65	yes	80	no	yes	yes	no	no	15
Ischemic76	Female	C	42	no	40	yes	no	yes	no	no	32.5
Ischemic77	Male	C	52	yes	61	yes	yes	yes	no	no	17.5
Ischemic78	Male	C	62	yes	4	yes	yes	yes	yes	no	7.5
Ischemic79	Male	N/A	60	no	27	no	yes	yes	yes	no	17.5
Ischemic8	Male	AA	61	no	N/A	no	yes	yes	no	no	10
Ischemic80	Male	C	64	no	5	no	yes	yes	no	no	12.5
Ischemic81	Male	C	66	yes	46	no	yes	yes	yes	no	12.5
Ischemic82	Male	C	60	no	2	no	no	yes	no	no	12.5
Ischemic83	Male	C	54	yes	5	no	yes	no	yes	no	20
Ischemic84	Female	C	42	no	14	yes	yes	no	yes	no	25
Ischemic85	Male	C	58	yes	1	no	yes	no	no	yes	N/A
Ischemic86	Female	C	16	no	1	no	no	no	no	no	N/A
Ischemic87	Male	C	64	yes	10	yes	no	no	no	no	10
Ischemic88	Female	C	63	no	2	no	yes	yes	no	yes	22.5
Ischemic89	Male	C	58	no	1	no	yes	yes	no	no	30
Ischemic9	Male	AA	58	no	66	no	yes	yes	no	yes	12.5
Ischemic90	Female	C	61	no	N/A	yes	no	no	no	no	12.5
Ischemic91	Female	C	55	yes	N/A	no	yes	yes	yes	no	20
Ischemic92	Male	C	56	no	72	yes	yes	yes	no	no	7.5
Ischemic93	Male	C	59	yes	20	no	no	yes	no	no	12.5
Ischemic94	Male	C	53	no	43	no	no	yes	no	no	12.5
Ischemic95	Male	C	62	yes	N/A	no	no	yes	yes	no	12.5
Ischemic96	Male	C	62	yes	30	yes	yes	yes	no	no	10

GEO-ID (continued)	sex	race	age	CABG	duration	DM	inotropes	ACE-I	BB	IABP	EF
Ischemic97	Male	C	58	yes	N/A	yes	no	yes	no	no	27.5
Ischemic98	Female	C	41	no	1	no	no	yes	yes	yes	5
Ischemic99	Male	C	69	yes	12	no	yes	yes	no	no	20
NonFailing1	Female	N/A	60	no	N/A	yes	yes	yes	no	no	55
NonFailing11	Female	N/A	41	no	N/A	no	no	no	yes	no	N/A
NonFailing12	Male	C	55	no	N/A	yes	no	no	no	no	45
NonFailing13	Female	N/A	59	no	N/A	no	yes	no	no	no	60
NonFailing14	Male	N/A	44	no	N/A	no	no	no	no	no	N/A
NonFailing15	Female	N/A	63	no	N/A	no	yes	no	yes	no	65
NonFailing16	Male	C	27	no	N/A	no	no	no	no	no	60
NonFailing2	Female	N/A	59	no	N/A	no	yes	no	no	no	N/A
NonFailing3	Female	N/A	62	no	N/A	no	no	no	no	no	45
NonFailing4	Male	N/A	65	no	N/A	yes	no	no	no	no	57.5
NonFailing5	Female	N/A	64	no	N/A	yes	no	no	no	no	55
NonFailing6	Male	N/A	66	no	N/A	no	no	no	no	no	60
NonFailing7	Female	N/A	58	no	N/A	no	no	no	yes	no	60
NonFailing8	Male	N/A	62	no	N/A	no	yes	no	yes	no	50
NonFailing9	Female	N/A	57	no	N/A	no	no	no	no	no	N/A
NonFailing10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

GEO-ID = sample ID in Gene Expression Omnibus; **CABG =** coronary artery bypass graft; **DM** = diabetes mellitus; **ACE-I =** ACE-inhibitor; **BB** = beta-blocker; **IABP** = intra-aortic ballon-pump. **EF** = ejection fraction.

Supplemental Table 3. Transcripts consistently regulated in at least 5 of 10 studies in human, dog, mouse and rat HF microarray datasets

UPREGULATED	UPREGULATED	UPREGULATED
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
ACOT9	acyl-CoA thioesterase 9	5
ACTN1	actinin, alpha 1	6
ACTR3	ARP3 actin-related protein 3 homolog (yeast)	5
ADFP	adipose differentiation-related protein	5
AKAP13	A kinase (PRKA) anchor protein 13	5
ANXA1	annexin A1	5
ANXA2	annexin A2	6
ANXA5	annexin A5	5
ANXA7	annexin A7	5
ARHGDIB	Rho GDP dissociation inhibitor (GDI) beta	6
ARPC3	similar to actin related protein 2/3 complex subunit 3; hypothetical LOC729841; actin related protein 2/3 complex, subunit 3, 21kDa	6
ARPC5	actin related protein 2/3 complex, subunit 5, 16kDa	5
ASPN	asporin	5
ATP1B3	ATPase, Na+/K+ transporting, beta 3 polypeptide	6
BMP2K	BMP2 inducible kinase	5
BTG3	BTG family, member 3	6
CAB39	calcium binding protein 39	5
CAP1	CAP, adenylate cyclase-associated protein 1 (yeast)	5
CAPG	capping protein (actin filament), gelsolin-like	5
CARHSP1	calcium regulated heat stable protein 1, 24kDa	5
CARS	cysteinyl-tRNA synthetase	5
CASP3	caspase 3, apoptosis-related cysteine peptidase	5
CCL2	chemokine (C-C motif) ligand 2	6
CD44	CD44 molecule (Indian blood group)	8
CDC42SE1	CDC42 small effector 1	5
CDR2	cerebellar degeneration-related protein 2, 62kDa	5
CKAP4	cytoskeleton-associated protein 4	5
COL16A1	collagen, type XVI, alpha 1	5
COL1A2	collagen, type I, alpha 2	5
COL4A1	collagen, type IV, alpha 1	7
COL4A2	collagen, type IV, alpha 2	6
COL5A1	collagen, type V, alpha 1	5
COL5A2	collagen, type V, alpha 2	5
COL6A3	collagen, type VI, alpha 3	5
CP	ceruloplasmin (ferroxidase)	5
CSF1R	colony stimulating factor 1 receptor	5
CSNK1D	casein kinase 1, delta	7
CTGF	connective tissue growth factor	7
CTSK	cathepsin K	5
CTSS	cathepsin S	5

UPREGULATED continued	UPREGULATED continued	UPREGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
CTSZ	cathepsin Z	5
CTTN	cortactin	6
CYBB	cytochrome b-245, beta polypeptide	5
DBN1	drebrin 1	5
DNAJC3	DnaJ (Hsp40) homolog, subfamily C, member 3	5
DUSP27	dual specificity phosphatase 27 (putative)	5
DUSP6	dual specificity phosphatase 6	6
DYNC1LI2	dynein, cytoplasmic 1, light intermediate chain 2	5
EDEM1	ER degradation enhancer, mannosidase alpha-like 1	5
EIF4G3	eukaryotic translation initiation factor 4 gamma, 3	5
EMP1	epithelial membrane protein 1	5
ENG	endoglin	5
EPS15	epidermal growth factor receptor pathway substrate 15	5
FBN1	fibrillin 1	5
FGL2	fibrinogen-like 2	5
FHL1	four and a half LIM domains 1	6
FN1	fibronectin 1	6
GBA	glucosidase, beta; acid (includes glucosylceramidase)	5
GNAI2	guanine nucleotide binding protein (G protein), alpha inhibiting activity polypeptide 2	5
GPX1	glutathione peroxidase 1	5
HEBP1	heme binding protein 1	5
HN1	hematological and neurological expressed 1	7
HSP90AA1	heat shock protein 90kDa alpha (cytosolic), class A member 2; heat shock protein 90kDa alpha (cytosolic), class A member 1	5
HSPB1	heat shock 27kDa protein-like 2 pseudogene; heat shock 27kDa protein 1	5
ICAM1	intercellular adhesion molecule 1	5
IGFBP7	insulin-like growth factor binding protein 7	5
IL13RA1	interleukin 13 receptor, alpha 1	5
ITGA5	integrin, alpha 5 (fibronectin receptor, alpha polypeptide)	5
ITGAV	integrin, alpha V (vitronectin receptor, alpha polypeptide, antigen CD51)	5
LAMA4	laminin, alpha 4	7
LAMC1	laminin, gamma 1 (formerly LAMB2)	5
LAMP2	lysosomal-associated membrane protein 2	6
LCP1	lymphocyte cytosolic protein 1 (L-plastin)	5
LITAF	lipopolysaccharide-induced TNF factor	6
LMNA	lamin A/C	6
LOXL2	lysyl oxidase-like 2	6
LXN	latexin	6
LYN	v-yes-1 Yamaguchi sarcoma viral related oncogene homolog	5
MAP2K3	mitogen-activated protein kinase kinase 3	5

