SUPPLEMENTARY MATERIAL

Supplemental Table 1: Echocardiograph data: Male (blue) & Female (pink) rats.

Animal ID	LVAW;d (cm) avg	LVID;d (cm) avg	LVPW;d (cm) avg	LVAW;s (cm) avg	LVID;s (cm) avg	LVPW;s (cm) avg
Male 1	0.118	0.801	0.114	0.229	0.479	0.195
Male 2	0.114	0.831	0.136	0.263	0.470	0.242
Male 3	0.140	0.864	0.131	0.263	0.547	0.220
Male 4	0.123	0.805	0.136	0.216	0.491	0.246
Male 5	0.127	0.733	0.127	0.246	0.377	0.254
Male 6	0.136	0.826	0.140	0.280	0.474	0.204
Female 7	0.127	0.784	0.127	0.220	0.466	0.242
Female 8	0.140	0.695	0.144	0.301	0.305	0.275
Female 9	0.140	0.670	0.153	0.242	0.309	0.326
Female 10	0.144	0.652	0.153	0.288	0.301	0.258
Female 11	0.114	0.767	0.118	0.263	0.398	0.233

Animal ID	LV Vol;d (ul)	LV Vol;s (ul)	%EF	%FS	Body Weight (grams)	Heart Rate (bpm)
Male 1	345.6	106.8	69.1	40.2	331	383
Male 2	374.7	102.4	72.7	43.4	336	419
Male 3	409.3	145.4	64.5	36.8	423	340
Male 4	349.8	113.5	67.5	39.0	400	360
Male 5	283.3	60.8	78.5	48.6	382	400
Male 6	370.4	104.6	71.8	42.6	385	336
Female 7	329.1	100.3	69.5	40.5	313	356
Female 8	251.1	36.4	85.5	56.1	313	364
Female 9	231.1	37.7	83.7	53.8	321	340
Female 10	217.8	35.2	83.8	53.9	322	333
Female 11	313.7	69.2	77.9	48.1	318	343

Supplemental Table 2: Overall RNA-sequencing mapping statistics: Male (blue) & Female (pink) ARVMs.

Sample	# reads mapped	Overall mapping rate
Male 1	138611090	81.60%
Male 2	144741248	82.30%
Male 3	133684910	82.40%
Male 4	158742168	80.60%
Male 5	169837416	80.50%
Male 6	168417496	80.90%
Female 7	158436486	81.40%
Female 8	166296856	82.10%
Female 9	189128974	82.90%
Female 10	150660844	81.80%
Female 11	149957806	82.40%

Supplemental Table 3: DESeq Results of Genes Enriched in Female Myocytes Analyzed with IPA

id	baseMean	baseMean Male	baseMean Female	Fold Change	padj
LOC310926	4966.97	1981.27	8549.81	4.32	0.0015777
Irs3	38.22	15.55	65.42	4.21	0.0005077
Ier5l	151.38	80.04	236.98	2.96	0.0058676
Krt19	87.26	48.86	133.34	2.73	0.0004359
Ass1	59.91	33.59	91.49	2.72	0.0015537
Map1s	247.48	139.59	376.95	2.70	0.0011758
Cyp2e1	610.56	344.76	929.51	2.70	0.0018117
Lrg1	124.00	70.42	188.29	2.67	0.0004906
Hist2h4	2351.35	1341.05	3563.72	2.66	0.0095554
Dmtn	64.13	36.99	96.70	2.61	0.0026601
Csdc2	880.89	509.81	1326.19	2.60	0.0001383
Jak3	101.77	61.64	149.93	2.43	0.0007862
C4a	2297.39	1417.16	3353.66	2.37	0.0000003
Srebf1	422.08	264.04	611.73	2.32	0.0034352
Gtpbp1	1887.40	1186.78	2728.14	2.30	0.0002246
Klf2	213.17	135.43	306.46	2.26	0.0000663
Hlx	170.83	108.72	245.36	2.26	0.0036625
Foxk1	102.70	65.89	146.86	2.23	0.0026472
Fmnl1	129.08	84.26	182.86	2.17	0.0014778
Irf2bp1	313.90	205.73	443.70	2.16	0.0009671
Nr4a1	1218.78	800.13	1721.16	2.15	0.0000018
Msln	168.75	110.79	238.29	2.15	0.0018117
Hsf4	163.37	108.35	229.40	2.12	0.0008068
Repin1	182.42	121.77	255.20	2.10	0.0007089
Pdxp	265.31	178.00	370.08	2.08	0.0000566
Ap5s1	99.55	67.08	138.50	2.06	0.0057430
Pla2g15	143.39	96.93	199.13	2.05	0.0038522
Hspa12b	355.52	240.72	493.28	2.05	0.0001502
Ahdc1	697.00	472.02	966.97	2.05	0.0000398
Hspbp1	257.09	174.73	355.91	2.04	0.0004972
Hist1h1d	1070.62	731.32	1477.78	2.02	0.0022051
Trim11	458.01	314.26	630.51	2.01	0.0001779
Cad	386.05	265.68	530.48	2.00	0.0001637
Prrc2a	2456.33	1694.21	3370.88	1.99	0.0009891
Lrch4	196.18	135.36	269.17	1.99	0.0020836

Pom121	178.61	123.37	244.91	1.99	0.0015326
Wnk2	2217.76	1537.18	3034.45	1.97	0.0010445
Synpo	1663.05	1156.93	2270.39	1.96	0.0000002
Vps18	702.44	489.16	958.38	1.96	0.0005932
Shroom3	3189.10	2222.49	4349.03	1.96	0.0057986
Ucp2	4767.36	3335.78	6485.26	1.94	0.0002383
Dyrk1b	431.10	301.67	586.43	1.94	0.0004970
Fmo1	832.83	585.30	1129.86	1.93	0.0013310
Rfx1	118.48	83.31	160.69	1.93	0.0067773
Cbx7	287.45	202.26	389.68	1.93	0.0002621
Ptpn23	190.38	134.08	257.94	1.92	0.0018117
Tbc1d25	138.42	97.61	187.39	1.92	0.0034627
Atg2a	1009.88	713.06	1366.07	1.92	0.0009257
Rbm42	505.05	357.00	682.72	1.91	0.0004019
Nkx2-5	496.10	352.69	668.19	1.89	0.0021998
Alpl	1176.42	836.89	1583.86	1.89	0.0016943
Rbm14	381.84	271.75	513.94	1.89	0.0001771
Dyrk3	382.70	272.48	514.97	1.89	0.0013722
Adamtsl4	1269.81	904.72	1707.91	1.89	0.0000072
Tysnd1	203.18	145.08	272.89	1.88	0.0091168
Bcas3	991.92	709.06	1331.35	1.88	0.0001807
Zbtb45	248.13	177.49	332.89	1.88	0.0009444
Apoe	1683.76	1206.37	2256.63	1.87	0.0000018
Vasn	337.50	242.65	451.33	1.86	0.0005109
Cnksr1	295.55	212.66	395.02	1.86	0.0073094
Nckipsd	238.27	172.26	317.48	1.84	0.0011869
Zfp691	450.16	325.54	599.71	1.84	0.0001271
Ier2	3210.18	2327.61	4269.26	1.83	0.0000997
Por	2554.08	1853.27	3395.06	1.83	0.0000011
Mn1	473.21	343.65	628.68	1.83	0.0025134
Bcl9l	228.92	166.26	304.10	1.83	0.0017006
Zfp423	766.65	557.32	1017.85	1.83	0.0000318
Foxp3	152.72	111.17	202.58	1.82	0.0063802
Zfp142	758.79	552.73	1006.07	1.82	0.0000412
Cx3cl1	590.16	430.43	781.84	1.82	0.0061491
Ttll12	490.81	358.43	649.68	1.81	0.0003050
Tapbp	534.99	391.11	707.64	1.81	0.0011016
Notch2	193.60	141.67	255.92	1.81	0.0092680
Llgl2	318.57	233.99	420.06	1.80	0.0025246
Jrk	185.49	136.33	244.48	1.79	0.0062767

Sts	1829.12	1344.76	2410.36	1.79	0.0038522
Disp1	422.93	311.16	557.05	1.79	0.0030036
Arc	280.94	206.72	370.00	1.79	0.0039291
Wdr81	171.26	126.14	225.41	1.79	0.0084591
Ncln	763.79	562.60	1005.23	1.79	0.0000846
Rhbdf1	342.08	252.09	450.06	1.79	0.0008283
Pbld1	167.36	123.35	220.17	1.78	0.0062236
Dusp1	7888.45	5818.91	10371.90	1.78	0.0021166
Dok7	281.83	208.17	370.22	1.78	0.0020836
Entpd6	681.19	503.60	894.30	1.78	0.0010185
Eif3f	2935.95	2171.79	3852.94	1.77	0.0005729
Usp19	3424.28	2533.41	4493.32	1.77	0.0000602
Itga7	12222.02	9047.05	16031.98	1.77	0.0000010
Angel1	253.30	187.52	332.22	1.77	0.0028404
Pelp1	577.52	427.89	757.07	1.77	0.0005907
Acacb	12369.68	9197.83	16175.91	1.76	0.0000487
Rnf31	658.54	490.34	860.39	1.75	0.0001205
Tle2	156.32	116.52	204.09	1.75	0.0091651
Slc9a1	195.83	146.17	255.43	1.75	0.0059849
Leng8	392.02	292.76	511.12	1.75	0.0010185
Lipe	782.91	585.25	1020.10	1.74	0.0015777
Junb	12353.42	9242.11	16086.99	1.74	0.0000164
Jup	6832.24	5115.99	8891.73	1.74	0.0014360
Cyr61	9796.03	7336.95	12746.93	1.74	0.0078171
Exosc4	184.46	138.27	239.90	1.73	0.0065813
Tacc2	11374.34	8533.74	14783.06	1.73	0.0000846
Colq	534.61	401.26	694.62	1.73	0.0003054
Stard10	654.23	491.23	849.83	1.73	0.0004818
Xab2	560.68	421.42	727.79	1.73	0.0004893
Fbxw8	344.80	259.17	447.56	1.73	0.0049104
Cog1	1120.34	842.86	1453.32	1.72	0.0001174
Skiv2l	646.34	486.81	837.78	1.72	0.0055629
Akap17a	780.89	588.33	1011.95	1.72	0.0003054
Scaf1	428.64	323.27	555.09	1.72	0.0020843
Cand2	3175.63	2397.18	4109.78	1.71	0.0010094
Nup210	209.05	157.83	270.52	1.71	0.0095717
Rabac1	669.20	505.43	865.73	1.71	0.0006364
Cul9	454.58	343.47	587.90	1.71	0.0012043
Pld3	225.04	170.06	291.03	1.71	0.0076451
Corin	4434.66	3351.73	5734.17	1.71	0.0000836

Pc	1101.73	833.13	1424.05	1.71	0.0001381
Nfatc1	194.57	147.50	251.06	1.70	0.0089538
Tmem214	921.65	698.75	1189.13	1.70	0.0001862
Wbp2	558.11	423.19	720.02	1.70	0.0009811
Tjap1	241.14	182.87	311.08	1.70	0.0074443
Trappc9	623.56	473.47	803.68	1.70	0.0020154
Edc4	1140.85	866.48	1470.10	1.70	0.0005537
Alg2	417.47	317.25	537.75	1.70	0.0016396
Zswim8	1207.02	918.80	1552.89	1.69	0.0035975
Pcsk6	4966.14	3782.43	6386.60	1.69	0.0000179
Dus3l	363.22	276.71	467.03	1.69	0.0066067
Zfp36	18483.42	14086.77	23759.40	1.69	0.0000412
Raver1	618.81	471.63	795.43	1.69	0.0073094
Sympk	1326.00	1012.46	1702.25	1.68	0.0022525
Asb2	22066.09	16857.93	28315.89	1.68	0.0042776
Nfkb2	1091.77	835.91	1398.80	1.67	0.0014360
Plbd2	647.67	496.25	829.36	1.67	0.0014360
Rnf123	2077.95	1593.32	2659.50	1.67	0.0018147
Gcat	234.95	180.18	300.68	1.67	0.0084483
Aldoa	65848.99	50502.46	84264.82	1.67	0.0022471
Pacs1	504.63	387.07	645.69	1.67	0.0014237
Gcn1l1	3575.62	2746.57	4570.49	1.66	0.0000846
Clcn6	280.25	215.31	358.17	1.66	0.0059849
Zfp444	320.13	246.06	409.01	1.66	0.0045219
RGD1310507	690.49	530.87	882.04	1.66	0.0003427
Foxj2	1094.17	841.40	1397.50	1.66	0.0002873
Tbc1d17	840.05	646.06	1072.85	1.66	0.0005932
Abcc8	1287.31	990.33	1643.69	1.66	0.0002586
Fbxo31	1327.99	1021.91	1695.29	1.66	0.0013144
Urgcp	1863.01	1434.81	2376.86	1.66	0.0001262
Per1	1123.76	865.59	1433.58	1.66	0.0002873
Mef2d	2556.67	1970.43	3260.16	1.65	0.0000836
Slc9a8	626.12	483.16	797.66	1.65	0.0010944
Lims2	8916.32	6887.32	11351.12	1.65	0.0030369
Rela	2072.55	1602.37	2636.76	1.65	0.0001381
Aarsd1	1168.62	904.27	1485.84	1.64	0.0018117
Prpf8	5560.18	4303.35	7068.39	1.64	0.0000566
Usp36	962.86	745.30	1223.95	1.64	0.0007414
Slc27a1	1802.51	1395.39	2291.05	1.64	0.0008854
Xbp1	3072.25	2379.00	3904.14	1.64	0.0007944

