Fig. S1. Effect of newly synthesized GHRP-6-biotin conjugate on C2C12 myocytes differentiation. Confluent myoblasts were incubated for the indicated period of time with (+) or without (-) 50 μM GHRP-6-biotin conjugates. Whole cell lysate was analyzed by immunoblotting with anti-myosin heavy chain I (MyHC I), myogenin, MG53, and caveolin-3. The ratio of myogenic markers/actin was statistically analyzed with three independent experiments. All data are shown as the means ±S.E.; t-test and analysis of variance. *, p<0.05 and **, p<0.01.
Fig. S2. Effects of GHRP-6-biotin conjugate on C2C12 myocytes differentiation. C2C12 myoblasts were differentiated for 48hr with indicated concentrations of GHRP-6-biotin conjugates. Equally loaded protein was checked by expression of β-actin. The ratio of myogenic markers/actin was statistically analyzed with three independent experiments. All data are shown as the means ±S.E.; *p<0.05 and **p<0.01.
Fig. S3. Effects of GHRP-6-biotin conjugate on the myogenesis of satellite cells. Satellite cells were obtained from 4-week-old female mice, and differentiated to myotubes for 48h. Myogenesis was monitored by MyHC immunofluorescence and DAPI staining. Myogenic index was determined from the MyHC-stained cells. **, p<0.01.
Fig. S4. Effect of biotin and GHRP-6 on C2C12 myocytes differentiation. (A) Treatment of naïve biotin did not induced any significant changes in both myogenin and caveolin-3 expression, while GHRP-6 peptide decreased the expression of myogenin expression. (B) The ratio of myogenic markers/actin was statistically analyzed with three independent experiments. All data are shown as the means ±S.E.; $t$-test and analysis of variance. *, $p<0.05$ and **, $p<0.01$. 
**Supplementary Table 1. Binding partners for GHRP-6-biotin conjugate.** Three protein bands from the gel were excised, trypsinized, and subjected to MALDI-TOF analysis.

<table>
<thead>
<tr>
<th>Protein name</th>
<th>MW (kDa)/pI</th>
<th>Gene symbol</th>
<th>Description</th>
<th>Sequence coverage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desmin</td>
<td>53.5/5.21</td>
<td>Des</td>
<td>A cytoplasmic actin</td>
<td>59</td>
</tr>
<tr>
<td>Actin, cytoplasmic 2</td>
<td>42.1/5.31</td>
<td>Actg1</td>
<td>A type III intermediate filament</td>
<td>75</td>
</tr>
<tr>
<td>Zinc finger protein 691</td>
<td>33/8.69</td>
<td>Znf691</td>
<td>Unknown, a transcription factor</td>
<td>72</td>
</tr>
</tbody>
</table>
Desmin

Protein sequence coverage: 59%

Matched peptides shown in bold red.

A
B

Gamma actin

Protein sequence coverage: 75%

Matched peptides shown in bold red.

1 MERRIALAV LEHOMCROV PADOARAP FYTIVDFR PLOMNYRF
51 DOPVQEAQ MGDIULIFP IEQIVITIQ DNEWMTF NENLAWFEE
101 RVILITQEL GMPRNEQY GFTFTPQF ANFAQLQG LKLAGSTY
151 TMYRQGNYG TRYTVMDR LIHAILALI AOGODSDKH KITENGYP
201 TVTACIRT RYKREOYA LIVNQMMN AASSLIMT YNQAVQTVT
251 QNRMKGEL RYPYLFLED SGRSRFTF SQDOGTVT VQIKNWYQV
301 GYKTVIMRQ QVSHEIAR AFPSMTK APPRYRTV DOQILALS
351 TVTTCMTQ RQNGRIYB EVSRT

170 978
230 524
Fig. S5. Peptide sequence and MS spectrum of GHRP-6-biotin conjugate binding proteins in C2C12 myocytes.