UPREGULATED continued	UPREGULATED continued	UPREGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
MFAP4	microfibrillar-associated protein 4	5
MGP	matrix Gla protein	5
MMP14	matrix metallopeptidase 14 (membrane-inserted)	5
MOBKL1B	MOB1, Mps One Binder kinase activator-like 1B (yeast)	5
MSN	moesin	5
MTAP	methylthioadenosine phosphorylase	5
MTPN	myotrophin; leucine zipper protein 6	5
MVP	major vault protein	6
MYH10	myosin, heavy chain 10, non-muscle	5
NCL	nucleolin	5
NFKBIE	nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, epsilon	5
NRAP	nebulin-related anchoring protein	5
PABPC1	poly(A) binding protein, cytoplasmic pseudogene 5; poly(A) binding protein, cytoplasmic 1	5
PDLIM5	PDZ and LIM domain 5	5
PFKP	phosphofructokinase, platelet	6
PLAUR	plasminogen activator, urokinase receptor	5
PLD3	phospholipase D family, member 3	5
PLP2	proteolipid protein 2 (colonic epithelium-enriched)	6
POSTN	periostin, osteoblast specific factor	6
PPIB	peptidylprolyl isomerase B (cyclophilin B)	5
PRSS23	protease, serine, 23	5
PSMB8	proteasome (prosome, macropain) subunit, beta type, 8 (large multifunctional peptidase 7)	5
RAB23	RAB23, member RAS oncogene family	5
RBM9	RNA binding motif protein 9	5
RHOC	ras homolog gene family, member C	6
RRAS2	related RAS viral (r-ras) oncogene homolog 2; similar to related RAS viral (r-ras) oncogene homolog 2	5
S100A11	S100 calcium binding protein A11; S100 calcium binding protein A11 pseudogene	5
SDC2	syndecan 2	5
SEC61A1	Sec61 alpha 1 subunit (S. cerevisiae)	6
SEL1L	sel-1 suppressor of lin-12-like (C. elegans)	5
SERPINE1	serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1	5
SERPINF1	serpin peptidase inhibitor, clade F (alpha-2 antiplasmin, pigment epithelium derived factor), member 1	5
SLC16A3	solute carrier family 16, member 3 (monocarboxylic acid transporter 4)	5
SLC2A1	solute carrier family 2 (facilitated glucose transporter), member 1	5
SLC6A6	solute carrier family 6 (neurotransmitter transporter, taurine), member 6	5

UPREGULATED continued	UPREGULATED continued	UPREGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
SMARCA5	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 5	5
SPARC	secreted protein, acidic, cysteine-rich (osteonectin)	5
SPP1	secreted phosphoprotein 1	5
SPRED1	sprouty-related, EVH1 domain containing 1	5
SRPX2	sushi-repeat-containing protein, X-linked 2	5
STAT3	signal transducer and activator of transcription 3 (acute-phase response factor)	6
SVEP1	sushi, von Willebrand factor type A, EGF and pentraxin domain containing 1	5
TGFB2	transforming growth factor, beta 2	5
TGFBR2	transforming growth factor, beta receptor II (70/80kDa)	6
TGM2	transglutaminase 2 (C polypeptide, protein-glutamine-gamma-glutamyltransferase)	7
THBS1	thrombospondin 1	5
TIMP1	TIMP metallopeptidase inhibitor 1	7
TMEM43	transmembrane protein 43	5
TNC	tenascin C	5
TNFAIP1	tumor necrosis factor, alpha-induced protein 1 (endothelial)	5
TUBB2A	tubulin, beta 2A	5
UFM1	ubiquitin-fold modifier 1	5
VIM	vimentin	5
YWHAQ	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, theta polypeptide	5
ZEB2	zinc finger E-box binding homeobox 2	5
ZYX	zyxin	5

DOWN REGULATED	DOWNREGULATED	DOWN REGULATED
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
A2BP1	ataxin 2-binding protein 1	5
ABCC9	ATP-binding cassette, sub-family C (CFTR/MRP), member 9	6
ABHD11	abhydrolase domain containing 11	5
ABLIM1	actin binding LIM protein 1	5
ACAA2	hypothetical LOC648603; acetyl-Coenzyme A acyltransferase 2	7
ACAD9	acyl-Coenzyme A dehydrogenase family, member 9	5
ACADM	acyl-Coenzyme A dehydrogenase, C-4 to C-12 straight chain	6
ACADVL	acyl-Coenzyme A dehydrogenase, very long chain	7
ACAT1	acetyl-Coenzyme A acetyltransferase 1	8
ACO1	aconitase 1, soluble	5

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
ACO2	aconitase 2, mitochondrial	8
ACSL1	acyl-CoA synthetase long-chain family member 1	8
ACSL6	acyl-CoA synthetase long-chain family member 6	5
ACSS1	acyl-CoA synthetase short-chain family member 1	5
ACTR3B	ARP3 actin-related protein 3 homolog B (yeast)	5
ADD3	adducin 3 (gamma)	6
ADHFE1	alcohol dehydrogenase, iron containing, 1	6
ADK	adenosine kinase	7
ADRB1	adrenergic, beta-1-, receptor	5
AFG3L2	AFG3 ATPase family gene 3-like 2 (yeast)	5
AGL	amylo-1, 6-glucosidase, 4-alpha-glucanotransferase	5
AGPAT3	1-acylglycerol-3-phosphate O-acyltransferase 3	6
AGTPBP1	ATP/GTP binding protein 1	5
AIFM1	apoptosis-inducing factor, mitochondrion-associated, 1	6
AK1	adenylate kinase 1	7
AKAP9	A kinase (PRKA) anchor protein (yotiao) 9	5
ALAD	aminolevulinate, delta-, dehydratase	5
ALAS1	aminolevulinate, delta-, synthase 1	6
ALDH2	aldehyde dehydrogenase 2 family (mitochondrial)	7
ALDH6A1	aldehyde dehydrogenase 6 family, member A1	6
ALDH9A1	aldehyde dehydrogenase 9 family, member A1	6
ANGPT1	angiopoietin 1	5
ANK1	ankyrin 1, erythrocytic	9
ANK2	ankyrin 2, neuronal	5
ANKMY2	ankyrin repeat and MYND domain containing 2	6
ANKRD9	ankyrin repeat domain 9	5
ANXA3	annexin A3	5
AP3M1	adaptor-related protein complex 3, mu 1 subunit	5
AP4B1	adaptor-related protein complex 4, beta 1 subunit	5
Apbb1	amyloid beta (A4) precursor protein-binding, family B, member 1 (Fe65)	5
AQP1	aquaporin 1 (Colton blood group)	7
ART3	ADP-ribosyltransferase 3	5
ASB2	ankyrin repeat and SOCS box-containing 2	7
ASF1A	ASF1 anti-silencing function 1 homolog A (S. cerevisiae)	6
ASPH	aspartate beta-hydroxylase	8
ATP1A2	ATPase, Na+/K+ transporting, alpha 2 (+) polypeptide	5
ATP2A2	ATPase, Ca++ transporting, cardiac muscle, slow twitch 2	7
ATP5A1	ATP synthase, H+ transporting, mitochondrial F1 complex, alpha subunit 1, cardiac muscle	8
ATP5C1	ATP synthase, H+ transporting, mitochondrial F1 complex, gamma polypeptide 1	8
ATP5D	ATP synthase, H+ transporting, mitochondrial F1 complex, delta subunit	6

