

# Supplementary Materials

## The extract of *Gloiopeltis tenax* enhances myogenesis and alleviates dexamethasone-induced muscle atrophy

Si-Hyung Kim<sup>1,†</sup>, Young-Eun Leem<sup>1,†</sup>, Hye Eun Park<sup>2</sup>, Hae-In Jeong<sup>2</sup>, Jihye Lee<sup>2,\*</sup> and Jong-Sun Kang<sup>1,\*</sup>

<sup>1</sup> Department of Molecular Cell Biology, Sungkyunkwan University, School of Medicine, Suwon, Republic of Korea; shk990929@skku.edu (S.-H.K.); leemyo@skku.edu (Y.-E.L.); Kangj01@skku.edu (J.-S.K.)

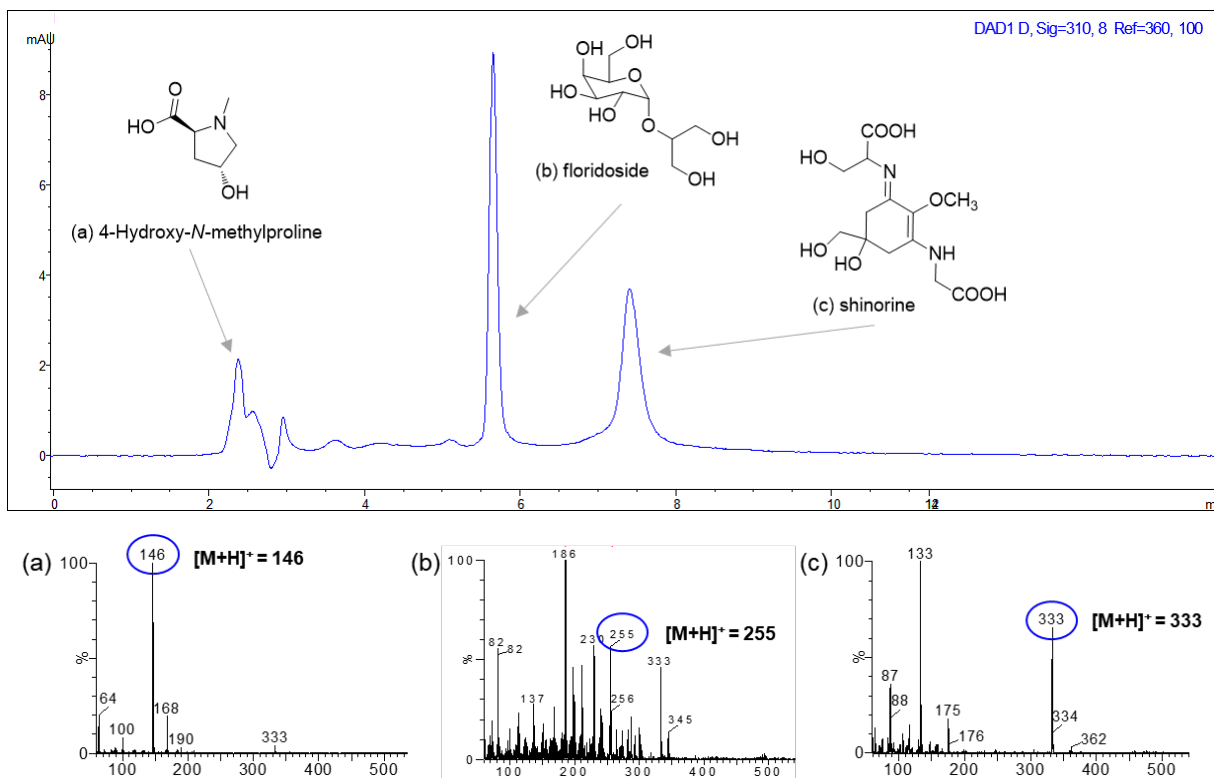
<sup>2</sup> Laboratories of Marine New Drugs, REDONE TECHNOLOGIES CO.,LTD, Jeollanamdo 57247, Republic of Korea; phe@urc.kr (H.E.P); jhi@urc.kr (H.-I.J.); ljh@urc.kr (J.L.)