Cpsf1	825.87	640.04	1048.85	1.64	0.0009260
H6pd	528.58	410.01	670.87	1.64	0.0018117
Tnrc18	496.33	385.21	629.66	1.63	0.0029728
Tubb4b	14426.12	11202.11	18294.94	1.63	0.0008283
Ptprs	2351.31	1826.35	2981.25	1.63	0.0002180
Med25	564.62	438.65	715.78	1.63	0.0032242
Usp10	1875.43	1457.05	2377.48	1.63	0.0023089
Gstm2	7663.64	5956.41	9712.32	1.63	0.0007944
Camta2	535.28	416.12	678.26	1.63	0.0022983
Gaa	4640.37	3608.89	5878.14	1.63	0.0001401
Plekhh3	638.21	496.42	808.35	1.63	0.0034953
Cnot3	310.26	241.36	392.93	1.63	0.0063802
Npr2	445.36	346.51	563.97	1.63	0.0026472
Inha	2434.34	1894.50	3082.14	1.63	0.0099688
Myo18a	3813.23	2969.35	4825.88	1.63	0.0011137
Ipo13	2027.27	1578.81	2565.41	1.62	0.0031381
Tmem115	426.44	332.24	539.49	1.62	0.0032304
Mgp	3511.77	2739.15	4438.92	1.62	0.0001977
Sf3a1	2559.46	1996.92	3234.51	1.62	0.0002073
Fitm2	9088.26	7091.57	11484.28	1.62	0.0001174
Mfge8	4024.20	3140.49	5084.65	1.62	0.0011016
Pwwp2b	506.67	395.47	640.12	1.62	0.0057430
Ech1	23839.07	18612.98	30110.38	1.62	0.0000412
Acaa1a	375.38	293.33	473.85	1.62	0.0066462
Rangap1	401.46	314.28	506.08	1.61	0.0055253
Afap1	484.44	379.37	610.52	1.61	0.0042233
Mical1	382.76	299.86	482.25	1.61	0.0090109
Hhatl	5567.73	4363.99	7012.22	1.61	0.0001381
Oplah	851.25	667.51	1071.75	1.61	0.0056711
Syde1	745.28	584.53	938.19	1.61	0.0012051
Nfic	379.05	297.33	477.12	1.60	0.0042522
Mapk12	443.43	347.93	558.02	1.60	0.0032492
Rhbdd2	488.64	383.47	614.84	1.60	0.0036379
Irgq	561.53	440.71	706.53	1.60	0.0091168
Sema4b	396.89	311.58	499.26	1.60	0.0064216
Plekhf1	844.16	662.75	1061.86	1.60	0.0046454
Atg9a	2905.43	2281.22	3654.48	1.60	0.0008253
Agpat1	711.21	558.56	894.39	1.60	0.0011758
Mocs1	314.91	247.42	395.89	1.60	0.0079372
Myh6	1058633.12	831770.67	1330868.07	1.60	0.0001174

Tfeb	704.83	553.82	886.05	1.60	0.0049511
Fam65a	1111.00	873.35	1396.19	1.60	0.0008744
Pde4a	449.05	353.08	564.21	1.60	0.0062027
Gga1	1057.30	831.72	1328.01	1.60	0.0009594
Sqstm1	9638.73	7583.31	12105.24	1.60	0.0017006
Mypn	6090.91	4795.22	7645.74	1.59	0.0001779
Pknox2	331.89	261.49	416.36	1.59	0.0087304
Yipf3	789.92	622.47	990.86	1.59	0.0026562
Vwf	1129.21	890.26	1415.96	1.59	0.0093185
Mroh1	1380.91	1089.00	1731.19	1.59	0.0009811
Scap	1572.86	1240.39	1971.82	1.59	0.0004971
Jade2	374.21	295.14	469.09	1.59	0.0073072
Gys1	12822.21	10115.93	16069.75	1.59	0.0051567
Nfix	929.54	733.38	1164.92	1.59	0.0008975
Flad1	2093.28	1653.50	2621.03	1.59	0.0022096
Top3b	720.09	568.83	901.61	1.59	0.0033014
Akr7a2	1225.02	967.79	1533.70	1.58	0.0008068
Pomgnt2	393.09	310.57	492.11	1.58	0.0068349
Gigyf1	667.07	527.66	834.36	1.58	0.0022703
Vars	3229.70	2555.07	4039.26	1.58	0.0008068
Man2c1	1153.08	912.68	1441.57	1.58	0.0008032
Bag6	5495.46	4349.72	6870.35	1.58	0.0020040
Des	111247.96	88155.95	138958.37	1.58	0.0021476
Frem2	423.34	335.49	528.77	1.58	0.0091651
Mllt1	1586.15	1257.08	1981.04	1.58	0.0009354
Sec24c	1355.07	1074.38	1691.90	1.57	0.0010263
Ubr4	3862.99	3063.10	4822.85	1.57	0.0003028
Tpra1	664.43	527.08	829.25	1.57	0.0022378
Lrp4	826.88	656.04	1031.89	1.57	0.0028103
Hcfc1	2315.94	1837.76	2889.76	1.57	0.0011758
Eif2b2	552.84	438.73	689.76	1.57	0.0043386
Gstm1	1355.62	1076.02	1691.15	1.57	0.0050386
Pcif1	443.82	352.33	553.61	1.57	0.0057430
Cpsf3l	609.36	483.86	759.95	1.57	0.0035975
Bola1	365.33	290.22	455.47	1.57	0.0095717
Gpt	1171.62	931.32	1459.99	1.57	0.0014206
Grina	2643.64	2101.73	3293.93	1.57	0.0051482
Urb1	455.55	362.30	567.45	1.57	0.0081284
Plcd3	510.43	405.99	635.75	1.57	0.0082040
Pbxip1	3033.09	2414.35	3775.58	1.56	0.0019263

Fgd1	718.29	571.81	894.07	1.56	0.0068824
Myo1e	605.32	482.22	753.04	1.56	0.0032401
Creb3l2	842.53	671.64	1047.60	1.56	0.0040756
Tbx5	2138.44	1706.38	2656.91	1.56	0.0009399
Myh14	5831.09	4653.57	7244.12	1.56	0.0005095
Cdh23	412.36	329.25	512.09	1.56	0.0071687
Phldb1	5817.62	4645.99	7223.57	1.55	0.0003634
Ptov1	1246.63	995.68	1547.77	1.55	0.0014337
Hdac5	2530.20	2021.36	3140.80	1.55	0.0005932
Lzts2	863.70	690.60	1071.43	1.55	0.0013310
Abca2	987.71	789.75	1225.26	1.55	0.0039291
Fiz1	401.53	321.09	498.04	1.55	0.0084483
Mlycd	2548.35	2038.03	3160.72	1.55	0.0007924
Sec16a	1786.51	1429.84	2214.52	1.55	0.0009594
Gga3	344.44	275.71	426.92	1.55	0.0094524
Slc35a4	911.28	729.54	1129.36	1.55	0.0025200
Crkl	639.61	512.16	792.55	1.55	0.0043635
Atp13a1	405.39	324.64	502.29	1.55	0.0099524
Ppt2	1110.38	889.52	1375.41	1.55	0.0015843
Rogdi	1283.84	1028.52	1590.22	1.55	0.0013722
Slc25a34	977.35	783.01	1210.56	1.55	0.0018117
Plxnb2	1602.58	1284.02	1984.85	1.55	0.0018117
Thop1	618.53	495.65	765.99	1.55	0.0036379
Zfyve1	479.20	384.02	593.40	1.55	0.0066225
Naga	767.99	615.74	950.68	1.54	0.0031052
Sec31a	1593.40	1278.62	1971.15	1.54	0.0070174
Slc3a2	2674.54	2146.29	3308.43	1.54	0.0007940
Fmc1	921.79	739.82	1140.15	1.54	0.0057430
Acsf2	5598.64	4494.29	6923.88	1.54	0.0008283
Ap2a1	1190.98	956.07	1472.88	1.54	0.0018117
Cst3	8630.38	6931.00	10669.63	1.54	0.0003265
Fbxo21	895.79	719.59	1107.23	1.54	0.0025683
Lrrc4b	8345.11	6709.49	10307.85	1.54	0.0007414
Ilvbl	530.91	427.04	655.56	1.54	0.0057430
Slc22a17	571.99	460.30	706.02	1.53	0.0095717
Nr1h2	1249.14	1005.40	1541.63	1.53	0.0014559
Adar	1756.34	1413.72	2167.49	1.53	0.0011016
Hk1	5176.41	4167.31	6387.33	1.53	0.0025491
Amotl2	4876.29	3928.69	6013.42	1.53	0.0007727
Scrib	1239.32	998.98	1527.74	1.53	0.0038522

Gata5	1949.78	1572.32	2402.72	1.53	0.0015684
Kcng2	2072.63	1671.92	2553.49	1.53	0.0032398
Fam73b	1959.75	1581.29	2413.90	1.53	0.0011137
Caskin2	447.34	361.03	550.90	1.53	0.0088766
Nucb1	4109.24	3316.72	5060.27	1.53	0.0031418
Chst15	675.26	545.85	830.55	1.52	0.0042979
Baz2a	679.88	549.65	836.16	1.52	0.0053039
Hyou1	6922.56	5597.38	8512.77	1.52	0.0007414
Gorasp1	1300.85	1052.34	1599.08	1.52	0.0037137
Sugp1	1573.95	1274.11	1933.76	1.52	0.0020040
Ppard	1089.01	882.10	1337.30	1.52	0.0030463
Zfp710	756.33	613.02	928.31	1.51	0.0059849
Tmem109	2616.39	2120.96	3210.89	1.51	0.0058549
Nr1d1	2704.03	2192.37	3318.02	1.51	0.0070362
Snx33	914.11	741.19	1121.62	1.51	0.0050386
Abcd1	963.50	781.36	1182.07	1.51	0.0035975
Ccdc97	1019.65	827.02	1250.82	1.51	0.0056711
Tpcn1	1154.18	936.20	1415.77	1.51	0.0073866
Sf1	947.14	768.39	1161.64	1.51	0.0046362
Slc4a3	7205.55	5847.67	8835.01	1.51	0.0008744
Tln1	6005.23	4873.86	7362.87	1.51	0.0083205
Emc10	1213.27	984.78	1487.47	1.51	0.0053570
Ift172	1099.06	892.21	1347.26	1.51	0.0037137
Tns1	19321.76	15689.84	23680.06	1.51	0.0008068
Ighmbp2	621.59	505.15	761.32	1.51	0.0063802
Bckdha	6127.62	4980.12	7504.61	1.51	0.0017378
Ubc	7189.99	5844.12	8805.02	1.51	0.0008283
Herpud1	8174.19	6645.71	10008.36	1.51	0.0009257
Tcof1	815.20	663.19	997.60	1.50	0.0047814
Tmem184b	1057.43	860.40	1293.86	1.50	0.0048862
Plekhm2	4795.49	3901.98	5867.70	1.50	0.0014533
Rab11b	2415.57	1965.79	2955.32	1.50	0.0017166
Zer1	1575.62	1282.79	1927.01	1.50	0.0025683
Tubgcp6	561.39	457.15	686.48	1.50	0.0064216
Ptms	3182.38	2591.82	3891.05	1.50	0.0051546
Sars2	835.61	680.86	1021.30	1.50	0.0070423