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
ATP5E	ATP synthase, H+ transporting, mitochondrial F1 complex, epsilon subunit	5
ATP5F1	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit B1	7
ATP5G1	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit C1 (subunit 9)	5
ATP5G3	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit C3 (subunit 9)	5
ATP5H	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit d	5
ATP5J	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit F6	6
ATPAF1	ATP synthase mitochondrial F1 complex assembly factor 1	5
ATXN10	ataxin 10	5
AUH	AU RNA binding protein/enoyl-Coenzyme A hydratase	7
BBS2	Bardet-Biedl syndrome 2	5
BCKDHA	branched chain keto acid dehydrogenase E1, alpha polypeptide	5
BCKDK	branched chain ketoacid dehydrogenase kinase	7
BCL2L13	BCL2-like 13 (apoptosis facilitator)	5
BCS1L	BCS1-like (yeast)	7
BRD3	bromodomain containing 3	5
BRP44L	brain protein 44-like	6
BTBD1	BTB (POZ) domain containing 1	5
BZW2	basic leucine zipper and W2 domains 2	5
C1QBP	complement component 1, q subcomponent binding protein	5
CABC1	chaperone, ABC1 activity of bc1 complex homolog (S. pombe)	8
CAND2	cullin-associated and neddylation-dissociated 2 (putative)	5
CAT	catalase	5
CAV2	caveolin 2	5
CBR4	carbonyl reductase 4	5
CCBL1	cysteine conjugate-beta lyase, cytoplasmic	5
CCDC28A	coiled-coil domain containing 28A	5
CCDC91	coiled-coil domain containing 91	5
CCNG1	cyclin G1	5
CCNH	cyclin H	5
CD36	CD36 molecule (thrombospondin receptor)	8
CDH13	cadherin 13, H-cadherin (heart)	5
CDKN1B	cyclin-dependent kinase inhibitor 1B (p27, Kip1)	5
CHPT1	choline phosphotransferase 1	6
CIAPIN1	cytokine induced apoptosis inhibitor 1; cytokine induced apoptosis inhibitor 1 pseudogene	6
CISD1	CDGSH iron sulfur domain 1	8

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
CKM	creatine kinase, muscle	5
CKMT2	creatine kinase, mitochondrial 2 (sarcomeric)	6
CLASP1	cytoplasmic linker associated protein 1	5
CLPX	ClpX caseinolytic peptidase X homolog (E. coli)	5
CMBL	carboxymethylenebutenolidase homolog (Pseudomonas)	5
CMTM8	CKLF-like MARVEL transmembrane domain containing 8	5
COG2	component of oligomeric golgi complex 2	5
COMMD1	copper metabolism (Murr1) domain containing 1	5
COPS3	COP9 constitutive photomorphogenic homolog subunit 3 (Arabidopsis)	5
COPS5	COP9 constitutive photomorphogenic homolog subunit 5 (Arabidopsis)	5
COPS6	COP9 constitutive photomorphogenic homolog subunit 6 (Arabidopsis)	5
COQ10A	coenzyme Q10 homolog A (S. cerevisiae)	6
COQ2	coenzyme Q2 homolog, prenyltransferase (yeast)	7
COQ3	coenzyme Q3 homolog, methyltransferase (S. cerevisiae)	5
COQ5	coenzyme Q5 homolog, methyltransferase (S. cerevisiae)	5
COQ9	coenzyme Q9 homolog (S. cerevisiae)	6
CORO6	coronin 6	5
COX17	COX17 cytochrome c oxidase assembly homolog (S. cerevisiae)	5
COX5A	cytochrome c oxidase subunit Va	5
COX6B1	cytochrome c oxidase subunit Vib polypeptide 1 (ubiquitous)	5
COX6C	cytochrome c oxidase subunit VIc	5
COX7A2	cytochrome c oxidase subunit VIIa polypeptide 2 (liver)	5
COX7A2L	cytochrome c oxidase subunit VIIa polypeptide 2 like	5
CPSF6	cleavage and polyadenylation specific factor 6, 68kDa	5
CPT2	carnitine palmitoyltransferase 2	7
CRADD	CASP2 and RIPK1 domain containing adaptor with death domain	5
CRAT	carnitine acetyltransferase	7
CRIPT	cysteine-rich PDZ-binding protein	5
CS	citrate synthase	5
CSTF1	cleavage stimulation factor, 3' pre-RNA, subunit 1, 50kDa	5
CUL3	cullin 3	5
CYC1	cytochrome c-1	6
CYCS	cytochrome c, somatic	8
DAP3	death associated protein 3	5
DBI	diazepam binding inhibitor (GABA receptor modulator, acyl-Coenzyme A binding protein)	5
DBT	dihydrolipoamide branched chain transacylase E2	5
DCI	dodecenoyl-Coenzyme A delta isomerase (3,2 trans-enoyl-Coenzyme A isomerase)	7

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
DCTN6	dynactin 6	6
DDO	D-aspartate oxidase	6
DECR1	2,4-dienoyl CoA reductase 1, mitochondrial	8
DHRS7C	dehydrogenase/reductase (SDR family) member 7C	7
DLAT	dihydrolipoamide S-acetyltransferase	6
DLD	dihydrolipoamide dehydrogenase	6
DLST	dihydrolipoamide S-succinyltransferase (E2 component of 2-oxo-glutarate complex); dihydrolipoamide S-succinyltransferase pseudogene	6
DNPEP	aspartyl aminopeptidase	6
DPF2	D4, zinc and double PHD fingers family 2	5
DPF3	D4, zinc and double PHD fingers, family 3	5
DRG1	developmentally regulated GTP binding protein 1	5
DTNA	dystrobrevin, alpha	5
DTNBP1	dystrobrevin binding protein 1	5
DUT	deoxyuridine triphosphatase	7
DYRK2	dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 2	5
EAPP	E2F-associated phosphoprotein	5
EBAG9	estrogen receptor binding site associated, antigen, 9	5
ECH1	enoyl Coenzyme A hydratase 1, peroxisomal	7
ECHDC2	enoyl Coenzyme A hydratase domain containing 2	5
ECSIT	ECSIT homolog (Drosophila)	5
EDNRA	endothelin receptor type A	6
EHHADH	enoyl-Coenzyme A, hydratase/3-hydroxyacyl Coenzyme A dehydrogenase	5
EIF3E	eukaryotic translation initiation factor 3, subunit E	5
ENDOG	endonuclease G	6
ENO3	enolase 3 (beta, muscle)	6
EPHA4	EPH receptor A4	5
EPHX2	epoxide hydrolase 2, cytoplasmic	7
EPM2AIP1	EPM2A (laforin) interacting protein 1	6
ESD	esterase D/formylglutathione hydrolase	5
ETFA	electron-transfer-flavoprotein, alpha polypeptide	5
ETFB	electron-transfer-flavoprotein, beta polypeptide	7
ETFDH	electron-transferring-flavoprotein dehydrogenase	7
EZH1	enhancer of zeste homolog 1 (Drosophila)	5
FAF1	Fas (TNFRSF6) associated factor 1	6
FAHD2A	fumarylacetoacetate hydrolase domain containing 2A	7
FARS2	phenylalanyl-tRNA synthetase 2, mitochondrial	5
FBXO21	F-box protein 21	5
FBXO3	F-box protein 3	5
FBXO31	F-box protein 31	5