\* Correspondence: ljh@urc.kr (J.L.); Kangj01@skku.edu (J.-S.K.); Tel.: +82-70-4219-1632 (J.L.); +82-30-299-6135 (J.-S.K.)

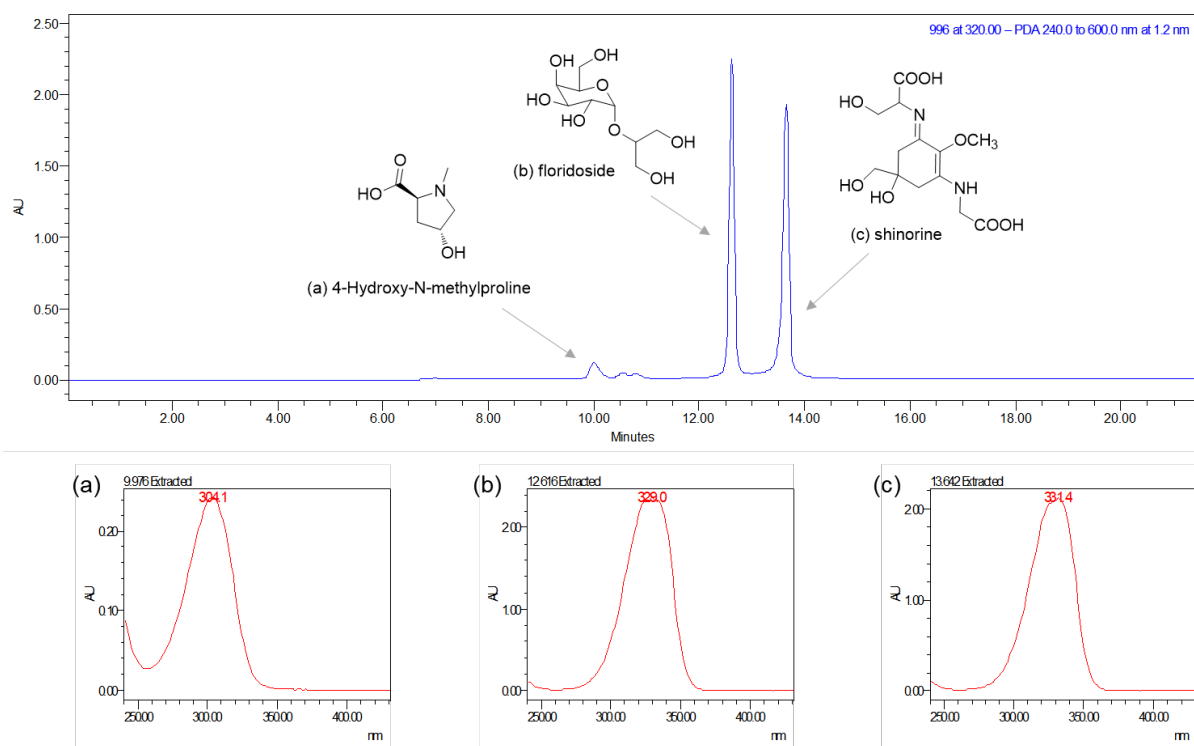
## Table of Contents

<b>Figure S1.</b> LC-MS spectrum of GTAE .....	<b>S3</b>
<b>Figure S2.</b> HPLC spectrum of GTAE .....	<b>S4</b>
<b>Figure S3.</b> <sup>1</sup> H NMR spectrum (400 MHz, D <sub>2</sub> O) of 4-hydroxy- <i>N</i> -methylproline .....	<b>S5</b>
<b>Figure S4.</b> <sup>1</sup> H NMR spectrum (400 MHz, D <sub>2</sub> O) of floridoside .....	<b>S5</b>
<b>Figure S5.</b> <sup>1</sup> H NMR spectrum (400 MHz, CD <sub>3</sub> OD) of shinorine .....	<b>S6</b>
<b>Figure S6.</b> The raw data images of the Western blot shown in Figure 1h .....	<b>S7</b>
<b>Figure S7.</b> The raw data images of the Western blot shown in Figure 1j .....	<b>S8</b>
<b>Figure S8.</b> The raw data images of the Western blot shown in Figure 2b .....	<b>S9</b>
<b>Figure S9.</b> The raw data images of the Western blot shown in Figure 3f .....	<b>S10</b>
<b>Figure S10.</b> The raw data image of the Western blot shown in Figure 5b .....	<b>S11</b>
<b>Table S1.</b> The primary antibodies used in this study .....	<b>S12</b>
<b>Table S2.</b> The primer sequence for qRT-PCR .....	<b>S13</b>