Supplemental Table 4: DESeq Results of Genes Enriched in Male Myocytes Analyzed with IPA

id	baseMean	baseMean Male	baseMean Female	Fold Change	padj
Ddx3	1276.95	2340.91	0.21	0.0001	1.85E-118
Eif2s3y	1208.58	2215.25	0.58	0.0003	5.12E-111
Chrng	6.65	12.05	0.18	0.0150	0.003963
Sgol2	24.20	41.20	3.80	0.0923	0.005511
Cep55	17.84	29.69	3.61	0.1216	0.001141
Casc5	48.33	80.20	10.09	0.1258	0.000001
Aspa	23.11	38.19	5.01	0.1313	0.000497
Lpar4	14.37	23.67	3.21	0.1357	0.004642
Prc1	93.03	150.74	23.78	0.1577	0.003308
Pbk	23.42	37.80	6.15	0.1628	0.009011
Ndc80	17.15	27.59	4.62	0.1673	0.006821
Dbf4	19.23	30.76	5.39	0.1753	0.005671
Kif11	48.82	77.11	14.88	0.1929	0.002660
Rrm2	48.42	74.94	16.60	0.2215	0.001738
Htr2a	27.06	41.70	9.49	0.2277	0.003852
Pde11a	26.76	41.14	9.51	0.2312	0.003852
Cenpf	76.43	116.89	27.88	0.2385	0.005050
Top2a	119.55	181.68	44.99	0.2476	0.000963
Mki67	269.59	408.55	102.83	0.2517	0.000060
Kif23	47.19	71.48	18.04	0.2524	0.000684
Phactr3	36.85	54.19	16.03	0.2959	0.007169
Aspm	52.34	75.96	24.00	0.3159	0.003017
Irf6	113.86	165.13	52.34	0.3170	0.000003
Ccnb2	46.79	67.81	21.56	0.3180	0.005855
Pycard	81.66	118.01	38.03	0.3223	0.006607
Tfrc	5804.64	8298.02	2812.58	0.3389	0.000000
Mest	83.51	118.84	41.11	0.3459	0.000187
Col3a1	7628.03	10722.45	3914.72	0.3651	0.000012
Csrp2	143.42	200.65	74.74	0.3725	0.005242
Cep290	253.26	353.34	133.17	0.3769	0.000833
Fmr1	410.56	572.46	216.28	0.3778	0.002100
Csgalnact1	81.70	112.86	44.32	0.3927	0.001102
Emp1	1512.69	2089.38	820.66	0.3928	0.000024
Arhgap11a	83.37	115.11	45.29	0.3935	0.005039

Il1b	67.34	92.86	36.71	0.3954	0.003544
Ccp110	98.95	135.61	54.95	0.4052	0.001141
Loxl2	167.88	230.02	93.30	0.4056	0.000029
Postn	78.71	107.76	43.84	0.4068	0.002879
Dgkb	912.53	1249.09	508.67	0.4072	0.003126
Tspan2	777.11	1062.69	434.40	0.4088	0.004174
Casp3	146.92	199.76	83.51	0.4181	0.000152
Pik3c2a	1054.64	1426.13	608.85	0.4269	0.004249
Fap	70.33	94.94	40.80	0.4298	0.006223
Mrc1	145.06	194.33	85.92	0.4422	0.005776
C1qtnf6	71.50	95.72	42.42	0.4432	0.008128
Klhl4	114.04	152.43	67.97	0.4459	0.002015
Tmed5	724.36	965.01	435.59	0.4514	0.006238
Kras	213.58	284.47	128.52	0.4518	0.001098
Vcan	268.49	357.15	162.10	0.4539	0.001052
Ptbp3	238.85	317.67	144.26	0.4541	0.003126
Pvrl3	185.62	246.75	112.26	0.4550	0.000232
Arl5b	408.62	541.79	248.82	0.4592	0.007025
Tlk1	171.20	226.88	104.40	0.4601	0.000593
Abracl	137.96	182.45	84.57	0.4635	0.001421
Sema3d	186.67	246.88	114.43	0.4635	0.001812
Gnai3	1163.55	1538.77	713.29	0.4635	0.001694
Cav2	821.77	1086.76	503.78	0.4636	0.002361
Casp8ap2	504.93	667.58	309.76	0.4640	0.005145
Sh3bgrl	662.38	874.21	408.17	0.4669	0.000000
Cd83	148.18	195.31	91.63	0.4691	0.004252
RGD1305110	685.77	903.84	424.08	0.4692	0.003310
Nrep	136.82	180.32	84.61	0.4693	0.001389
Rab8b	245.89	323.22	153.11	0.4737	0.000885
Dock11	199.18	260.89	125.13	0.4796	0.001436
Slc35a3	191.25	250.31	120.39	0.4810	0.000636
Zdhhc21	215.55	281.91	135.92	0.4821	0.000885
Calcrl	460.58	599.64	293.71	0.4898	0.001009
Rnf152	202.39	263.16	129.47	0.4920	0.005525
Rcn1	1159.90	1503.97	747.02	0.4967	0.000000
LOC367515	302.53	391.77	195.45	0.4989	0.009049
Prrg1	174.71	225.79	113.41	0.5023	0.001809
Bub1	125.00	161.08	81.70	0.5072	0.004627
Prcp	317.17	408.58	207.48	0.5078	0.000437
Smc2	311.37	400.52	204.40	0.5103	0.004627

Trim37	227.78	292.79	149.76	0.5115	0.000741
Kif5b	18334.26	23556.34	12067.77	0.5123	0.007645
Cd302	118.32	151.95	77.95	0.5130	0.009165
Ccng1	37672.02	48379.01	24823.63	0.5131	0.006581
Idi1	299.00	383.79	197.26	0.5140	0.008826
Zfp367	238.99	306.40	158.11	0.5160	0.004909
Gnai1	116.37	149.13	77.06	0.5167	0.008826
Alg13	161.37	206.46	107.27	0.5196	0.003310
Eif2ak2	1224.71	1565.79	815.40	0.5208	0.000041
Nin	374.53	478.69	249.55	0.5213	0.000775
RGD1308706	1076.32	1374.44	718.58	0.5228	0.003463
Vps36	564.58	720.63	377.33	0.5236	0.004216
Pten	1551.23	1978.58	1038.40	0.5248	0.005010
Mum1l1	237.07	302.38	158.70	0.5248	0.005500
Dynlt3	1363.19	1736.74	914.93	0.5268	0.006331
Rbbp8	164.65	209.74	110.54	0.5270	0.004038
Mtf2	184.61	235.04	124.08	0.5279	0.007950
Ap3s1	252.51	321.19	170.09	0.5296	0.000885
Rnd3	3365.77	4275.62	2273.96	0.5318	0.006835
S100a10	555.79	705.73	375.86	0.5326	0.007867
Hopx	1467.02	1862.78	992.11	0.5326	0.002361
Col1a1	557.56	707.97	377.07	0.5326	0.007623
Sgce	363.85	461.81	246.29	0.5333	0.000262
Tmod3	935.95	1186.99	634.70	0.5347	0.000491
Pank3	862.47	1092.49	586.44	0.5368	0.002793
Rps6kb1	1385.55	1755.00	942.21	0.5369	0.008128
Cyp2j4	382.27	484.08	260.10	0.5373	0.004951
Rasa1	2138.54	2707.34	1455.99	0.5378	0.004781
Csde1	31315.86	39635.10	21332.77	0.5382	0.009572
Gbp2	681.27	862.16	464.19	0.5384	0.003033
Mospd2	184.52	233.36	125.91	0.5396	0.004252
Col5a2	557.91	704.99	381.40	0.5410	0.008114
Tmtc4	477.64	602.99	327.21	0.5427	0.000807
Zhx1	914.21	1153.55	626.99	0.5435	0.009268
Pign	276.67	348.70	190.22	0.5455	0.001094
Zdhhc17	416.06	524.08	286.44	0.5466	0.001885
Htatsf1	957.98	1205.91	660.46	0.5477	0.005869
Jak2	669.18	841.82	462.02	0.5488	0.004636
Larp1b	5415.04	6809.79	3741.35	0.5494	0.004252
Cmpk1	1116.75	1402.24	774.17	0.5521	0.002870

Arrdc3	898.72	1127.98	623.61	0.5529	0.002068
Usp12	426.26	534.43	296.45	0.5547	0.008448
Memo1	860.64	1078.41	599.30	0.5557	0.005511
Tlr3	174.33	218.19	121.70	0.5578	0.006052
Bhlhb9	171.97	215.19	120.11	0.5582	0.005511
Llph	473.49	591.59	331.78	0.5608	0.002667
Kctd18	199.93	249.64	140.28	0.5619	0.006226
Cyb5r4	297.87	371.80	209.16	0.5626	0.005357
Rb1cc1	2309.59	2882.18	1622.49	0.5629	0.007836
Nampt	9356.74	11669.60	6581.32	0.5640	0.000746
Myef2	511.71	638.16	359.97	0.5641	0.004750
Pdcd4	480.64	599.19	338.38	0.5647	0.000469
Cdv3	2183.21	2721.01	1537.84	0.5652	0.008818
Dstn	4937.81	6144.46	3489.83	0.5680	0.000002
Eif1a	936.33	1164.38	662.66	0.5691	0.005331
Tceal8	1562.42	1942.44	1106.38	0.5696	0.003597
Emc2	3097.47	3847.05	2197.98	0.5713	0.008826
Hmgb2	488.12	605.84	346.87	0.5725	0.001554
Bmi1	1167.21	1447.51	830.86	0.5740	0.007309
Rab30	277.27	343.85	197.38	0.5740	0.002614
Pik3r3	488.50	605.77	347.78	0.5741	0.000437
Hmgn3	980.53	1215.36	698.72	0.5749	0.000875
Prkx	277.96	344.36	198.28	0.5758	0.002877
Apaf1	272.17	337.16	194.17	0.5759	0.003105
Ccz1b	724.75	897.73	517.18	0.5761	0.001663
Rala	749.52	927.62	535.80	0.5776	0.001436
Chm	819.16	1013.48	585.97	0.5782	0.007309
Myo9a	2269.61	2806.68	1625.13	0.5790	0.006715
Ankrd13c	565.01	698.66	404.63	0.5791	0.000579
Tpk1	234.45	289.54	168.35	0.5814	0.004886
Kpna5	356.29	439.93	255.93	0.5817	0.002709
Mlf1	2722.65	3361.26	1956.33	0.5820	0.000018
Nes	722.07	891.42	518.84	0.5820	0.000310
Ccnd2	8591.39	10605.13	6174.91	0.5823	0.003852
Gadd45a	3418.42	4219.52	2457.09	0.5823	0.008144
Baz1a	408.32	503.73	293.83	0.5833	0.006953
Anxa10	495.53	611.22	356.70	0.5836	0.000874
Gabpa	1410.38	1739.42	1015.53	0.5838	0.004962
ENSRNOG00000030371	1140346.90	1405569.40	822079.91	0.5849	0.004252

Pds5a	1588.98	1958.53	1145.51	0.5849	0.001717
Azin1	3718.59	4583.32	2680.92	0.5849	0.009463
Serp1	607.90	749.20	438.34	0.5851	0.000807
Rap1b	372.76	459.25	268.97	0.5857	0.003338
Rmdn1	2890.38	3557.56	2089.76	0.5874	0.005437
Cops2	2290.34	2816.77	1658.62	0.5888	0.003394
Pigy	2383.45	2928.69	1729.17	0.5904	0.000768
Ap1s2	1124.63	1381.46	816.43	0.5910	0.007179
Pon2	477.68	586.67	346.90	0.5913	0.001141
Homer2	649.06	796.74	471.84	0.5922	0.002536
Pdcd10	539.47	661.64	392.87	0.5938	0.001207
Fbn1	469.30	575.50	341.87	0.5940	0.009463
Tmtc3	1281.78	1571.21	934.46	0.5947	0.004980
Cggbp1	1211.39	1484.34	883.84	0.5954	0.007078
Reep3	229.47	281.10	167.51	0.5959	0.009394
Magi3	3687.10	4515.77	2692.69	0.5963	0.000712
Nr3c1	4570.62	5595.33	3340.97	0.5971	0.006203
Ptpla	1300.07	1591.35	950.54	0.5973	0.000593
Gng12	273.44	334.60	200.04	0.5979	0.004676
Rbm25	3283.07	4013.87	2406.12	0.5995	0.008826
Syap1	638.31	780.01	468.26	0.6003	0.002350
Ergic2	2611.04	3190.28	1915.96	0.6006	0.006203
Arpc5l	1335.92	1632.07	980.55	0.6008	0.007645
Ireb2	543.93	664.34	399.44	0.6012	0.006581
Strn3	5154.34	6292.21	3788.89	0.6022	0.007441
Efnb2	296.90	362.43	218.27	0.6022	0.005985
Rab6a	2283.26	2786.56	1679.30	0.6026	0.007169
Usp1	943.49	1151.40	694.00	0.6027	0.005386
Apool	1687.02	2052.84	1248.04	0.6080	0.004733
Vps4b	1226.24	1491.97	907.37	0.6082	0.007025
Otud6b	1712.49	2083.18	1267.65	0.6085	0.009368
Lnpep	5706.33	6940.35	4225.49	0.6088	0.002298
Mob1a	1278.47	1554.86	946.81	0.6089	0.000436
Slk	3902.98	4746.47	2890.80	0.6090	0.006629
Usp46	781.73	950.23	579.53	0.6099	0.002520
Pros1	336.44	408.88	249.51	0.6102	0.004339
Ppp1r14c	3827.51	4651.09	2839.22	0.6104	0.005304
Uba3	3016.64	3665.73	2237.73	0.6104	0.007179
Atg4al1	567.41	689.17	421.29	0.6113	0.001568
Rab21	1695.57	2059.16	1259.25	0.6115	0.009452