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
FDFT1	farnesyl-diphosphate farnesyltransferase 1	5
FECH	ferrochelatase (protoporphyria)	6
FGF13	fibroblast growth factor 13	6
FGFR1OP2	FGFR1 oncogene partner 2	5
FHIT	fragile histidine triad gene	5
FHL2	four and a half LIM domains 2	7
FKBP3	FK506 binding protein 3, 25kDa	6
FKBP4	FK506 binding protein 4, 59kDa	5
FMO2	flavin containing monooxygenase 2 (non-functional)	6
FN3K	fructosamine 3 kinase	5
FNBP1L	formin binding protein 1-like	5
FSD2	fibronectin type III and SPRY domain containing 2	7
FXN	frataxin	6
FXR1	fragile X mental retardation, autosomal homolog 1	5
FYCO1	FYVE and coiled-coil domain containing 1	7
GALM	galactose mutarotase (aldose 1-epimerase)	5
GATA6	GATA binding protein 6	5
GBAS	glioblastoma amplified sequence	6
GCAT	glycine C-acetyltransferase (2-amino-3-ketobutyrate coenzyme A ligase)	5
GCDH	glutaryl-Coenzyme A dehydrogenase	7
GHITM	growth hormone inducible transmembrane protein	5
GHR	growth hormone receptor	5
GJA1	gap junction protein, alpha 1, 43kDa	5
GLRX5	glutaredoxin 5	6
GLUD1	glutamate dehydrogenase 1	5
GNA11	guanine nucleotide binding protein (G protein), alpha 11 (Gq class)	5
GOLGA4	golgi autoantigen, golgin subfamily a, 4	5
GOT1	glutamic-oxaloacetic transaminase 1, soluble (aspartate aminotransferase 1)	6
GOT2	glutamic-oxaloacetic transaminase 2, mitochondrial (aspartate aminotransferase 2)	6
GPR116	G protein-coupled receptor 116	6
GPSM1	G-protein signaling modulator 1 (AGS3-like, C. elegans)	6
GRB14	growth factor receptor-bound protein 14	5
GRSF1	G-rich RNA sequence binding factor 1	7
GSTK1	glutathione S-transferase kappa 1	8
GSTM7	glutathione S-transferase, mu 7	5
GTF3C1	general transcription factor IIIC, polypeptide 1, alpha 220kDa	5
GYS1	glycogen synthase 1 (muscle)	5
HADH	hydroxyacyl-Coenzyme A dehydrogenase	5

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
HADHA	hydroxyacyl-Coenzyme A dehydrogenase/3-ketoacyl-Coenzyme A thiolase/enoyl-Coenzyme A hydratase (trifunctional protein), alpha subunit	8
HADHB	hydroxyacyl-Coenzyme A dehydrogenase/3-ketoacyl-Coenzyme A thiolase/enoyl-Coenzyme A hydratase (trifunctional protein), beta subunit	6
HBS1L	HBS1-like (S. cerevisiae)	5
HFE2	hemochromatosis type 2 (juvenile)	5
HIBADH	3-hydroxyisobutyrate dehydrogenase	5
HIBCH	3-hydroxyisobutyryl-Coenzyme A hydrolase	5
HINT2	histidine triad nucleotide binding protein 2	6
HINT3	histidine triad nucleotide binding protein 3	6
HLF	hepatic leukemia factor	5
HMBS	hydroxymethylbilane synthase	5
HMGN3	high mobility group nucleosomal binding domain 3	5
HNMT	histamine N-methyltransferase	5
HNRNPA2B1	heterogeneous nuclear ribonucleoprotein A2/B1	5
HOMER1	homer homolog 1 (Drosophila)	6
HRASLS	HRAS-like suppressor	6
HRC	histidine rich calcium binding protein	6
HSD17B10	hydroxysteroid (17-beta) dehydrogenase 10	5
HSD17B4	hydroxysteroid (17-beta) dehydrogenase 4	5
HSPA9	heat shock 70kDa protein 9 (mortalin)	5
HSPB3	heat shock 27kDa protein 3	5
ICT1	immature colon carcinoma transcript 1	7
IDE	insulin-degrading enzyme	5
IDH2	isocitrate dehydrogenase 2 (NADP+), mitochondrial	5
IDH3A	isocitrate dehydrogenase 3 (NAD+) alpha	8
IDH3B	isocitrate dehydrogenase 3 (NAD+) beta	9
IDH3G	isocitrate dehydrogenase 3 (NAD+) gamma	7
IFT81	intraflagellar transport 81 homolog (Chlamydomonas)	5
IMMT	inner membrane protein, mitochondrial (mitofilin)	7
IQWD1	IQ motif and WD repeats 1	6
ISCU	iron-sulfur cluster scaffold homolog (E. coli)	6
IVD	isovaleryl Coenzyme A dehydrogenase	8
IVNS1ABP	influenza virus NS1A binding protein	6
JAM2	junctional adhesion molecule 2	6
KCNJ8	potassium inwardly-rectifying channel, subfamily J, member 8	7
KCNN2	potassium intermediate/small conductance calcium-activated channel, subfamily N, member 2	5
KHDRBS1	KH domain containing, RNA binding, signal transduction associated 1	5
KLHDC2	kelch domain containing 2	6

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
KLHL24	kelch-like 24 (Drosophila)	5
KLHL7	kelch-like 7 (Drosophila)	6
LANCL1	LanC lantibiotic synthetase component C-like 1 (bacterial)	5
LAPTM4B	lysosomal protein transmembrane 4 beta	5
LARP5	La ribonucleoprotein domain family, member 4B	5
LDHB	lactate dehydrogenase B	6
LDHD	lactate dehydrogenase D	7
LGTN	ligatin	5
LIAS	lipoic acid synthetase	6
LMAN2L	lectin, mannose-binding 2-like	5
LMO7	LIM domain 7	6
LPIN1	lipin 1	6
LRRC20	leucine rich repeat containing 20	5
LRRC39	leucine rich repeat containing 39	6
LUC7L2	LUC7-like 2 (S. cerevisiae)	6
LZIC	leucine zipper and CTNNBIP1 domain containing	5
MACROD1	MACRO domain containing 1	5
MAP3K4	mitogen-activated protein kinase kinase kinase 4	5
MATR3	matrin 3	5
MCCC2	methylcrotonoyl-Coenzyme A carboxylase 2 (beta)	7
MDH1	malate dehydrogenase 1, NAD (soluble)	6
MDH2	malate dehydrogenase 2, NAD (mitochondrial)	6
ME1	malic enzyme 1, NADP(+)-dependent, cytosolic	5
ME3	malic enzyme 3, NADP(+)-dependent, mitochondrial	6
MEF2A	myocyte enhancer factor 2A	7
MEIS2	Meis homeobox 2	7
METT11D1	methyltransferase 11 domain containing 1; similar to methyltransferase 11 domain containing 1 isoform 2	5
METTL5	methyltransferase like 5	5
MFN1	mitofusin 1	6
MFN2	mitofusin 2	5
MGST3	microsomal glutathione S-transferase 3	5
MITF	microphthalmia-associated transcription factor	8
MKKS	McKusick-Kaufman syndrome	5
MLF1	myeloid leukemia factor 1	5
MLYCD	malonyl-CoA decarboxylase	6
MMACHC	methylmalonic aciduria (cobalamin deficiency) cblC type, with homocystinuria	5
MOCS2	molybdenum cofactor synthesis 2	7
MPPED2	metallophosphoesterase domain containing 2	6
MRPL11	mitochondrial ribosomal protein L11	5
MRPL12	mitochondrial ribosomal protein L12	5
MRPL13	mitochondrial ribosomal protein L13	5
MRPL15	mitochondrial ribosomal protein L15	7