**Figure S1.** LC-MS spectrum of GTAE



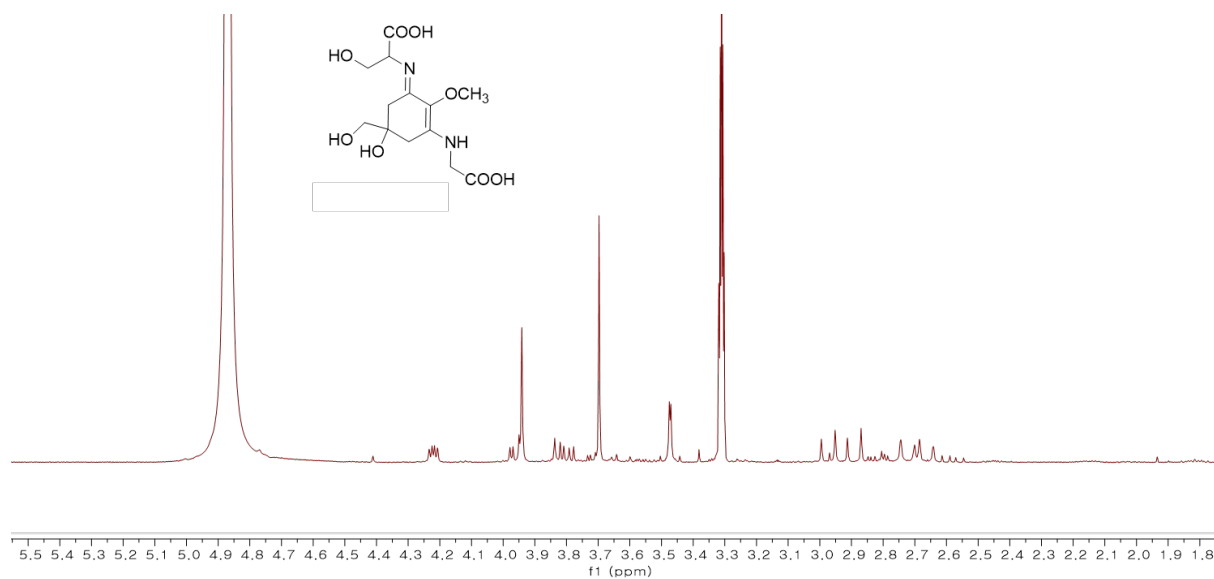
**Figure S2.** HPLC spectrum of GTAE



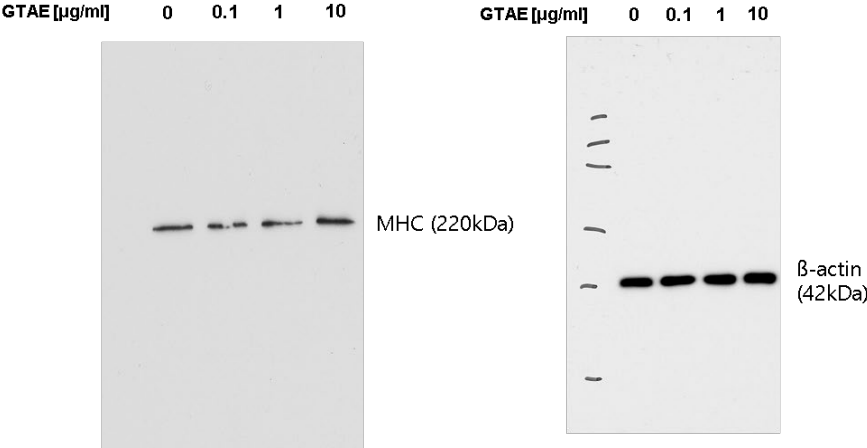
Chemical structure of (S)-2-methyl-4-hydroxypyrrolidine-3-carboxylic acid is shown above the spectrum.