Tgfbr1	653.51	793.43	485.59	0.6120	0.005039
Rnf2	1609.47	1953.34	1196.82	0.6127	0.001437
Ggct	332.42	403.06	247.66	0.6144	0.006203
Sept2	5611.23	6802.92	4181.20	0.6146	0.000084
Nasp	715.87	867.87	533.47	0.6147	0.001003
March7	2429.51	2943.89	1812.26	0.6156	0.001701
Phospho2	527.04	638.44	393.35	0.6161	0.006874
Eapp	630.19	763.33	470.42	0.6163	0.004886
Usp32	1839.83	2227.33	1374.83	0.6173	0.003354
Pafah1b1	4823.21	5832.23	3612.39	0.6194	0.005922
Tpt1	35394.86	42770.09	26544.58	0.6206	0.002656
Tomm20	3536.13	4271.34	2653.88	0.6213	0.002176
Armcx3	3821.08	4615.39	2867.91	0.6214	0.000356
Birc2	943.20	1139.05	708.17	0.6217	0.007309
Dnaja1	4316.92	5213.11	3241.49	0.6218	0.000121
Ogfrl1	513.69	619.78	386.38	0.6234	0.009463
Gpatch11	327.85	395.49	246.69	0.6238	0.007025
Sept7	9081.32	10949.15	6839.92	0.6247	0.006874
Tulp4	329.89	397.64	248.59	0.6252	0.009452
Phf10	771.48	929.87	581.40	0.6253	0.002358
Capza1	1053.92	1269.87	794.78	0.6259	0.000874
Kctd9	347.65	418.74	262.33	0.6265	0.006992
Tdg	318.93	384.15	240.67	0.6265	0.009290
Mib1	457.35	550.50	345.58	0.6278	0.004272
Cycs	50233.19	60457.55	37963.96	0.6279	0.003145
Plekha3	802.45	965.66	606.60	0.6282	0.008448
Sh3glb1	12696.71	15266.00	9613.56	0.6297	0.005985
Evl	316.08	379.96	239.42	0.6301	0.007388
Klf6	5347.22	6427.77	4050.57	0.6302	0.001913
Arpc2	5093.31	6118.42	3863.17	0.6314	0.001568
Mrpl18	770.72	925.73	584.71	0.6316	0.004252
Tmem126a	2372.92	2849.59	1800.92	0.6320	0.007309
Acap2	447.71	537.64	339.80	0.6320	0.005743
Mex3c	651.82	782.45	495.07	0.6327	0.005985
Nab1	1299.86	1560.05	987.63	0.6331	0.003495
Ttc39b	725.98	871.28	551.63	0.6331	0.002793
Tarsl2	1327.74	1593.32	1009.05	0.6333	0.004840
Ppat	3131.28	3757.32	2380.04	0.6334	0.003376
Usmg5	32330.06	38783.42	24586.04	0.6339	0.004529
Csnk1g3	999.02	1198.14	760.07	0.6344	0.009003

Mtx2	882.99	1058.42	672.47	0.6354	0.004498
Msantd3	441.93	529.51	336.83	0.6361	0.007867
Setd2	1633.94	1956.74	1246.58	0.6371	0.009135
Mapk6	1904.14	2279.03	1454.28	0.6381	0.002614
Capza2	3346.74	4004.74	2557.15	0.6385	0.007881
Akirin1	699.19	836.64	534.24	0.6386	0.003126
Mfap1a	2586.07	3094.25	1976.27	0.6387	0.000437
Smek1	1111.62	1330.05	849.50	0.6387	0.006835
MGC95208	589.60	705.42	450.62	0.6388	0.005304
Dnajc3	1597.93	1911.60	1221.53	0.6390	0.001204
Chd1	1508.98	1805.16	1153.56	0.6390	0.005760
Ugp2	16427.31	19651.49	12558.29	0.6391	0.003476
Guf1	2782.59	3328.03	2128.06	0.6394	0.008149
Cfl2	7461.98	8924.37	5707.11	0.6395	0.006882
Ccdc85a	760.23	909.14	581.54	0.6397	0.002568
Rbm7	688.88	823.41	527.45	0.6406	0.003308
Dld	13930.62	16649.65	10667.79	0.6407	0.002327
Chmp3	3546.91	4236.77	2719.08	0.6418	0.003380
Atf1	1550.17	1851.64	1188.40	0.6418	0.005855
Xpr1	445.46	532.06	341.54	0.6419	0.009185
Picalm	3090.37	3689.40	2371.53	0.6428	0.003230
Gtf2h1	827.10	987.22	634.97	0.6432	0.002361
ENSRNOG00000030700	1344362.65	1604051.86	1032735.60	0.6438	0.006331
Hmgb1	2514.99	3000.58	1932.28	0.6440	0.005304
Slc12a2	738.06	880.03	567.69	0.6451	0.003720
Usp25	2948.27	3512.91	2270.70	0.6464	0.008128
Canx	15085.27	17966.38	11627.93	0.6472	0.002667
Psme4	9827.56	11693.63	7588.26	0.6489	0.001372
March5	936.03	1112.77	723.95	0.6506	0.007795
Them4	959.80	1140.45	743.02	0.6515	0.003238
Btbd1	12385.13	14714.61	9589.76	0.6517	0.004878
Minos1	6021.63	7153.54	4663.34	0.6519	0.001436
Snap23	1042.02	1237.87	807.01	0.6519	0.007645
Atg3	1181.98	1404.01	915.54	0.6521	0.004745
Plaa	3334.30	3958.89	2584.80	0.6529	0.000807
Crk	3143.46	3731.30	2438.04	0.6534	0.001115
Frg1	1131.07	1342.52	877.34	0.6535	0.003714
Cox6c	51012.50	60540.28	39579.16	0.6538	0.007179
Mtmr6	2155.91	2558.16	1673.20	0.6541	0.005869

Eif4e3	870.69	1032.95	675.97	0.6544	0.003929
RGD1308147	735.15	871.91	571.03	0.6549	0.005357
Lims1	3303.04	3914.99	2568.71	0.6561	0.008459
Pdha1	44453.77	52675.18	34588.08	0.6566	0.004781
Ccdc43	1215.94	1440.74	946.18	0.6567	0.004953
LOC499602	1467.47	1738.60	1142.12	0.6569	0.001736
Gkap1	1007.72	1193.72	784.52	0.6572	0.003315
Rab1a	3053.06	3615.37	2378.29	0.6578	0.001926
Rsrc2	3140.82	3718.56	2447.54	0.6582	0.006238
Wdr26	4153.12	4915.21	3238.62	0.6589	0.005304
Metap2	3874.19	4584.74	3021.53	0.6590	0.003929
Mrpl32	1472.39	1742.33	1148.46	0.6591	0.002252
Ppp2r3a	8039.47	9505.41	6280.33	0.6607	0.001331
Stmn1	1279.60	1512.82	999.73	0.6608	0.002513
Cdk14	1751.48	2070.30	1368.90	0.6612	0.007867
Jtb	894.97	1057.80	699.58	0.6614	0.004212
Rfc1	1540.91	1820.77	1205.07	0.6618	0.009368
Csnk1a1	3850.13	4546.34	3014.67	0.6631	0.002318
Ctps1	2980.26	3518.67	2334.18	0.6634	0.005304
Bche	1011.66	1194.23	792.57	0.6637	0.005039
Ralbp1	1740.93	2054.65	1364.46	0.6641	0.002520
Itgb1	8611.57	10162.38	6750.59	0.6643	0.000833
Map4k4	2801.93	3305.91	2197.15	0.6646	0.001554
Ngrn	791.76	933.66	621.47	0.6656	0.006581
Zfp148	1419.97	1674.37	1114.70	0.6657	0.003663
Cast	3301.57	3892.46	2592.50	0.6660	0.005996
Mcts1	916.78	1080.54	720.26	0.6666	0.006543
Dnm1l	5688.03	6703.82	4469.08	0.6666	0.000963

Supplemental Table 5: Primer Sequences

Primer/Gene Name	Sequence
18S Forward	gccgctagaggtgaaattcttg
18S Reverse	ctttcgctctggtcgtctt
Nr4a1 Forward	tgctctggtcctcatcactg
Nr4a1 Reverse	gacagctagcaatgcggttc
Tfrc Forward	cgttattaaaggctatgaggaacc
Tfrc Reverse	gttcccacactggacttcg
Col3a1 Forward	ggcacagcagtccaatgtag
Col3a1 Reverse	cccgagtcgcagacacata
Ccng1 Forward	actggacagattcttgtctaaaatga
Ccng1 Reverse	ggacgttcctttcctcttca
Ucp2 Forward	gttctacaccaagggctcaga
Ucp2 Reverse	gacctttaccacatctgtaggttg
Cox6c Forward	gcgtctgcgggttcatattg
Cox6c Reverse	tctgcataagccttctttcttg
Por Forward	gccgtctgaagagctacgag
Por Reverse	tggttcagcttccggttg

Supplemental Table 6: Top Ten Activated Canonical Pathways in Genes Enriched in Female Cardiac Myocytes

Ingenuity Canonical Pathways	-log(p-value)	Ratio	z-score	Molecules
April Mediated Signaling	2.79E+00	1.05E-01	2	RELA,NFKB2,MAPK12,NFATC1
Pancreatic Adenocarcinoma Signaling	2.48E+00	5.56E-02	2.449	RELA,PLD3,CYP2E1,NFKB2,MAPK12,JAK3
iNOS Signaling	2.45E+00	8.51E-02	2	RELA,NFKB2,MAPK12,JAK3
BMP signaling pathway	2.43E+00	6.49E-02	2	NKX2-5,ZNF423,RELA,NFKB2,MAPK12
LXR/RXR Activation	2.12E+00	4.69E-02	0.447	C4A/C4B,APOE,RELA,NR1H2,SREBF1,NFKB2
Wnt/Ca+ pathway	2.10E+00	6.78E-02	2	PLCD3,RELA,NFKB2,NFATC1
Activation of IRF by Cytosolic Pattern Recognition Receptors	2.00E+00	6.35E-02	1	RELA,NFKB2,ADAR,MAPK12
Type II Diabetes Mellitus Signaling	1.97E+00	4.35E-02	1	RELA,ABCC8,SLC27A1,NFKB2,MAPK12,Irs3
ILK Signaling	1.87E+00	3.72E-02	2.449	RELA,MYH6,LIMS2,MYH14,NFKB2,MAPK12,Irs3
Protein Kinase A Signaling	1.73E+00	2.76E-02	0.333	PLCD3,RELA,Hist1h1e,GYS1,PTPN23,DUSP1, PDE4A,PTPRS,LIPE,NFKB2,NFATC1

Supplemental Table 7: Top Ten Activated Canonical Pathways in Genes Enriched in Male Cardiac Myocytes

Ingenuity Canonical Pathways	-log(p-value)	Ratio	z-score	Molecules
Integrin Signaling	5.81	0.0647	2.887	PIK3R3,ITGB1,RAP1B,RALA,RND3,PIK3C2A,LIMS1,ARPC5L,ARPC2,TSPAN2,KRAS,CRK,PTEN
Signaling by Rho Family GTPases	5.05	0.0551	2.333	ITGB1,PIK3C2A,ARPC5L,SEPT7,GNAI1,PIK3R3,STMN1,GNAI3,CFL2,RND3,ARPC2,GNG12,SEPT2
Rac Signaling	4.23	0.0748	2.828	ITGB1,PIK3R3,RPS6KB1,CFL2,PIK3C2A,ARPC5L,ARPC2,KRAS
Lymphotoxin Î² Receptor Signaling	4.17	0.107	1.633	PIK3R3,CASP3,PIK3C2A,APAF1,CYCS,BIRC2
PDGF Signaling	4.1	0.0843	1.89	PIK3R3,PIK3C2A,CRK,KRAS,JAK2,EIF2AK2,RASA1
fMLP Signaling in Neutrophils	4.01	0.0696	2.646	PIK3R3,GNAI3,PIK3C2A,ARPC5L,ARPC2,GNAI1,KRAS,GNG12
IL-8 Signaling	3.89	0.0532	3	PIK3R3,GNAI3,RPS6KB1,CCND2,RND3,PIK3C2A,GNAI1,KRAS,MAP4K4,GNG12
Mitotic Roles of Polo-Like Kinase	3.76	0.0909	2	SLK,KIF23,PPP2R3A,PRC1,CCNB2,KIF11
FcÎ³ Receptor-mediated Phagocytosis in Macrophages and Monocytes	3.62	0.0707	1.89	PIK3R3,RPS6KB1,ARPC5L,ARPC2,DGKB,CRK,PTEN
Insulin Receptor Signaling	3.42	0.0571	2.121	PIK3R3,PPP1R14C,RPS6KB1,PIK3C2A,CRK,KRAS,JAK2,PTEN

