

## **Supplemental Information**

### **Dual specificity phosphatase 4 mediates cardiomyopathy caused by *LMNA* gene mutation**

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### **Glucose metabolic process**

<i>Atf4</i>	Activating transcription factor 4
<i>Pygb</i>	Brain glycogen phosphorylase
<i>Cpt1a</i>	Carnitine palmitoyltransferase 1a, liver
<i>Gck</i>	Glucokinase
<i>G6pdx</i>	Glucose-6-phosphate dehydrogenase, X-linked
<i>Pfkm</i>	Phosphofructokinase, muscle
<i>Pgm5</i>	Phosphoglucomutase 5
<i>Gapdh</i>	Glyceraldehyde-3-phosphate dehydrogenase
<i>Pdhb</i>	Pyruvate dehydrogenase beta
<i>Ppp1r3a</i>	Protein phosphatase 1, regulatory (inhibitor) subunit 3A
<i>Ppp1r3b</i>	Protein phosphatase 1, regulatory (inhibitor) subunit 3B
<i>Pdk2</i>	Pyruvate dehydrogenase kinase, isoenzyme 2

## **Mitochondrion**

<i>Decr1</i>	2,4-dienoyl CoA reductase 1, mitochondrial
<i>Hmgcs2</i>	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 2
<i>Akap1</i>	A kinase (PRKA) anchor protein 1
<i>Gramd4</i>	GRAM domain containing 4
<i>Sh3bp5</i>	SH3-domain binding protein 5 (BTK-associated)
<i>Acs11</i>	Acyl-CoA synthetase long-chain family member 1
<i>Acadl</i>	Acyl-Coenzyme A dehydrogenase, long-chain
<i>Acadvl</i>	Acyl-Coenzyme A dehydrogenase, very long chain
<i>Adhfe1</i>	Alcohol dehydrogenase, iron containing, 1
<i>Aldh6a1</i>	Aldehyde dehydrogenase family 6, subfamily A1
<i>Alas1</i>	Aminolevulinic acid synthase 1
<i>Clpx</i>	Caseinolytic peptidase X (E.coli)
<i>Cpox</i>	Coproporphyrinogen oxidase
<i>Dld</i>	Dihydrolipoamide dehydrogenase
<i>Etfdh</i>	Electron transferring flavoprotein, dehydrogenase
<i>Ech1</i>	Enoyl coenzyme A hydratase 1, peroxisomal
<i>Hadha</i>	Enoyl-Coenzyme A hydratase (trifunctional protein), alpha subunit
<i>Mrpl35</i>	Mitochondrial ribosomal protein L35
<i>Mfn1</i>	Mitofusin 1
<i>Nnt</i>	Nicotinamide nucleotide transhydrogenase
<i>Ptcd3</i>	Pentatricopeptide repeat domain 3
<i>Hadhb</i>	Enoyl-Coenzyme A hydratase (trifunctional protein), beta subunit
<i>Pdk4</i>	Pyruvate dehydrogenase kinase, isoenzyme 4
<i>Afg3l2</i>	Similar to AFG3(ATPase family gene 3)-like 2 (yeast)
<i>Uqcrc2</i>	Ubiquinol cytochrome c reductase core protein 2

**Supplemental Table S2.** Downregulated gene list clustered under GO term “Mitochondrion”

	<u>Forward primer</u>	<u>Reverse primer</u>
<i>Dusp1</i>	5' - GGCCTTTGAGTTTGTGAAGC	5' - GGTGATGGGGCTTTTAAGGT
<i>Dusp2</i>	5' - GGCCGAAAATAGCAACTCTG	5' - CTCCTGGAACCAGGCACTTA
<i>Dusp3</i>	5' - TGCAAGATCTCAACGACCTG	5' - GAAATCTGTGGCCCTTTCAA
<i>Dusp4</i>	5' - CTGTACCTCCCAGCACCAAT	5' - GACGGGGATGCACTTGTACT
<i>Dusp5</i>	5' - TGCACCACCCACCTACACTA	5' - CTGTCCCATGAAGCCAAAGT
<i>Dusp6</i>	5' - TTGAATGTCACCCCAATTT	5' - CATCGTTCATGGACAGGTTG
<i>Dusp7</i>	5' - TGCCAAGGACTCTACCAACC	5' - CTAGGCAGTGCACCAAGACA
<i>Dusp8</i>	5' - CATCTGTGAGAGCCGTTTCA	5' - CCGATCCTTCACAAACCTGT
<i>Dusp9</i>	5' - ACCTTGAGCTGTGGCCTAGA	5' - GGGGATCTGCTTGTAGTGGA
<i>Dusp10</i>	5' - CATCGGCTATGTCATCAACG	5' - ATTGGTCGTTTGCCTTTGAC
<i>Dusp11</i>	5' - AGGACAGATGGCCTTGAAGA	5' - CCTCGCACTCCAGAAGAATC
<i>Dusp12</i>	5' - CGATACGTCCAGTGCCTTTT	5' - CTATTGGCCCACTTCCTTCA
<i>Art4</i>	5' - AGCTGCTGAGGAAAGACAGC	5' - GGGGGATCAAGACTTCCTTC
<i>Cd36</i>	5' - TGCTGGAGCTGTTATTGGTG	5' - TGGGTTTTGCACATCAAAGA
<i>Egr1</i>	5' - CCACAACAACAGGGAGACCT	5' - ACTGAGTGGCGAAGGCTTTA
<i>Gapdh</i>	5' - TGCACCACCAACTGCTTAG	5' - GGATGCAGGGATGATGTTC
<i>Lonrf1</i>	5' - AGTGCTTAGCCCTCGATGAA	5' - CTCCTTTGACAGGCTCTGG
<i>Ppp1r3b</i>	5' - GCCCTGACAATGGTGAAAGT	5' - ACAAAGCTCTCGCTCTCTGC
<i>Slc41a3</i>	5' - TTCTGTGTCAGCACGAGTCC	5' - CACTTCTGCCAGGTACAGCA
<i>Dusp4</i> Tg genotyping primers	5' - CCCACACCAGAAATGACAGA	5' - AGGATCTGCTCCAGGCTCAC
<i>Dusp4</i> Tg genotyping primers	5' - TCTATTCGGGAACCAAGCTG	5' - CTGTGTCTGGACGTCCTCCT

**Supplemental Table S3.** Primers used for PCR analysis