OC[C@H]1O[C@@H](O[C@@H]2[C@H](O)[C@@H](O)[C@@H](O)[C@H]2O)[C@H](O)[C@H](O)[C@H]1O

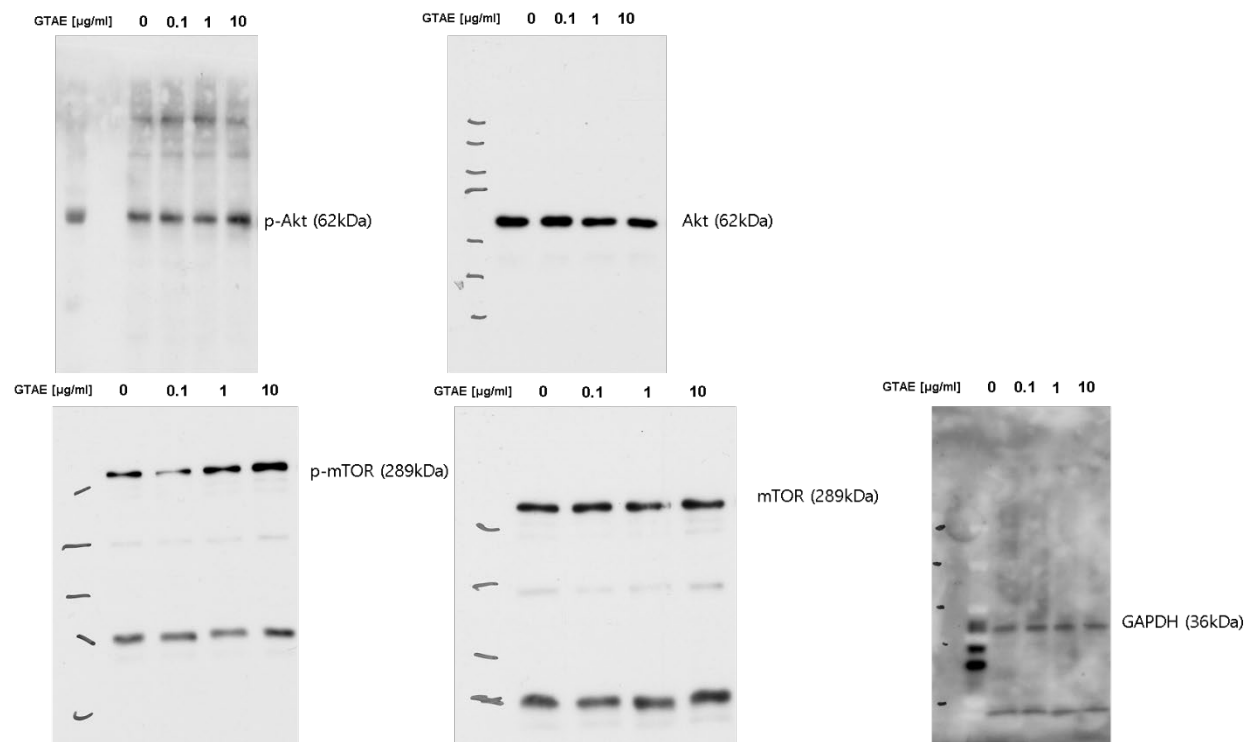
**Figure S5.**  $^1\text{H}$  NMR spectrum (400 MHz,  $\text{CD}_3\text{OD}$ ) of shinorine