Supplemental Table 8: Genes Upregulated in Female Cardiac Myocytes with and without an ERE

Up In Female + ERE	Up In Female - ERE
Ier5l	LOC310926
Krt19	Irs3
Ass1	Cyp2e1
Map1s	Csdc2
Lrg1	Gtpbp1
Hist2h4	Hlx
Dmtn	Fmnl1
Jak3	Irf2bp1
C4a	Nr4a1
Srebf1	Hsf4
Klf2	Pdxp
Foxk1	Pla2g15
Msln	Hspa12b
Repin1	Hspbp1
Ap5s1	Hist1h1d
Ahdc1	Trim11
Cad	Pom121
Prrc2a	Wnk2
Lrch4	Synpo
Ucp2	Vps18
Dyrk1b	Shroom3
Fmo1	Rfx1
Ptpn23	Cbx7
Atg2a	Tbc1d25
Nkx2-5	Rbm42
Adamtsl4	Alpl
Bcas3	Rbm14
Nckipsd	Dyrk3
Ier2	Tysnd1
Mn1	Zbtb45
Foxp3	Apoe
Tapbp	Vasn
Notch2	Cnksr1
Llgl2	Zfp691
Sts	Por
Dok7	Bcl9l
Eif3f	Zfp423
Angel1	Zfp142

Pelp1	Cx3cl1
Slc9a1	Ttll12
Leng8	Jrk
Tacc2	Disp1
Colq	Arc
Akap17a	Wdr81
Scaf1	Ncln
Cand2	Rhbdf1
Rabac1	Pbld1
Cul9	Dusp1
Corin	Entpd6
Tmem214	Usp19
Wbp2	Itga7
Edc4	Acacb
Dus3l	Rnf31
Raver1	Tle2
Nfkb2	Lipe
Plbd2	Junb
Rnf123	Jup
Gcat	Cyr61
Aldoa	Exosc4
Pacs1	Stard10
Zfp444	Xab2
RGD1310507	Fbxw8
Abcc8	Cog1
Per1	Skiv2l
Slc9a8	Nup210
Lims2	Pld3
Rela	Pc
Slc27a1	Nfatc1
H6pd	Tjap1
Tubb4b	Trappc9
Usp10	Alg2
Npr2	Zswim8
Inha	Pcsk6
Mgp	Zfp36
Fitm2	Sympk
Ech1	Asb2
Acaa1a	Gcn1l1
Afap1	Clcn6
Mical1	Foxj2

Syde1	Tbc1d17
Nfic	Fbxo31
Mapk12	Urgcp
Rhbdd2	Mef2d
Irgq	Aarsd1
Sema4b	Prpf8
Plekhf1	Usp36
Atg9a	Xbp1
Agpat1	Cpsf1
Mocs1	Tnrc18
Fam65a	Ptprs
Pde4a	Med25
Pknox2	Gstm2
Mroh1	Camta2
Jade2	Gaa
Nfix	Plekhh3
Top3b	Cnot3
Akr7a2	Myo18a
Gigyf1	Ipo13
Bag6	Tmem115
Mllt1	Sf3a1
Sec24c	Mfge8
Ubr4	Pwwp2b
Lrp4	Rangap1
Eif2b2	Hhatl
Pcif1	Oplah
Cpsf3l	Myh6
Gpt	Tfeb
Plcd3	Gga1
Pbxip1	Sqstm1
Creb3l2	Mypn
Cdh23	Yipf3
Phldb1	Vwf
Ptov1	Scap
Lzts2	Gys1
Abca2	Flad1
Mlycd	Pomgnt2
Sec16a	Vars
Gga3	Man2c1
Slc35a4	Des
Ppt2	Frem2

Rogdi
Thop1
Zfyve1
Naga
Sec31a
Fmc1
Acsf2
Fbxo21
Ilvbl
Nr1h2
Scrib
Caskin2
Nucb1
Chst15
Hyou1
Gorasp1
Ppard
Tmem109
Ccdc97
Tpcn1
Slc4a3
Emc10
Ift172
Bckdha
Herpud1
Tmem184b
Plekhm2
Zer1

Tpra1
Hcfc1
Gstm1
Bola1
Grina
Urb1
Fgd1
Myo1e
Tbx5
Myh14
Hdac5
Fiz1
Crkl
Atp13a1
Slc25a34
Plxnb2
Slc3a2
Ap2a1
Cst3
Lrrc4b
Slc22a17
Adar
Hk1
Amotl2
Gata5
Kcng2
Fam73b
Baz2a
Sugp1
Zfp710
Nr1d1
Snx33
Abcd1
Sf1
Tln1
Tns1
Ighmbp2
Ubc
Tcof1
Rab11b
Tubgcp6

Ptms
Sars2

Supplemental Table 9: Genes Upregulated in Male Cardiac Myocytes with and without an ARE

Up In Male + ARE	Up In Male -ARE
Prc1	Ddx3
Pbk	Eif2s3y
Dbf4	Chrng
Htr2a	Sgol2
Cenpf	Cep55
Mki67	Casc5
Cep290	Aspa
Emp1	Lpar4
Arhgap11a	Ndc80
Il1b	Kif11
Ccp110	Rrm2
Pik3c2a	Pde11a
C1qtnf6	Top2a
Ptbp3	Kif23
Pvrl3	Phactr3
Abracl	Aspm
Sema3d	Irf6
Gnai3	Ccnb2
Casp8ap2	Pycard
RGD1305110	Tfrc
Nrep	Mest
Rab8b	Col3a1
Zdhhc21	Csrp2
LOC367515	Fmr1
Prrg1	Csgalnact1
Smc2	Loxl2
Trim37	Postn
Cd302	Dgkb
Ccng1	Tspan2
Idi1	Casp3
RGD1308706	Fap
Mtf2	Mrc1
Rnd3	Klhl4
S100a10	Tmed5
Hopx	Kras
Col1a1	Vcan
Arrdc3	Arl5b

Llph
Myef2
Pdcd4
Eif1a
Hmgn3
Rala
Myo9a
Kpna5
Ccnd2
Tmtc3
Gng12
Syap1
Arpc5l
Usp1
Mob1a
Slk
Pros1
Uba3
March7
Tomm20
Cycs
Plekha3
Mrpl18
Tmem126a
Mex3c
Mfap1a
Cfl2
Ccdc85a
Psme4
Btbd1
Snap23
Eif4e3
Gkap1
Rfc1
Ralbp1
Map4k4
Ngrn
Cast

Tlk1
Cav2
Sh3bgrl
Cd83
Dock11
Slc35a3
Calcrl
Rnf152
Rcn1
Bub1
Prcp
Kif5b
Zfp367
Gnai1
Alg13
Eif2ak2
Nin
Vps36
Pten
Mum1l1
Dynlt3
Rbbp8
Ap3s1
Sgce
Tmod3
Pank3
Rps6kb1
Cyp2j4
Rasa1
Csde1
Gbp2
Mospd2
Col5a2
Tmtc4
Zhx1
Pign
Zdhhc17
Htatsf1
Jak2
Larp1b
Cmpk1

Usp12
Memo1
Tlr3
Bhlhb9
Kctd18
Cyb5r4
Rb1cc1
Nampt
Cdv3
Dstn
Tceal8
Emc2
Hmgb2
Bmi1
Rab30
Pik3r3
Prkx
Apaf1
Ccz1b
Chm
Ankrd13c
Tpk1
Mlf1
Nes
Gadd45a
Baz1a
Anxa10
Gabpa
ENSRNOG00000030371
Pds5a
Azin1
Serp1
Rap1b
Rmdn1
Cops2
Pigy
Ap1s2
Pon2
Homer2
Pdcd10
Fbn1

Cggbp1
Reep3
Magi3
Nr3c1
Ptpla
Rbm25
Ergic2
Ireb2
Strn3
Efnb2
Rab6a
Apool
Vps4b
Otud6b
Lnpep
Usp46
Ppp1r14c
Atg4al1
Rab21
Tgfbr1
Rnf2
Ggct
Sept2
Nasp
Phospho2
Eapp
Usp32
Pafah1b1
Tpt1
Armcx3
Birc2
Dnaja1
Ogfrl1
Gpatch11
Sept7
Tulp4
Phf10
Capza1
Kctd9
Tdg
Mib1

Sh3glb1
Evl
Klf6
Arpc2
Acap2
Nab1
Ttc39b
Tarsl2
Ppat
Usmg5
Csnk1g3
Mtx2
Msantd3
Setd2
Mapk6
Capza2
Akirin1
Smek1
MGC95208
Dnajc3
Chd1
Ugp2
Guf1
Rbm7
Dld
Chmp3
Atf1
Xpr1
Picalm
Gtf2h1
ENSRNOG00000030700
Hmgb1
Slc12a2
Usp25
Canx
March5
Them4
Minos1
Atg3
Plaa
Crk

Frg1
Cox6c
Mtmr6
RGD1308147
Lims1
Pdha1
Ccdc43
LOC499602
Rab1a
Rsrc2
Wdr26
Metap2
Mrpl32
Ppp2r3a
Stmn1
Cdk14
Jtb
Csnk1a1
Ctps1
Bche
Itgb1
Zfp148
Mcts1
Dnm1l

Supplemental Table 10: DAVID Gene Ontology Analysis of ERE Containing Genes More Highly Expressed in Female Cardiac Myocytes

Keyword	PValue	Genes	Fold Enrichment
Osteogenesis	0.01621318	MGP, NPR2, HIST2H4	15.25905088
Antiport	0.01733544	SLC9A8, SLC4A3, SLC9A1	14.73287671
Fatty acid metabolism	0.00568615	SLC27A1, ECH1, MLYCD, ACAA1A, ACSF2	6.981265109
Lysosome	0.0042892	PLEKHF1, NAGA, PPT2, ABCA2, TPCN1, PLBD2	5.621755588
Lipid metabolism	3.04E-04	SREBF1, SLC27A1, STS, ECH1, MLYCD, PLCD3, ACAA1A, ACSF2, AGPAT1, PLBD2	4.654176739
Ligase	0.01010702	SLC27A1, RNF123, ASS1, GCAT, UBR4, ACSF2	4.569555344
Activator	0.00251343	NR1H2, SREBF1, PTOV1, NOTCH2, PELP1, CREB3L2, NFIC, KLF2	4.33210063
Golgi apparatus	0.00133814	PACS1, SREBF1, NUCB1, RABAC1, SLC9A8, ATG9A, GORASP1, MSLN, AKR7A2, CHST15, SLC35A4	3.450651741
Methylation	0.02060779	PHLDB1, KRT19, RNF123, SEC31A, IFT172, PTPN23, PRRC2A, SLC4A3, HIST2H4	2.642804689
Acetylation	1.24E-05	PACS1, IER2, ALDOA, ECH1, TMEM214, THOP1, EDC4, PRRC2A, ACSF2, BAG6, PELP1, RAVER1, EIF3F, AKR7A2, USP10, ACAA1A, AFAP1, DUS3L, TUBB4B, BCKDHA, ATG9A, UBR4, ROGDI, HIST2H4, HYOU1, MLYCD, IFT172, CAND2, GPT, REPIN1	2.407061547
Ubl conjugation	0.00939789	ALDOA, RNF123, SEC31A, MAPK12, PDE4A, IFT172, CREB3L2, CAND2, PER1, USP10, KLF2, SLC9A1, HIST2H4	2.343584186
DNA-binding	0.00531095	SREBF1, PPARD, FOXK1, FOXP3, HIST2H4, PKNOX2, NUCB1, NR1H2, MAP1S, CREB3L2, KLF2, NFIC, NKX2-5, TOP3B, REPIN1	2.309477971
Cytoplasm	4.23E-05	CPSF3L, IER2, ALDOA, PTOV1, SLC27A1, LZTS2, SEC31A, THOP1, PTPN23, EDC4, PRRC2A, RABAC1, FAM65A, RNF123, BAG6, PBXIP1, PELP1, RAVER1, PDE4A, EIF3F, AKR7A2, PER1, USP10, MICAL1, AFAP1, TUBB4B, UBR4, NUCB1, PLEKHF1, NOTCH2, MAPK12, MAP1S, MLYCD, GPT, JAK3	2.068308418
Zinc-finger	0.03560983	PLEKHF1, NR1H2, PPARD, JADE2, RNF123, CUL9, UBR4, KLF2, ZFP444, ZFYVE1, DUS3L, REPIN1	2.012972554
Nucleus	1.03E-04	CPSF3L, IER2, SCAF1, PTOV1, PPARD, PTPN23, EDC4, PRRC2A, NR1H2, TMEM109, BAG6, PBXIP1, PELP1, RAVER1, CREB3L2, PER1, USP10, NKX2-5, SREBF1, UBR4, ROGDI, FOXP3, ZFP444, HIST2H4, PLEKHF1, PKNOX2, NOTCH2, MAPK12, MAP1S, IFT172, CAND2, NFIC, KLF2, REPIN1	2.007547877
Transcription	0.04361491	NR1H2, SREBF1, PTOV1, NOTCH2, PPARD, MAPK12, PELP1, CREB3L2, PER1, NFIC, FOXP3, KLF2	1.94648485
Phosphoprotein	1.11E-06	SCAF1, SLC9A8, LZTS2, SEC31A, THOP1, PTPN23, EDC4, BAG6, PBXIP1, PDE4A, RAVER1, AKR7A2, CREB3L2, MICAL1, USP10, SLC4A3, ATG9A, UBR4, MGP, HIST2H4, NUCB1, KRT19, PACS1, ALDOA, PTOV1, PHLDB1, ECH1, ASS1, ABCA2, PRRC2A, ANGEL1, FAM65A, RNF123, PELP1, GORASP1, EIF3F, NAGA, MSLN, PER1, AFAP1, DUS3L, TUBB4B, BCKDHA, SREBF1, NPR2, HYOU1, NOTCH2, MAPK12, MAP1S, GPT, JAK3, KLF2, SLC9A1, REPIN1	1.900311748
Transport	0.04950823	SLC9A8, SLC27A1, SEC31A, ATG9A, PTPN23, ABCA2, TPCN1, SLC35A4, TMEM109, BAG6, UCP2, GORASP1, SEC24C, SLC4A3, ABCC8, SLC9A1	1.689165998