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
MRPL18	mitochondrial ribosomal protein L18	5
MRPL19	mitochondrial ribosomal protein L19	5
MRPL2	mitochondrial ribosomal protein L2	5
MRPL22	mitochondrial ribosomal protein L22	6
MRPL3	mitochondrial ribosomal protein L3	5
MRPL35	mitochondrial ribosomal protein L35	5
MRPL40	mitochondrial ribosomal protein L40	6
MRPL44	mitochondrial ribosomal protein L44	6
MRPL45	mitochondrial ribosomal protein L45	6
MRPL46	mitochondrial ribosomal protein L46	6
MRPL47	mitochondrial ribosomal protein L47	7
MRPL48	mitochondrial ribosomal protein L48	6
MRPL51	mitochondrial ribosomal protein L51	5
MRPS14	mitochondrial ribosomal protein S14	6
MRPS15	mitochondrial ribosomal protein S15	6
MRPS17	mitochondrial ribosomal protein S17	5
MRPS18C	mitochondrial ribosomal protein S18C	6
MRPS23	mitochondrial ribosomal protein S23	5
MRPS24	mitochondrial ribosomal protein S24	7
MRPS25	mitochondrial ribosomal protein S25	6
MRPS31	mitochondrial ribosomal protein S31	6
MRPS35	mitochondrial ribosomal protein S35	5
MRPS36	mitochondrial ribosomal protein S36	6
MRPS5	mitochondrial ribosomal protein S5	5
MRPS6	mitochondrial ribosomal protein S6	6
MRPS9	mitochondrial ribosomal protein S9	5
MSI2	musashi homolog 2 (Drosophila)	6
MTCH2	mitochondrial carrier homolog 2 (C. elegans)	5
MTERFD3	MTERF domain containing 3	5
MTIF2	mitochondrial translational initiation factor 2	6
MTSS1	metastasis suppressor 1	5
MTX1	metaxin 1	5
MTX2	metaxin 2	5
MUT	methylmalonyl Coenzyme A mutase	7
MYO10	myosin X	5
MYOM2	myomesin (M-protein) 2, 165kDa	6
MYOZ2	myozenin 2	5
NCOR1	nuclear receptor co-repressor 1	6
NDUFA1	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 1, 7.5kDa	6
NDUFA10	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 10, 42kDa	5
NDUFA12	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 12	6

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
NDUFA2	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 2, 8kDa	7
NDUFA3	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 3, 9kDa	6
NDUFA4	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 4, 9kDa	5
NDUFA5	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 5, 13kDa	7
NDUFA7	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 7, 14.5kDa	7
NDUFA8	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 8, 19kDa	5
NDUFA9	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 9, 39kDa	8
NDUFAB1	NADH dehydrogenase (ubiquinone) 1, alpha/beta subcomplex, 1, 8kDa	7
NDUFAF1	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, assembly factor 1	7
NDUFB10	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 10, 22kDa	7
NDUFB11	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 11, 17.3kDa	8
NDUFB2	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 2, 8kDa	5
NDUFB6	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 6, 17kDa	5
NDUFB7	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 7, 18kDa	5
NDUFB8	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 8, 19kDa	7
NDUFB9	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 9, 22kDa	6
NDUFC1	NADH dehydrogenase (ubiquinone) 1, subcomplex unknown, 1, 6kDa	5
NDUFS1	NADH dehydrogenase (ubiquinone) Fe-S protein 1, 75kDa (NADH-coenzyme Q reductase)	7
NDUFS2	NADH dehydrogenase (ubiquinone) Fe-S protein 2, 49kDa (NADH-coenzyme Q reductase)	7
NDUFS3	NADH dehydrogenase (ubiquinone) Fe-S protein 3, 30kDa (NADH-coenzyme Q reductase)	9
NDUFS4	NADH dehydrogenase (ubiquinone) Fe-S protein 4, 18kDa (NADH-coenzyme Q reductase)	9
NDUFS6	NADH dehydrogenase (ubiquinone) Fe-S protein 6, 13kDa (NADH-coenzyme Q reductase)	7
NDUFS7	NADH dehydrogenase (ubiquinone) Fe-S protein 7, 20kDa (NADH-coenzyme Q reductase)	7
NDUFS8	NADH dehydrogenase (ubiquinone) Fe-S protein 8, 23kDa (NADH-coenzyme Q reductase)	6
NDUFV1	NADH dehydrogenase (ubiquinone) flavoprotein 1, 51kDa	9

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
NDUFV2	NADH dehydrogenase (ubiquinone) flavoprotein 2, 24kDa	8
NFS1	NFS1 nitrogen fixation 1 homolog (S. cerevisiae)	7
NFYC	nuclear transcription factor Y, gamma	5
NKIRAS2	NFKB inhibitor interacting Ras-like 2	5
NMNAT1	nicotinamide nucleotide adenylyltransferase 1	5
NNT	nicotinamide nucleotide transhydrogenase	8
NR2F6	nuclear receptor subfamily 2, group F, member 6	5
NR3C1	nuclear receptor subfamily 3, group C, member 1 (glucocorticoid receptor)	5
NR3C2	nuclear receptor subfamily 3, group C, member 2	5
NRP1	neuropilin 1	5
NSMCE1	non-SMC element 1 homolog (S. cerevisiae)	5
NUBPL	nucleotide binding protein-like	5
NUDT4	nudix (nucleoside diphosphate linked moiety X)-type motif 4	5
NUDT6	nudix (nucleoside diphosphate linked moiety X)-type motif 6	5
NUDT7	nudix (nucleoside diphosphate linked moiety X)-type motif 7	5
OCIAD1	OCIA domain containing 1	5
OGT	O-linked N-acetylglucosamine (GlcNAc) transferase (UDP-N-acetylglucosamine:polypeptide-N-acetylglucosaminyl transferase)	5
OMA1	OMA1 homolog, zinc metallopeptidase (S. cerevisiae)	5
OPTN	optineurin	5
OXA1L	oxidase (cytochrome c) assembly 1-like	5
OXCT1	3-oxoacid CoA transferase 1	6
OXR1	oxidation resistance 1	5
PANK1	pantothenate kinase 1	5
PAPD1	mitochondrial poly(A) polymerase	6
PAQR9	progestin and adipoQ receptor family member IX	5
PARP1	poly (ADP-ribose) polymerase 1	7
PCCA	propionyl Coenzyme A carboxylase, alpha polypeptide	6
PCCB	propionyl Coenzyme A carboxylase, beta polypeptide	5
PCDH7	protocadherin 7	6
PCM1	pericentriolar material 1	5
PCMT1	protein-L-isoaspartate (D-aspartate) O-methyltransferase	6
PCMTD2	protein-L-isoaspartate (D-aspartate) O-methyltransferase domain containing 2	5
PCTP	phosphatidylcholine transfer protein	5
PCYT2	phosphate cytidylyltransferase 2, ethanolamine	5
PDE1C	phosphodiesterase 1C, calmodulin-dependent 70kDa	6
PDHA1	pyruvate dehydrogenase (lipoamide) alpha 1	8
PDHB	pyruvate dehydrogenase (lipoamide) beta	6
PDK2	pyruvate dehydrogenase kinase, isozyme 2	6