**Figure S6.** The raw data images of the Western blot shown in [Figure 1h](#)

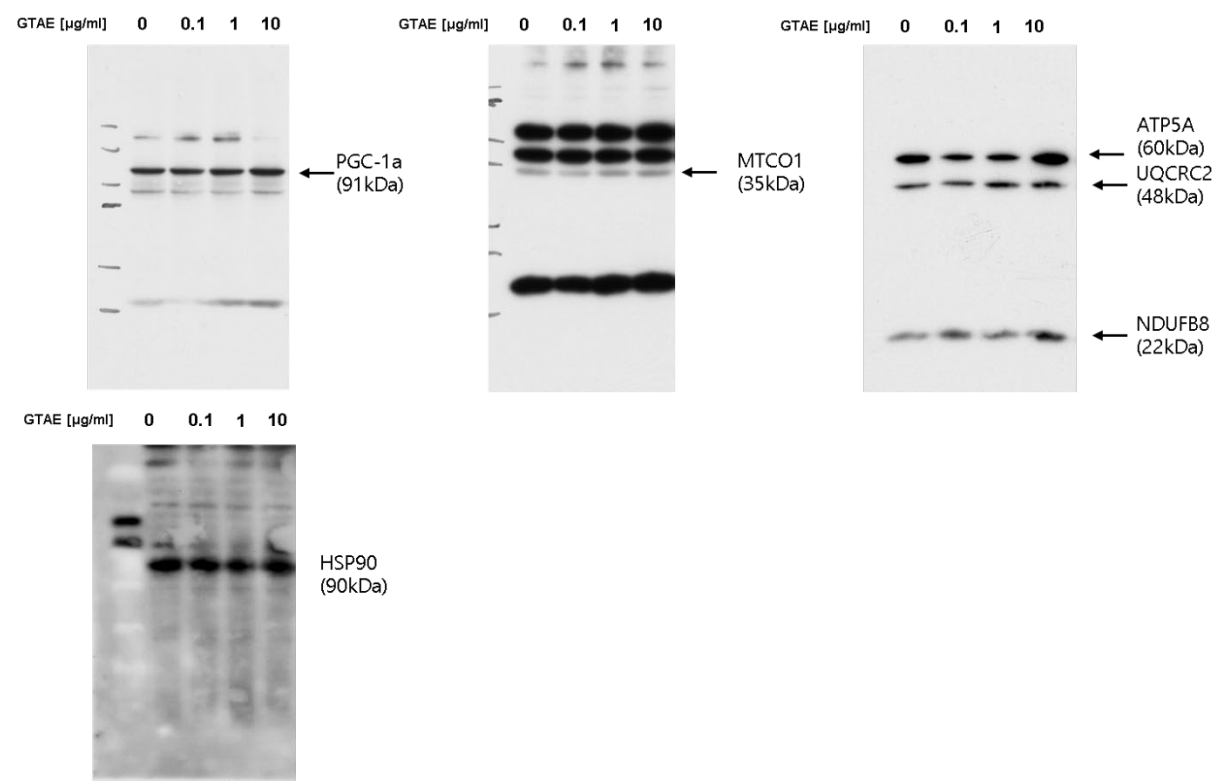


**Figure S7.** The raw data images of the Western blot