Supplemental Table 11: DAVID Gene Ontology Analysis Genes More Highly Expressed in Female Cardiac Myocytes Without EREs

Keyword	PValue	Genes	Fold Enrichment
Biotin	0.04501792	ACACB, PC	43.31875
Myosin	0.00492083	MYO1E, MYH14, MYH6, MYO18A	11.55166667
Cell adhesion	0.02324313	JUP, VWF, ITGA7, PTPRS, MFGE8, CX3CL1, CYR61	3.169664634
Endoplasmic reticulum	0.00300601	PLD3, RHBDF1, CYP2E1, POR, SCAP, USP19, MAN2C1, POMGNT2, POM121, SQSTM1, XBP1, NUP210, NCLN	2.720501208
Differentiation	0.04474315	ZFP423, MEF2D, NR1D1, SQSTM1, XBP1, HLX, YIPF3	2.707421875
Methylation	0.03326286	RBM42, DES, HIST1H1D, PLEKHH3, RAB11B, MYH6, SCAP, SYNPO, ADAR	2.411559278
Transcription	0.01745449	ZFP423, FOXJ2, TBX5, NR4A1, CBX7, XAB2, JUNB, HDAC5, IGHMBP2, MEF2D, NR1D1, XBP1, HLX, ADAR	2.07219533
DNA-binding	0.02545353	ZFP36, ZFP423, HIST1H1D, FOXJ2, TBX5, NR4A1, JUNB, IGHMBP2, MEF2D, NR1D1, XBP1, HLX, HSF4, ADAR	1.966905405
Hydrolase	0.01363383	PLD3, ALPL, PLA2G15, PDXP, PTPRS, HDAC5, IGHMBP2, USP19, MAN2C1, ATP13A1, DUSP1, OPLAH, GAA, ENTPD6, USP36, PCSK6, LIPE, ADAR	1.89409919
Zinc	0.01465685	ZFP36, ALPL, ZFP423, FGD1, SF1, NR4A1, AARSD1, TRIM11, HDAC5, IGHMBP2, USP19, MAN2C1, TNS1, NR1D1, SQSTM1, PTMS, RNF31, ADAR	1.878885542
Phosphoprotein	2.09E-04	LRRC4B, AMOTL2, IGHMBP2, GSTM1, GSTM2, USP19, DES, OPLAH, APOE, CSDC2, CYR61, ZFP36, GTPBP1, ZFP423, RBM42, HIST1H1D, SLC3A2, MYH6, JUNB, SCAP, JUP, CRKL, PLEKHH3, UBC, PTMS, ALPL, HK1, VARS, XAB2, TRIM11, POM121, FBXW8, NR1D1, SQSTM1, XBP1, NUP210, GYS1, DYRK3, SYNPO, MYO1E, RHBDF1, NR4A1, AARSD1, HSPBP1, MEF2D, SUGP1, DUSP1, FBXO31, LIPE, PC, ADAR	1.637699222
Nucleus	0.04453901	CBX7, XAB2, TRIM11, IGHMBP2, POM121, NR1D1, XBP1, SQSTM1, HLX, NUP210, DYRK3, HSF4, CSDC2, ZFP36, ZFP423, RBM42, HIST1H1D, FOXJ2, IPO13, TBX5, NR4A1, JUNB, MEF2D, SUGP1, DUSP1, UBC, ADAR	1.454734142
Coiled coil	0.04104359	FGD1, TLN1, TNRC18, CNOT3, HCFC1, RANGAP1, GCN1L1, AMOTL2, TJAP1, TRIM11, IGHMBP2, TUBGCP6, DES, XBP1, APOE, BAZ2A, FMNL1, ARC, VPS18, FOXJ2, TLE2, WNK2, MYH6, JUNB, SARS2, HDAC5, TNS1, MYH14, MYO18A	1.438996277

Supplemental Table 12: DAVID Gene Ontology Analysis of ARE Containing Genes More Highly Expressed in Male Cardiac Myocytes

Term	PValue	Genes	Fold Enrichment
Prenylation	0.03509754	RND3, RAB8B, RALA	10.05302176
Cell division	0.00353447	GNAI3, RALBP1, CCND2, RALA, CCNG1	7.912100457
Cell cycle	0.00368608	GNAI3, RALBP1, CCND2, UBA3, RALA, CCNG1	5.754254878
Lipoprotein	0.02559419	RND3, RAB8B, GNAI3, RALA, SNAP23, GNG12	3.553043032
Coiled coil	0.03285654	CCP110, PRC1, RALBP1, CCDC85A, CENPF, MYO9A, SMC2, TRIM37, MAP4K4, CASP8AP2, SLK, SYAP1, MFAP1A, CEP290, GKAP1, SNAP23	1.740118313

Supplemental Table 13: DAVID Gene Ontology Analysis Genes More Highly Expressed in Male Cardiac Myocytes Without an ARE

Term	PValue	Genes	Fold Enrichment
Pyrimidine biosynthesis	0.040912	CTPS1, CMPK1	47.91013825
Prenylation	2.59E-04	KRAS, DNAJA1, RAP1B, RAB6A, RAB21, GBP2, RAB1A	7.891081594
TPR repeat	0.001318	RMDN1, NASP, EMC2, DNAJC3, TMTC4, TTC39B	7.3707905
Mitosis	1.44E-04	CSNK1A1, SEPT2, PDS5A, JTB, PAFAH1B1, CEP55, SEPT7, RBBP8	7.032680844
SH2 domain	0.031356	JAK2, PIK3R3, CRK, RASA1	5.807289485
Cell division	1.15E-04	CSNK1A1, CHMP3, SEPT2, PDS5A, GNAI1, JTB, PAFAH1B1, CEP55, SEPT7, RBBP8	5.323348694
GTP-binding	1.49E-05	DNM1L, SEPT2, EIF2S3Y, GNAI1, RAB1A, KRAS, RAP1B, GUF1, RAB6A, SEPT7, ARL5B, GBP2, RAB21	4.90418738
Cell cycle	2.95E-06	CSNK1A1, CHMP3, SEPT2, PDS5A, GNAI1, NASP, JTB, RPS6KB1, CEP55, RBBP8, MAPK6, PAFAH1B1, GADD45A, MCTS1, SEPT7	4.839407904
Isopeptide bond	7.47E-07	HMGB1, NES, CHMP3, DNM1L, NASP, TGFBR1, PHF10, ZFP148, NR3C1, ITGB1, ATG3, RSRC2, RBBP8, PICALM, RNF2, CCDC43, NAB1, CSDE1, EIF2AK2, TOP2A	3.975945083
Innate immunity	0.03856	HMGB1, HMGB2, TLR3, JAK2, EIF2AK2	3.927060512
Chromosome	0.005145	CSNK1A1, HMGB1, HMGB2, RNF2, FMR1, LOXL2, SEPT7, RBBP8	3.813742348
Apoptosis	0.002334	CASP3, PDCD10, SH3GLB1, MGC95208, RNF152, TGFBR1, JTB, RPS6KB1, APAF1, THEM4	3.497090383
Actin-binding	0.031288	PHACTR3, ARPC2, CAPZA2, CAPZA1, EVL, DSTN	3.422152732
Ubl conjugation	2.17E-07	CHMP3, AZIN1, NR3C1, ITGB1, CANX, RSRC2, DSTN, PICALM, CCDC43, CSDE1, TOP2A, NES, DNM1L, TGFBR1, NASP, FMR1, IREB2, PHF10, ZFP148, ATG3, RBBP8, MAPK6, RNF152, RNF2, NAB1, SGCE, EIF2AK2	3.274870209
Acetylation	5.91E-15	CYB5R4, NAMPT, SEPT2, METAP2, CAPZA2, CAPZA1, RPS6KB1, CANX, RAB1A, DSTN, LNPEP, MINOS1, CASP3, PICALM, PDHA1, RAB6A, PPP1R14C, TOP2A, RAB21, EIF2S3Y, KIF5B, STRN3, FMR1, RBBP8, DLD, STMN1, CSNK1G3, EMC2, EIF2AK2, THEM4, SEPT7, HMGB1, HMGB2, CDV3, NR3C1, ITGB1, CMPK1, PPAT, PLAA, KRAS, ARPC2, SH3GLB1, CSDE1, DNAJA1, PAFAH1B1, RASA1, CSNK1A1, NES, DNM1L, PDCD10, PDS5A, NASP, ZFP148, CSRP2, ATG3, USMG5, RNF2, CRK	3.131028753
Protein transport	0.003839	CHMP3, AP1S2, TMED5, NASP, AP3S1, RAB6A, ATG3, VPS36, RAB21, RAB1A, SERP1	3.002914648
Golgi apparatus	0.002938	CAV2, DNM1L, PDCD10, RAB1A, SLC35A3, ZDHHC17, TMED5, PICALM, SH3GLB1, SGCE, RAB6A, GBP2, RAB21	2.743752411
Endosome	0.044639	HMGB1, CHMP3, ACAP2, ITGB1, VPS36, RAB21, RAB1A	2.715554395
Cytoskeleton	0.001683	CSNK1A1, SEPT2, KIF5B, GNAI1, RMDN1, CAPZA1, JTB, EVL, CEP55, NR3C1, ARPC2, SGCE, PAFAH1B1, STMN1, SEPT7	2.646968964
Lipoprotein	0.004646	APOOL, CHMP3, GNAI1, CANX, RAB1A, ZDHHC17, KRAS, TFRC, DNAJA1, RAP1B, RAB6A, GBP2, RAB21	2.589737203
Cytoplasm	5.02E-10	NAMPT, COPS2, SEPT2, METAP2, CHMP3, CAPZA1, PDE11A, RPS6KB1, RAB1A, ASPA, CASP3, BHLHB9, TPT1, KIF5B, STRN3, FMR1, MAPK6, RRM2, SGCE, STMN1, CSNK1G3, EMC2, EIF2AK2, THEM4, MCTS1, SEPT7, GBP2, CAV2, HMGB1, HMGB2, CDV3, GNAI1, NR3C1, CEP55, CMPK1, DGKB, KRAS, ARPC2, SH3GLB1, CSDE1, DNAJA1, CHM, PAFAH1B1, VPS36, RASA1, CSNK1A1, DNM1L, PDCD10, RMDN1, NASP, JTB, IREB2, EVL, ATG3, HOMER2, JAK2, RAP1B, APAF1, CRK	2.345807599
Nucleotide-binding	1.93E-05	KIF23, SEPT2, GNAI1, CTPS1, RPS6KB1, PRKX, RAB1A, CMPK1, DGKB, KRAS, VPS4B, GUF1, RAB6A, TOP2A, ARL5B, RAB21, CSNK1A1, MAGI3, DNM1L, EIF2S3Y, KIF11, KIF5B, TGFBR1, DDX3, MAPK6, RAP1B, JAK2, APAF1, CSNK1G3, EIF2AK2, SEPT7, GBP2	2.310662282
Cell junction	0.024907	MAGI3, ZDHHC17, DNM1L, ARPC2, TGFBR1, FMR1, RAP1B, RPS6KB1, ITGB1, HOMER2, CHRNG	2.252185986
Cell projection	0.047273	SEPT2, ARPC2, FMR1, SGCE, EVL, THEM4, ITGB1, HOMER2, SEPT7	2.251651406
Kinase	0.011438	CSNK1A1, TGFBR1, RPS6KB1, PRKX, CMPK1, DGKB, PANK3, MAPK6, JAK2, TLK1, CSNK1G3, PIK3R3, EIF2AK2, CDK14	2.202764977
Methylation	0.03078	KRAS, KIF5B, FMR1, DNAJA1, RAP1B, STMN1, RAB6A, NR3C1, PPP1R14C, RAB21, GBP2	2.173243384
Mitochondrion	0.00961	APOOL, DNM1L, PIGY, JTB, RPS6KB1, NR3C1, COX6C, MINOS1, USMG5, SH3GLB1, DLD, DNAJA1, PDHA1, GUF1, THEM4	2.171154301
Phosphoprotein	6.92E-09	NAMPT, COPS2, SEPT2, METAP2, CHMP3, CAPZA2, CAPZA1, PDE11A, RPS6KB1, CANX, RSRC2, RAB1A, DSTN, LNPEP, CASP3, PICALM, CCDC43, TPT1, CALCRL, RAB6A, PDHA1, DNAJC3, PPP1R14C, TOP2A, MAGI3, EIF2S3Y, KIF5B, STRN3, ZHX1, FMR1, COX6C, RBBP8, MAPK6, RRM2, NAB1, DLD, ACAP2, VCAN, STMN1, CSNK1G3, EIF2AK2, THEM4, GADD45A, SEPT7, MCTS1, ZFP367, CAV2, HMGB1, HMGB2, CDV3, CEP55, NR3C1, ITGB1, CMPK1, PLAA, DGKB, SH3GLB1, DNAJA1, CSDE1, ARMCX3, PAFAH1B1, PIK3R3, RASA1, CSNK1A1, NES, DNM1L, PHACTR3, PDS5A, TGFBR1, NASP, PHF10, EVL, ZFP148, MEMO1, TFRC, RNF2, JAK2, RAP1B, CRK	1.87047241
ATP-binding	0.021733	CSNK1A1, KIF23, MAGI3, KIF11, KIF5B, TGFBR1, CTPS1, DDX3, RPS6KB1, PRKX, CMPK1, DGKB, MAPK6, VPS4B, JAK2, CSNK1G3, APAF1, EIF2AK2, TOP2A	1.769276242
Coiled coil	8.05E-04	KIF23, HMGB1, CHMP3, OTUD6B, TCEAL8, CEP55, NR3C1, RSRC2, ATF1, RAB1A, PICALM, SH3GLB1, RB1CC1, CCDC43, HTATSF1, TLK1, PAFAH1B1, MTMR6, PIK3R3, VPS36, RBM25, NES, KIF11, PHACTR3, NIN, KIF5B, STRN3, NASP, EVL, NDC80, HOMER2, BIRC2, RBBP8, CSGALNACT1, BAZ1A, XPR1, ACAP2, MSANTD3, STMN1, EIF2AK2, GPATCH11, SEPT7, ZFP367, GBP2, ALG13	1.646396503
Nucleus	0.001845	COPS2, HMGB1, CAV2, NAMPT, HMGB2, GNAI1, AZIN1, TCEAL8, NR3C1, CMPK1, ASPA, PICALM, BHLHB9, DNAJA1, CHD1, PAFAH1B1, LOXL2, TOP2A, VPS36, CSNK1A1, KLF6, MAGI3, PHACTR3, PDS5A, NASP, FMR1, ZHX1, GABPA, PHF10, ZFP148, CSRP2, RBBP8, MAPK6, RNF2, NAB1, JAK2, EMC2, EIF2AK2, SETD2, GADD45A, ZFP367	1.628785795
Metal-binding	0.007328	CYB5R4, CYP2J4, LIMS1, METAP2, GNAI1, COL3A1, PDE11A, NR3C1, ITGB1, CANX, PPAT, LNPEP, ASPA, DGKB, PHOSPHO2, DNAJA1, LOXL2, TOP2A, KLF6, TGFBR1, ZHX1, IREB2, PHF10, ZFP148, CSRP2, MARCH5, MIB1, BAZ1A, RNF152, RNF2, RRM2, ACAP2, PON2, JAK2, ZFP367	1.576732335