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
PECI	peroxisomal D3,D2-enoyl-CoA isomerase	8
PER3	period homolog 3 (Drosophila)	5
PERP	PERP, TP53 apoptosis effector	5
PET112L	PET112-like (yeast)	5
PEX1	peroxisomal biogenesis factor 1	5
PEX12	peroxisomal biogenesis factor 12	5
PEX7	peroxisomal biogenesis factor 7	7
PFKFB2	6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 2	5
PFKM	phosphofructokinase, muscle	7
PGAM2	phosphoglycerate mutase 2 (muscle)	6
PGK1	phosphoglycerate kinase 1	6
PGM1	phosphoglucomutase 1	5
PHB	prohibitin	5
PHB2	prohibitin 2	6
PHYH	phytanoyl-CoA 2-hydroxylase	6
PITRM1	pitrilysin metallopeptidase 1	5
PKP4	plakophilin 4	6
PLA2G5	phospholipase A2, group V	5
PLCL1	phospholipase C-like 1	5
PLEKHA5	pleckstrin homology domain containing, family A member 5	5
PLN	phospholamban	5
PMPCB	peptidase (mitochondrial processing) beta	6
POLB	polymerase (DNA directed), beta	6
POLRMT	polymerase (RNA) mitochondrial (DNA directed)	7
POPDC2	popeye domain containing 2	5
PPARGC1A	peroxisome proliferator-activated receptor gamma, coactivator 1 alpha	8
PPL	periplakin	5
PPP1R3A	protein phosphatase 1, regulatory (inhibitor) subunit 3A	5
PPTC7	PTC7 protein phosphatase homolog (S. cerevisiae)	5
PRDX2	peroxiredoxin 2	5
PRKACA	protein kinase, cAMP-dependent, catalytic, alpha	5
PROSC	proline synthetase co-transcribed homolog (bacterial)	5
PSMD7	proteasome (prosome, macropain) 26S subunit, non-ATPase, 7	5
PSME1	proteasome (prosome, macropain) activator subunit 1 (PA28 alpha)	5
PSME4	proteasome (prosome, macropain) activator subunit 4	5
PTCD3	Pentatricopeptide repeat domain 3	5
PTPN3	protein tyrosine phosphatase, non-receptor type 3	5
PTPRK	protein tyrosine phosphatase, receptor type, K	5
PXMP2	hypothetical LOC100129532; peroxisomal membrane protein 2, 22kDa	8

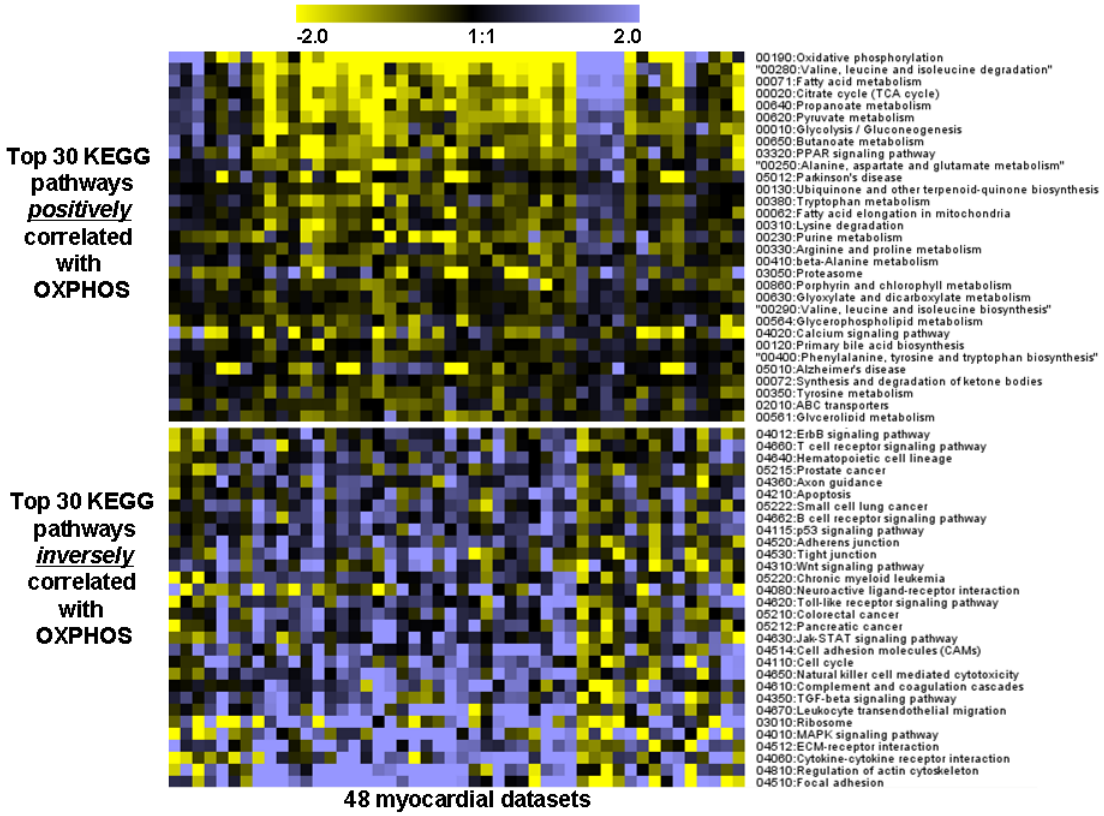
DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
PYGM	phosphorylase, glycogen, muscle	7
QDPR	quinoid dihydropteridine reductase	8
QRSL1	glutaminyl-tRNA synthase (glutamine-hydrolyzing)-like 1	6
RAB12	RAB12, member RAS oncogene family	5
RAB14	RAB14, member RAS oncogene family	6
RABGAP1L	RAB GTPase activating protein 1-like	7
RAF1	v-raf-1 murine leukemia viral oncogene homolog 1	5
RAP1A	RAP1A, member of RAS oncogene family	5
RAPGEF2	Rap guanine nucleotide exchange factor (GEF) 2; similar to RAPGEF2 protein	6
RASD2	RASD family, member 2	5
RBBP6	retinoblastoma binding protein 6	5
RBM20	RNA binding motif protein 20	5
RBMX	RNA binding motif protein, X-linked	7
RBX1	ring-box 1	6
RCAN2	regulator of calcineurin 2	6
RCHY1	ring finger and CHY zinc finger domain containing 1	5
RCSD1	RCSD domain containing 1	5
RDH14	retinol dehydrogenase 14 (all-trans/9-cis/11-cis); 5'-nucleotidase, cytosolic IB	7
RMND1	required for meiotic nuclear division 1 homolog (S. cerevisiae)	6
RNF10	ring finger protein 10	5
RNF5	ring finger protein 5; ring finger protein 5 pseudogene 1	6
RPAIN	RPA interacting protein	5
RPL3L	ribosomal protein L3-like	6
RREB1	ras responsive element binding protein 1	5
RTN2	reticulon 2	6
RTN4IP1	reticulon 4 interacting protein 1	5
RXRG	retinoid X receptor, gamma	6
RYR2	ryanodine receptor 2 (cardiac)	8
SAMM50	sorting and assembly machinery component 50 homolog (S. cerevisiae)	6
SATB1	SATB homeobox 1	5
SCHIP1	schwannomin interacting protein 1	7
SDHA	succinate dehydrogenase complex, subunit A, flavoprotein (Fp)	6
SDHB	succinate dehydrogenase complex, subunit B, iron sulfur (Ip)	8
SDHC	succinate dehydrogenase complex, subunit C, integral membrane protein, 15kDa	5
SDHD	succinate dehydrogenase complex, subunit D, integral membrane protein	6
SDPR	serum deprivation response (phosphatidylserine binding protein)	5

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
SELENBP1	selenium binding protein 1	6
SGCA	sarcoglycan, alpha (50kDa dystrophin-associated glycoprotein)	5
SH3KBP1	SH3-domain kinase binding protein 1	8
SIRT3	sirtuin (silent mating type information regulation 2 homolog) 3 (S. cerevisiae)	6
SIRT5	sirtuin (silent mating type information regulation 2 homolog) 5 (S. cerevisiae)	9
SLC22A5	solute carrier family 22 (organic cation/carnitine transporter), member 5	5
SLC25A11	solute carrier family 25 (mitochondrial carrier; oxoglutarate carrier), member 11	5
SLC25A12	solute carrier family 25 (mitochondrial carrier, Aralar), member 12	8
SLC25A20	solute carrier family 25 (carnitine/acylcarnitine translocase), member 20	6
SLC25A29	solute carrier family 25, member 29	5
SLC25A3	solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 3	8
SLC27A1	solute carrier family 27 (fatty acid transporter), member 1	6
SLC4A3	solute carrier family 4, anion exchanger, member 3	6
SMTN	smoothelin	6
SMYD2	SET and MYND domain containing 2	6
SNN	stannin	5
SORBS1	sorbin and SH3 domain containing 1	5
SORD	sorbitol dehydrogenase	6
SPAG7	sperm associated antigen 7	5
SPATA7	spermatogenesis associated 7	5
SPG7	spastic paraplegia 7 (pure and complicated autosomal recessive)	5
SQRDL	sulfide quinone reductase-like (yeast)	5
SRRM1	serine/arginine repetitive matrix 1	5
STARD7	StAR-related lipid transfer (START) domain containing 7	6
STK39	serine threonine kinase 39 (STE20/SPS1 homolog, yeast)	5
SUCLA2	succinate-CoA ligase, ADP-forming, beta subunit	9
SUCLG1	succinate-CoA ligase, alpha subunit	8
SUCLG2	similar to sucb; succinate-CoA ligase, GDP-forming, beta subunit	5
SUOX	sulfite oxidase	7
SUPV3L1	suppressor of var1, 3-like 1 (S. cerevisiae)	5
SYNJ2	synaptojanin 2	6
TACC2	transforming, acidic coiled-coil containing protein 2	6
TBCE	tubulin folding cofactor E	5
TCEA3	transcription elongation factor A (SII), 3	6
TFDP2	transcription factor Dp-2 (E2F dimerization partner 2)	5