shown in Figure 1j

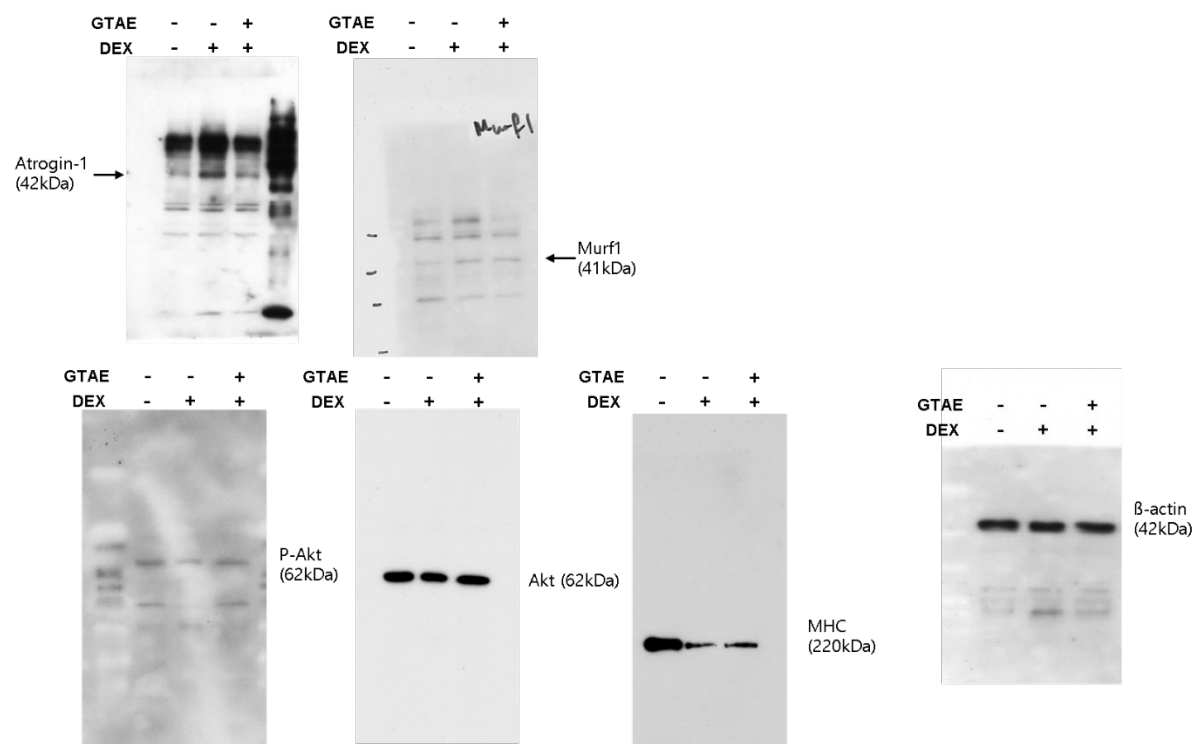




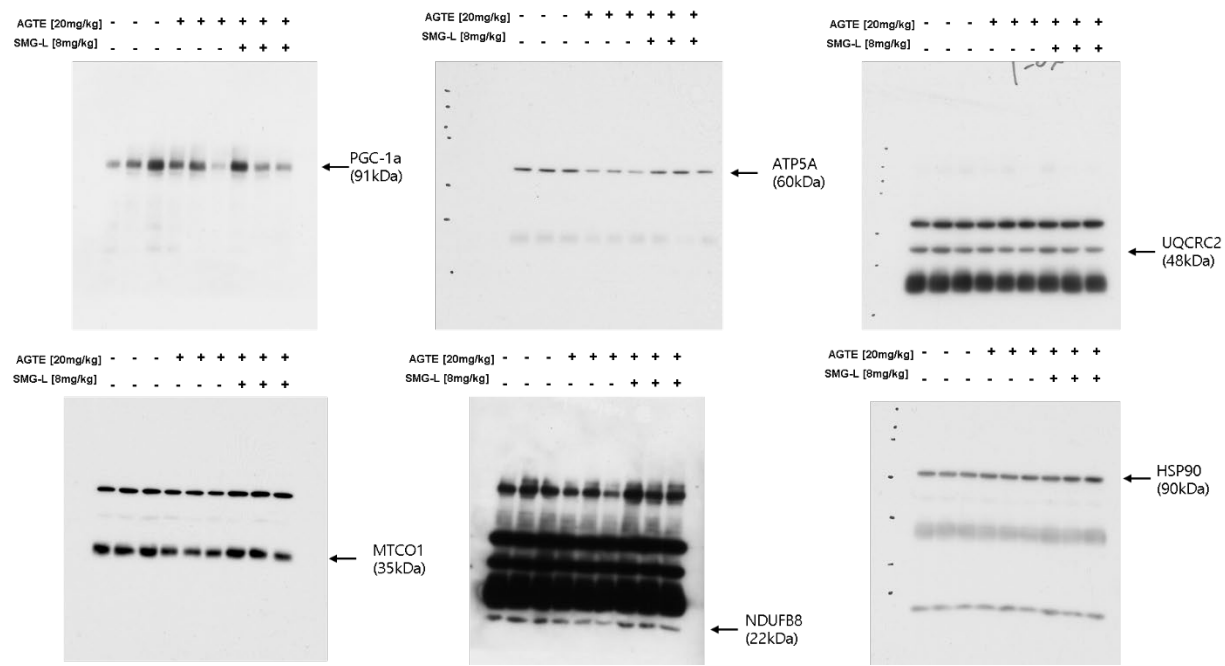
**Figure S8.** The raw data images of the Western blot shown in Figure 2b