Supplemental Figure 1: Differential gene expression is not observed when samples are randomly analyzed. Differential gene expression analysis using DESeq was performed with the cardiac myocyte samples randomly assigned to two groups, not based on sex. This random analysis was performed three separate times (**A, B, C**). Statistically significant differentially expressed genes between the sexes are indicated by the red circles; padj <0.05.

Supplemental Figure 2: Genes involved in sexually dimorphic pathway activation contain EREs and AREs. Position weight matrix (PWM) scanner analysis detected that of the genes significantly up-regulated in either female (**A)** or male (**B)** cardiac myocytes and contributed to the activated IPA pathway results (top), about half harbor EREs or AREs.

Supplemental Figure 3: Genes more highly expressed in female cardiac myocytes are enriched for EREs and genes containing EREs cluster into distinct functional categories compared to genes without the response element. Position weight matrix (PWM) scanner ERE analysis identified enrichment of EREs in genes that are more highly expressed in female cardiac myocytes (**A**). This finding that at least 148 female enriched genes contain EREs was statistically significant with p=0.0002 using the hypergeometric probability calculator https://www.geneprof.org/GeneProf/tools/hypergeometric.jsp). Gene ontology analysis using DAVID bioinformatics resources 6.8 functional annotation comparing genes up in females with or without an ERE revealed distinct biological keywords are enriched

depending on the presence of an ERE (**B**). The top ten enriched keywords in each group are shown with a $p<0.05$ and fold enrichment of at least 1.5.

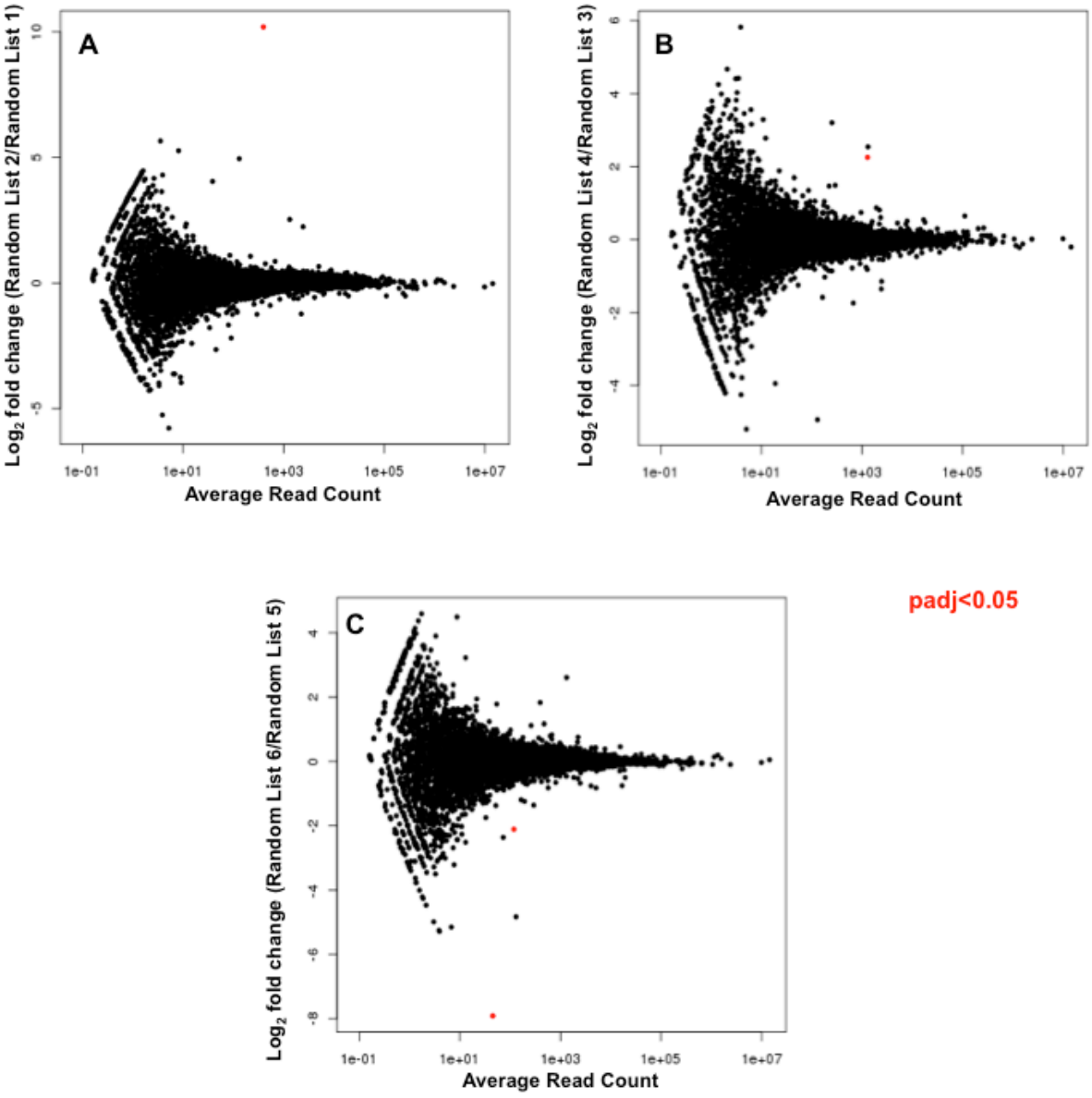
Supplemental Figure 4: Genes more highly expressed in male cardiac myocytes contain AREs and genes containing AREs cluster into distinct functional categories compared to genes without the response element. Position weight matrix (PWM) scanner ARE analysis identified 75 genes that were more highly expressed in male myocytes also contain AREs (**A**). Gene ontology analysis using DAVID bioinformatics resources 6.8 functional annotation methods comparing genes up in males with or without an ARE revealed distinct biological keywords are enriched depending on the presence of an ARE (**B**). The top ten enriched keywords in each group are shown with a $p<0.05$ and fold enrichment of at least 1.5.

Supplemental Figure 5: Genes that are not differentially expressed between sexes contain EREs/AREs. Position weight matrix (PWM) scanner ARE and ERE analysis revealed that even genes that were not differentially expressed between the sexes contain hormone response elements. Additionally, genes more highly expressed in females contain AREs and genes enriched in males contain EREs (data not shown).

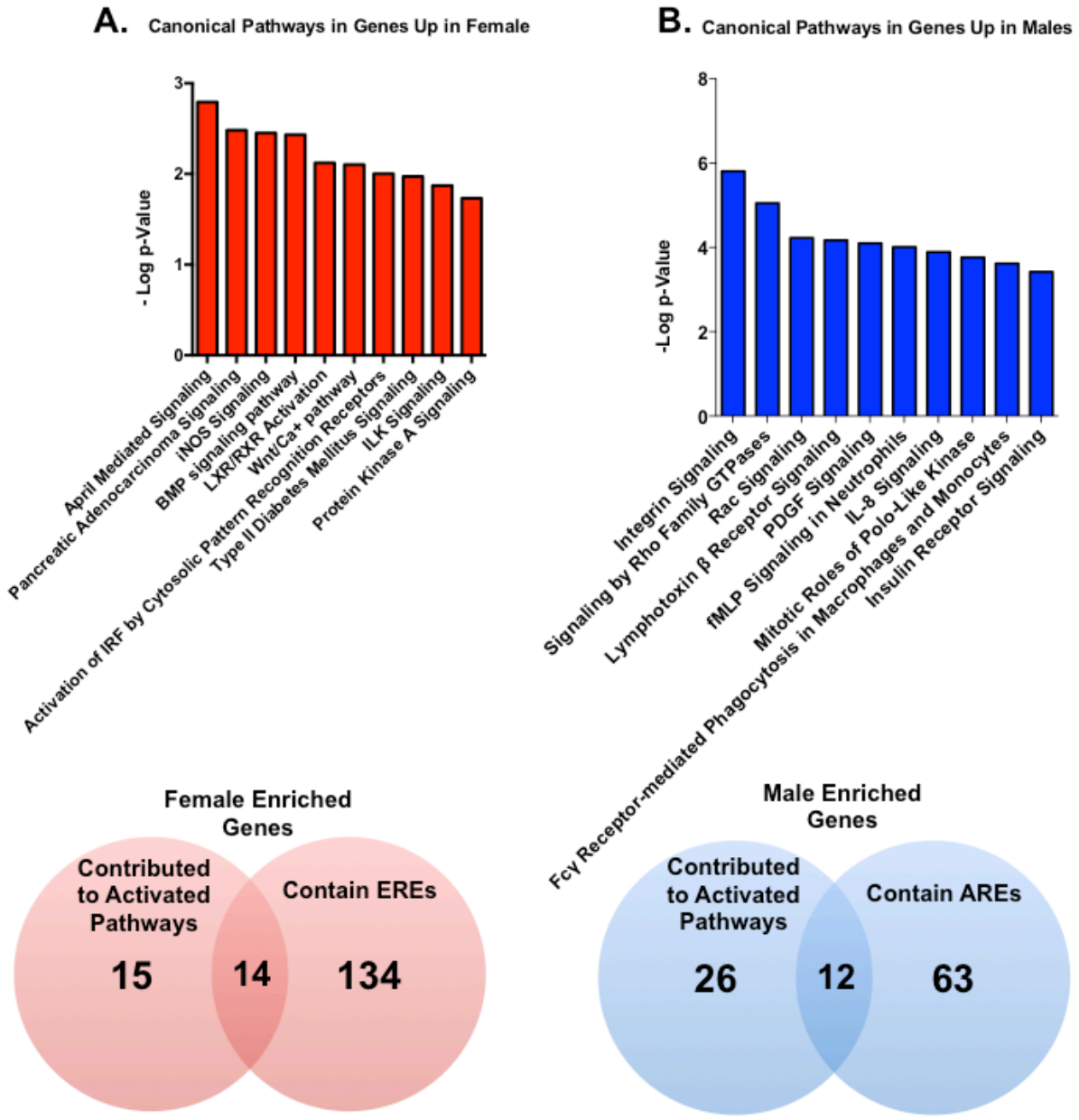
Supplemental Figure 6: Sexually dimorphic expressed genes are not different between cardiac myocytes isolated from sham and ovariectomized (OVX) females. Uterine weights were collected from 8 sham and 7 OVX animals at the time of cardiac myocyte isolation. Decreased uterine weight in the OVX animals reflect