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
THEM2	acyl-CoA thioesterase 13	6
TIMM44	translocase of inner mitochondrial membrane 44 homolog (yeast)	5
TIMM8B	similar to translocase of inner mitochondrial membrane 8 homolog B; translocase of inner mitochondrial membrane 8 homolog B (yeast)	5
TM2D2	TM2 domain containing 2	5
TMCC1	transmembrane and coiled-coil domain family 1	5
TMEM143	transmembrane protein 143	5
TMEM50B	transmembrane protein 50B	6
TMLHE	trimethyllysine hydroxylase, epsilon	5
TNNI3	troponin I type 3 (cardiac)	5
TNNT2	troponin T type 2 (cardiac)	5
TRAP1	TNF receptor-associated protein 1	6
TRDN	triadin	5
TRIM45	tripartite motif-containing 45	5
TRIM63	tripartite motif-containing 63	5
TSC1	tuberous sclerosis 1	5
TSFM	Ts translation elongation factor, mitochondrial	5
TSPAN13	tetraspanin 13	5
TTC15	tetratricopeptide repeat domain 15	5
TUFM	Tu translation elongation factor, mitochondrial	6
TUSC4	tumor suppressor candidate 4	6
UBE2B	ubiquitin-conjugating enzyme E2B (RAD6 homolog)	7
UBE2D2	ubiquitin-conjugating enzyme E2D 2 (UBC4/5 homolog, yeast)	5
UBE4A	ubiquitination factor E4A (UFD2 homolog, yeast)	7
UBQLN2	ubiquilin 2	5
UCKL1	uridine-cytidine kinase 1-like 1	5
UQCR	ubiquinol-cytochrome c reductase, 6.4kDa subunit	5
UQCRC2	ubiquinol-cytochrome c reductase core protein II	6
UQCRFS1	ubiquinol-cytochrome c reductase, Rieske iron-sulfur polypeptide-like 1; ubiquinol-cytochrome c reductase, Rieske iron-sulfur polypeptide 1	5
UROD	uroporphyrinogen decarboxylase	6
USP2	ubiquitin specific peptidase 2	5
USP24	ubiquitin specific peptidase 24	5
USP7	ubiquitin specific peptidase 7 (herpes virus-associated)	5
VAPB	VAMP (vesicle-associated membrane protein)-associated protein B and C	5
VARS2	valyl-tRNA synthetase 2, mitochondrial (putative)	5
VDAC1	voltage-dependent anion channel 1; similar to voltage-dependent anion channel 1	5
VDAC2	voltage-dependent anion channel 2	6
VDAC3	voltage-dependent anion channel 3	6

DOWN REGULATED continued	DOWNREGULATED continued	DOWN REGULATED continued
Gene Symbol	**Gene Name**	**identified in x out of 10 studies**
VLDLR	very low density lipoprotein receptor	5
WARS2	tryptophanyl tRNA synthetase 2, mitochondrial	5
WBP11	WW domain binding protein 11	5
WDR13	WD repeat domain 13	5
WDR37	WD repeat domain 37	5
WRB	tryptophan rich basic protein	5
WWP1	WW domain containing E3 ubiquitin protein ligase 1	7
XK	X-linked Kx blood group (McLeod syndrome)	5
YEATS4	YEATS domain containing 4	5
YWHAE	similar to 14-3-3 protein epsilon (14-3-3E) (Mitochondrial import stimulation factor L subunit) (MSF L); tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, epsilon polypeptide	5
ZADH2	zinc binding alcohol dehydrogenase domain containing 2	7
ZFYVE21	zinc finger, FYVE domain containing 21	6
ZYG11B	zyg-11 homolog B (C. elegans)	5
ZZEF1	zinc finger, ZZ-type with EF-hand domain 1	5

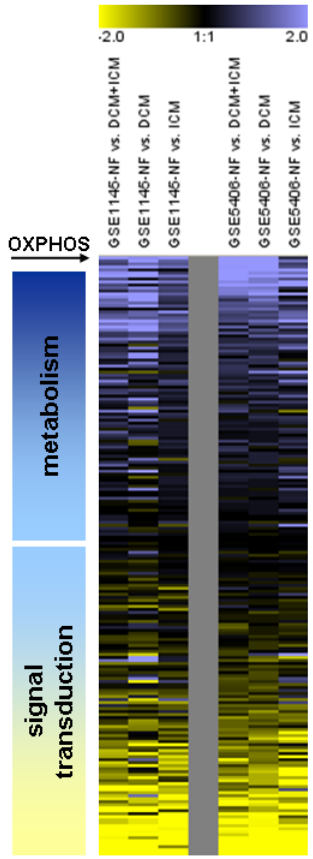
Supplemental Figure 1



Supplemental Figure 1. Top 30 KEGG pathways positively and negatively correlated with the KEGG pathway of oxidative phosphorylation. The net expression of a KEGG pathway (number of up- *minus* downregulated genes within a study in relation to total number of genes per given KEGG pathway, see also Figures 1 and 2) is color-coded with yellow and blue representing low and high expression of the pathway, respectively. The KEGG pathways were sorted according to their similarity of gene expression to "oxidative phosphorylation" which is represented by the top row (OXPHOS). Across a wide range of diverse myocardial gene expression datasets, metabolic and biosynthesis pathways were consistently positively correlated to each other and negatively correlated with the expression of cell signaling pathways.

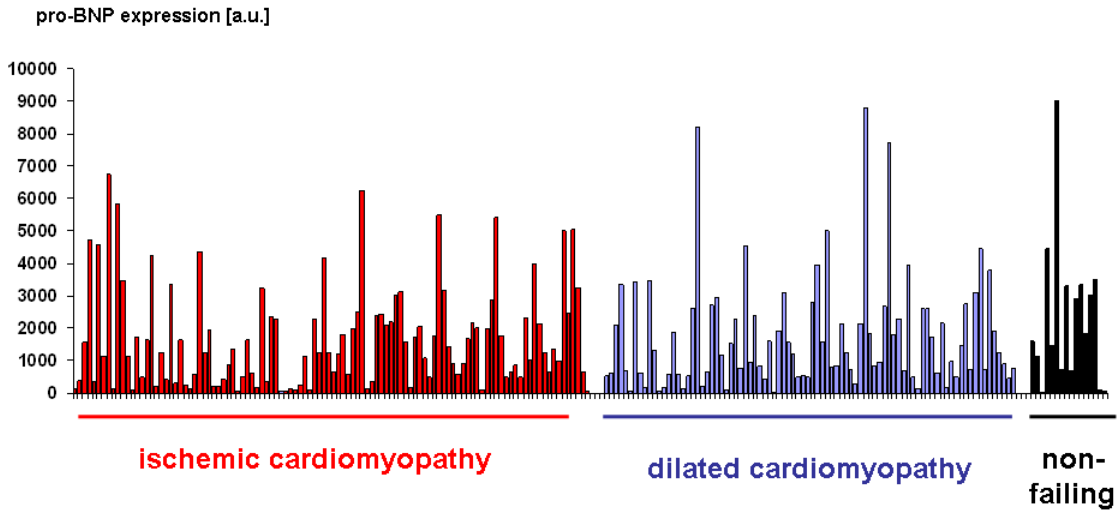
It is of interest to note that the tight regulation extended beyond KEGG pathways important for metabolic and signaling functions, as evident by the positive correlation between OXPHOS and transcripts belonging to the “proteasome”. In contrast, structural components important for cell-cell contact (e.g. “cell adhesion molecules”, “tight junctions”, “adherens junctions”, “focal adhesion”) and ribosome were negatively correlated with OXPHOS.