**Figure S9.** The raw data images of the Western blot shown in [Figure 3f](#)



**Figure S10.** The raw data image of the Western blot shown in Figure 5b



**Table S1.** The primary antibodies used in this study

<b>Antigen</b>	<b>Cat. No.</b>	<b>Manufacturer</b>
<b>MHC</b>	<b>MF 20</b>	<b>Developmental Studies Hybridoma Bank (DSHB)</b>
<b>Total-OxPHOS</b>	Ab110413	Abcam
<b>Akt</b>	9272	Cell Signaling
<b>p-Akt</b>	9275	Cell Signaling
<b>p-mTOR</b>	5536	Cell Signaling
<b>mTOR</b>	2972	Cell Signaling
<b>MuRF1</b>	PA5-76695	Invitrogen
<b>Atrogin-1</b>	Sc-33782	Santa Cruz
<b>PGC-1<math>\alpha</math></b>	ST1202-1SETCN	Calbiochem
<b>HSP90</b>	Ab13495	Abcam
<b><math>\beta</math>-Actin</b>	4970	Sigma-Aldrich
<b>GAPDH</b>	LF-PA0212	Abfrontier

**Table S2.** The primer sequence for qRT-PCR

Gene		Sequences
<i>Tfam</i>	Forward	5'-CTGATGGCCATTACATGT-3'
	Reverse	5'-AAAGCCCGGAAGGTTAG-3'
<i>Atp5a</i>	Forward	5'-CGATCTATCCAAGCAGGCTGT-3'
	Reverse	5'-GCCACCCACCAAAGGAATCGT-3'
<i>UQCRC</i>	Forward	5'-GCACTTACGGTGGTGGAGTG-3'
	Reverse	5'-GGTACATAGGCGCATCCACTG-3'
<i>MTCO</i>	Forward	5'-CTACTATTCGGAGCCTGAGC-3'
	Reverse	5'-GCATGGGCAGTTACGATAAC-3'
<i>SDHB</i>	Forward	5'-ACCCCTTCTCTGTCTACCG-3'
	Reverse	5'-AATGCTCGCTTCTCCTTGTA-3'
<i>UCP2</i>	Forward	5'-ACTGTCGAAGCCTACAAGAC-3'
	Reverse	5'-CACCAGCTCAGTACAGTTGA-3'
<i>PGC-1<math>\alpha</math></i>	Forward	5'-ATGTGTCGCCTTCTTGCTCT-3'
	Reverse	5'-CGGTGTCTGTAGTGGCTTGA-3'
<i>Atrogin-1</i>	Forward	5'-CAACATTAACATGTGGGTGTAT-3'
	Reverse	5'-GTCACTCAGCCTCTGCATG-3'
<i>Murf1</i>	Forward	5'-GAGAACCTGGAGAAGCAGCT-3'
	Reverse	5'-CCGCGGTTGGTCCAGTAG-3'
<i>eMHC(Myh3)</i>	Forward	5'-CTTCACCTCTAGCCGGATGGT-3'
	Reverse	5'-AATTGTCAGGAGCCACGAAAAT-3'
<i>Myogenin</i>	Forward	5'-ATCTCCGCTACAGAGGCGGG-3'
	Reverse	5'-TAGGGTCAGGCCGCGAGCAAA-3'
<i>Mt-co1</i>	Forward	5'-CTACTATTCGGAGCCTGAGC-3'
	Reverse	5'-GCATGGGCAGTTACGATAAC-3'
<i><math>\beta</math>-Actin</i>	Forward	5'-CATTGCTGACAGGATGCAGAAGG-3'
	Reverse	5'-TGCTGGAAGGTGGACAGTGAGG-3'
<i>L32</i>	Forward	5'-GGCCTCTGGTGAAGCCCAAGATCG-3'
	Reverse	5'-CCTCTGGGTTTCCGCCAGTTTCGC-3'