decreased levels of circulating estrogen (**A**). ***p<0.001 OVX relative to sham by unpaired t-test. Mean fold changes (OVX relative to sham) for expression of *Col3a1, Ccng1, Tfrc, Cox6c Ucp2, Por, and Nr4a1* **(B)** as measured by qPCR in sham and OVX cardiac myocytes. All genes were normalized to levels of 18S; N= 8 sham females and 7 OVX females. All data reported as mean ± SEM.

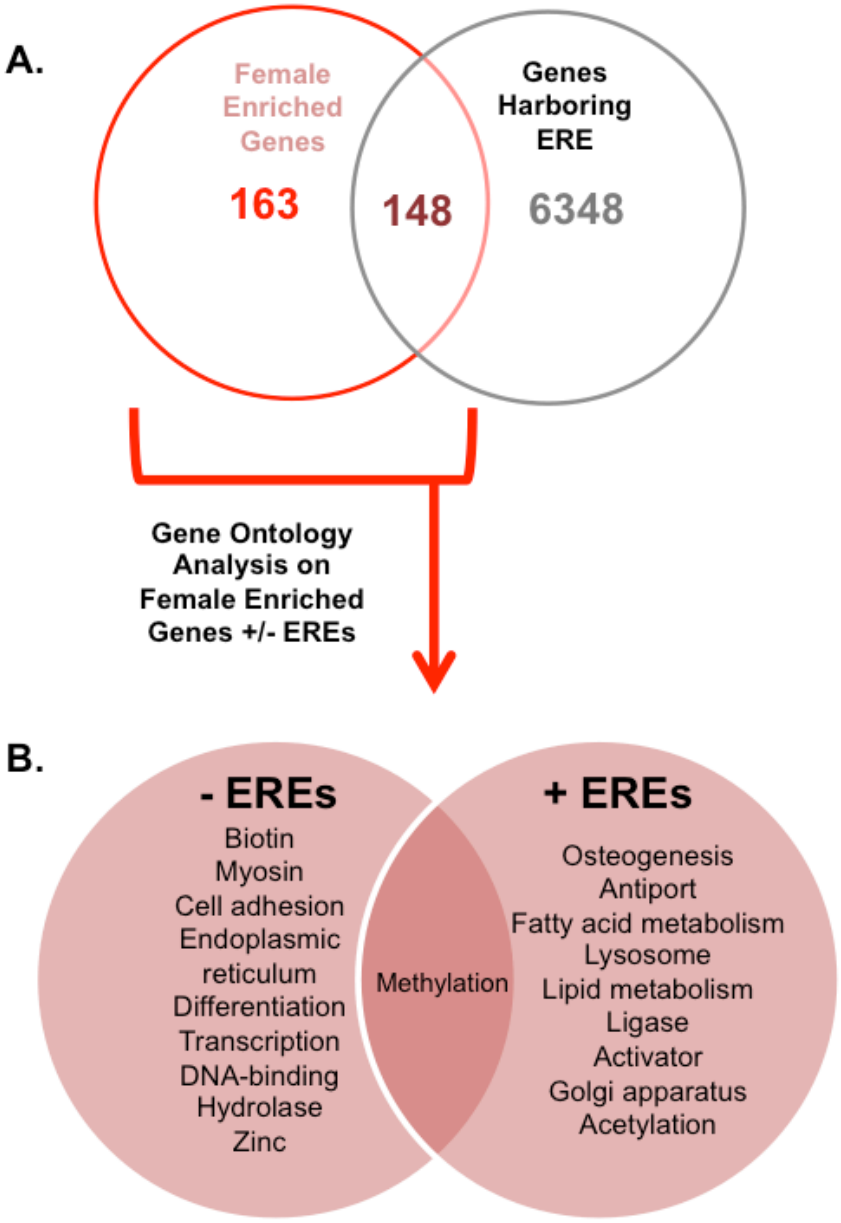
Supplemental Figure 1: DESeq Randomization Experiment



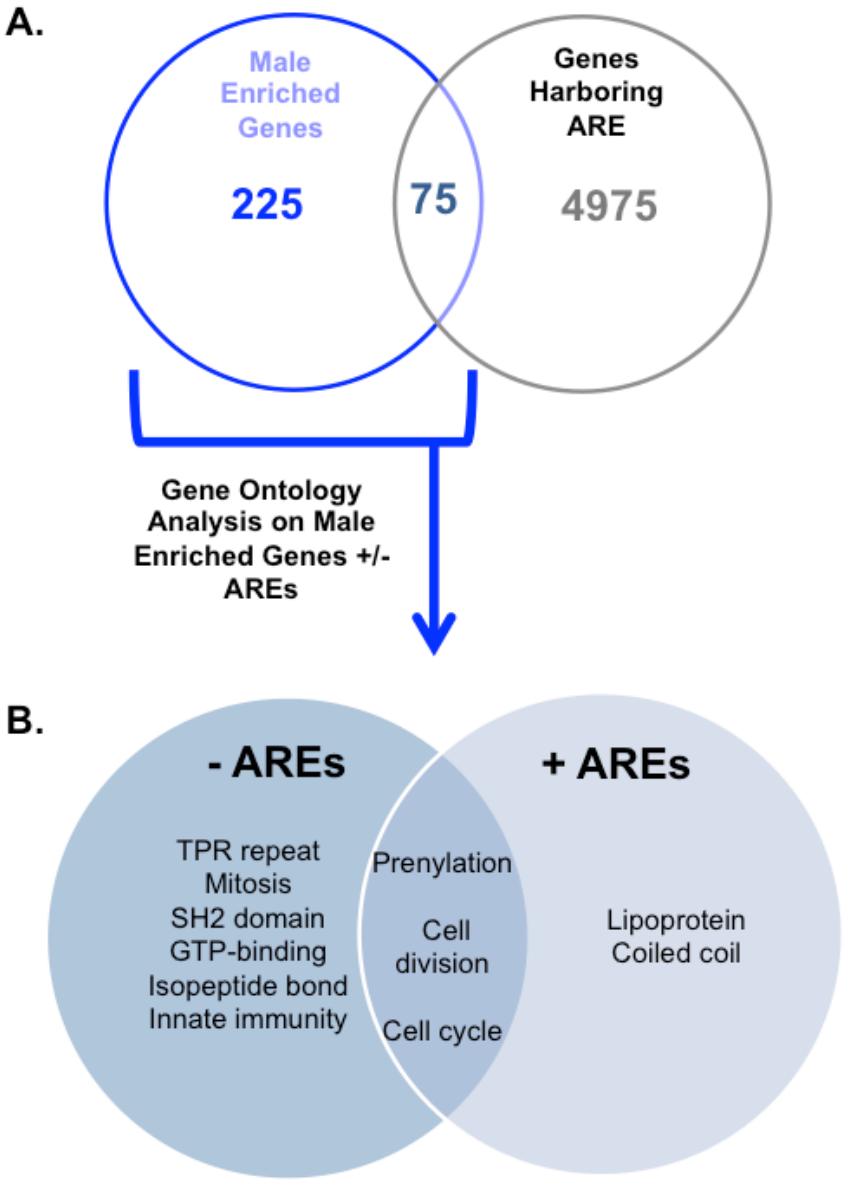
Supplemental Figure 2



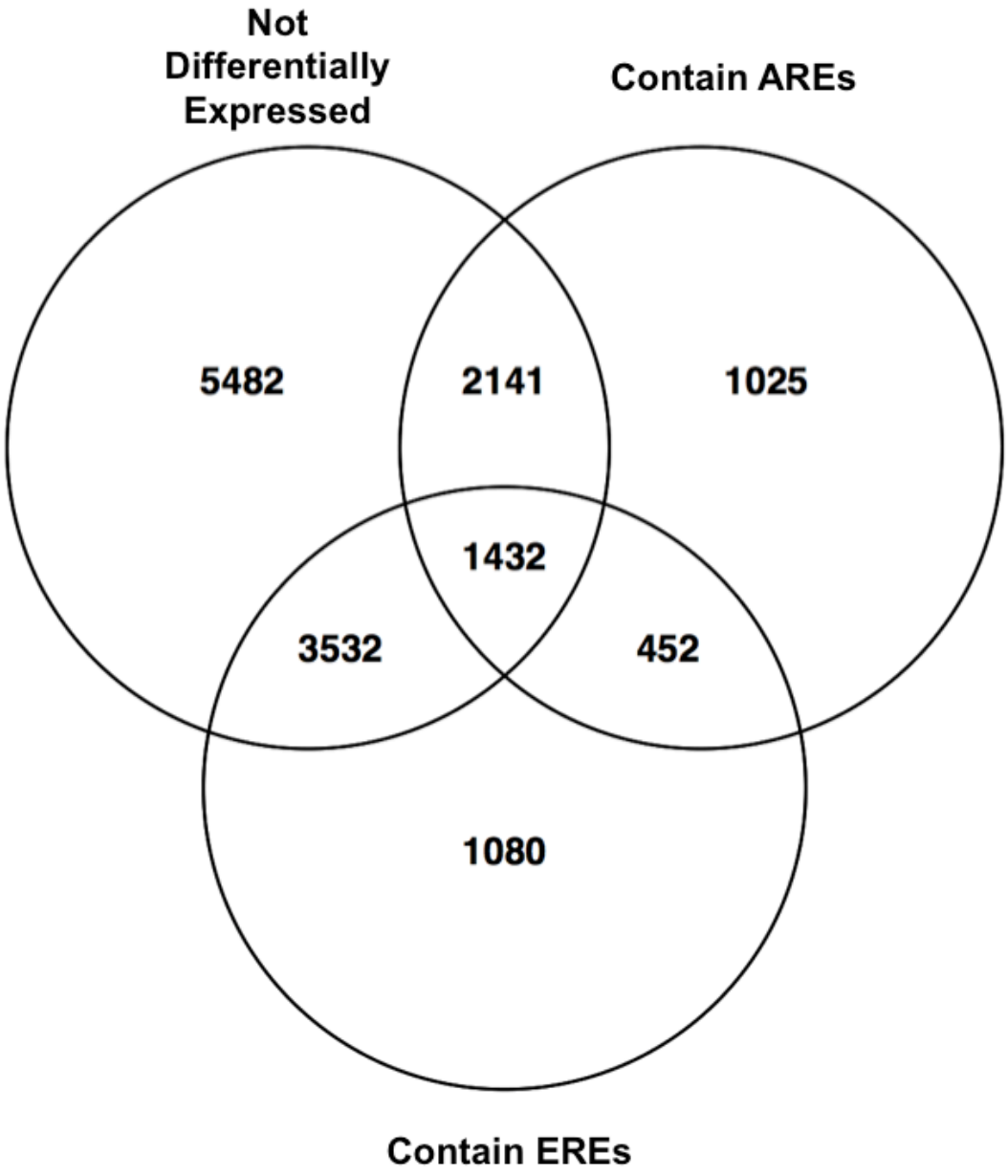
Supplemental Figure 3



Supplemental Figure 4



Supplemental Figure 5



Supplemental Figure 6