Supplemental Figure 2



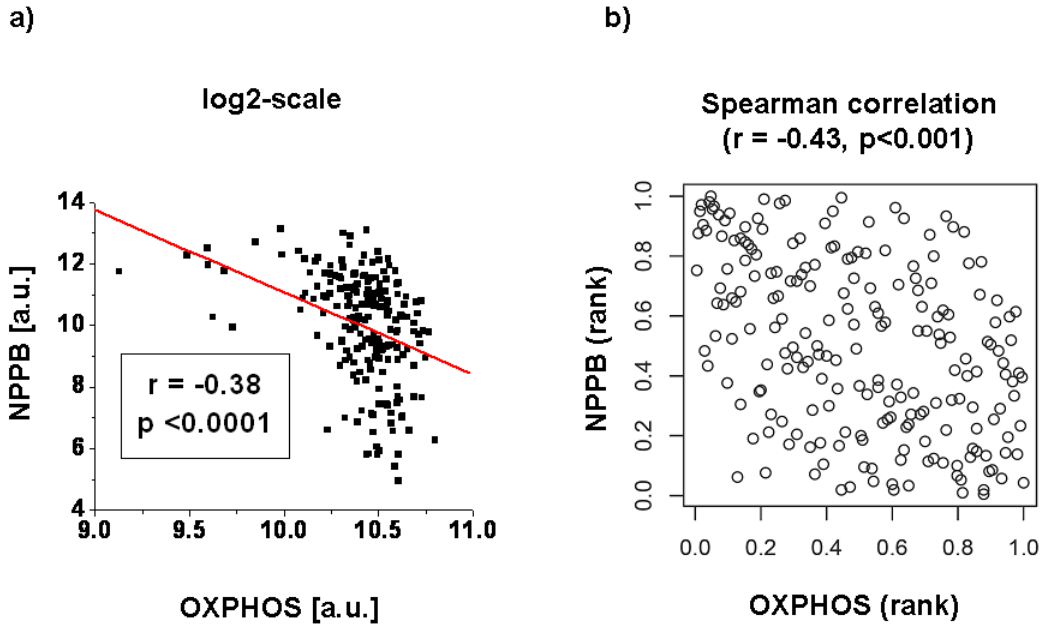
Supplemental Figure 2. Reciprocal Regulation of Metabolic and Signaling Pathways in human HF occurs independent of ischemic or non-ischemic etiology. The net expression of a KEGG pathway (number of up- *minus* downregulated genes within a study in relation to total number of genes per given KEGG pathway), is color-coded with yellow and blue representing low and high expression of the pathway, respectively. The 160 different KEGG pathways were sorted according to their similarity to oxidative phosphorylation which is represented by the first row (labeled OXPHOS). KEGG pathways were analyzed in the two largest human myocardial microarray datasets available (GSE1145, lane #2 and GSE5406, lane #3 in Figure 2. See also Supplemental Table 1).

Supplemental Figure 3



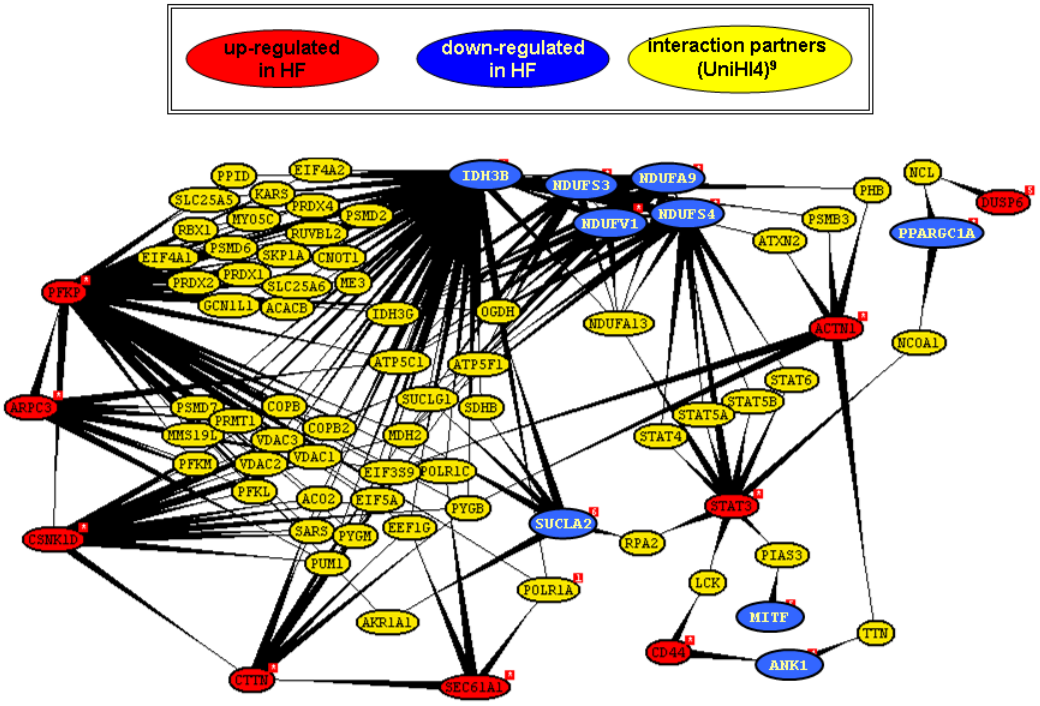
Supplemental Figure 3. Variability of pro-BNP expression in human HF across 210 failing and non-failing myocardial samples (GSE5406, dataset #3). Notably, the highest pro-BNP values (represented by a single probe set, 206801_at) were found in the non-failing myocardial samples.

Supplemental Figure 4



Supplemental Figure 4. Expression of OXPHOS and pro-BNP (NPPB) were inversely correlated. The left panel (A) shows the log2 values for OXPHOS and NPPB. As the relation is not linear and to exclude that the correlation is inflated by a few outliers in OXPHOS, we have also performed a Spearman correlation shown in the right panel (B). This measure is the same no matter what monotone transformation one makes to the variables. Additionally, the correlation of ranks is robust to outliers, as it uses the ranks rather than the actual values.

Supplemental Figure 5



Supplemental Figure 5. Graphical representations of protein interactions. A query was conducted with 90 transcripts consistently regulated in HF (listed in Supplemental Table 3) using the Unified Human Interactome database (UniHI4)[1]. Interacting partners of the list of query proteins are displayed if they have an expression in heart tissue of more than 1000 units (expression summaries for 44,775 transcripts were derived utilizing the MAS5 algorithm by Affymetrix).[22] The display was restricted to direct interactions (yellow proteins) between query proteins (red and blue for up- and downregulated transcripts, respectively). Network analysis revealed that 18 out of 90 transcripts formed a network with multiple interconnected nodes (hubs) between up- and downregulated genes. Importantly, many of the predicted interaction partners, were also part of the common HF genes listed in Supplemental Table 3.

Supplemental References:

1. Chaurasia G, Malhotra S, Russ J, Schnoegl S, Hanig C, Wanker EE, Futschik ME. UniHI 4: new tools for query, analysis and visualization of the human protein-protein interactome. Nucleic Acids Res. 2009;37:D657-660.