Supporting Information

Ratanhiaphenol III from Ratanhiae radix is a PTP1B inhibitor

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Supplementary Figure 1

Chromatogram of the DCM extract (c=5 mg/mL) of Ratanhiae radix; numbers indicate the isolated compounds (for structures refer to Supplementary Figure 2).

LC-parameters: stationary phase: Phenomenex MAX-RP column (150 x 4.6 mm), mobile phases: A = water, B = methanol+acetonitrile (25+75 v/v); gradient: 0 min: 60% A; 6 min: 53% A; 15 min: 50% A; 20 min: 42% A; 30 min: 35% A; 40 min: 2% A; 45 min: stop. Temp.: 50°C, injection volume: 10 µl; detection wavelength: 280 nm; sample concentration: 5 mg/ml methanol).

5-(3-hydroxypropyl)-2-(2-methoxy-4-hydroxyphenyl)-benzofuran (**1**), (-)-larreatricin (**2**), *meso*-3,3´-didemethoxy-nectandrin B (**3**), (2*S*,3*S*)-2,3-dihydro-3-hydroxymethyl-2-(4-hydroxyphenyl)-5-(*E*)-propenylbenzofuran (**4**), 2-(2-hydroxy-4-methoxyphenyl)-5-(3-hydroxypropyl)-benzofuran (**5**), 2-(2,4-dihydroxyphenyl)-5-(*E*)-propenylbenzofuran (**6**), (+)-conocarpan (**7**), 2-(4-hydroxyphenyl)-5-(*E*)-propenylbenzofuran (**8**), rataniaphenol III (**9**), rataniaphenol I (**10**), and rataniaphenol II (**11**).

Supplementary Figure 2

Eleven lignan derivatives isolated and identified from the DCM extract of Ratanhiae radix. Compound **9** is ratanhiaphenol III (rata) and was identified as PTP1B inhibitor.

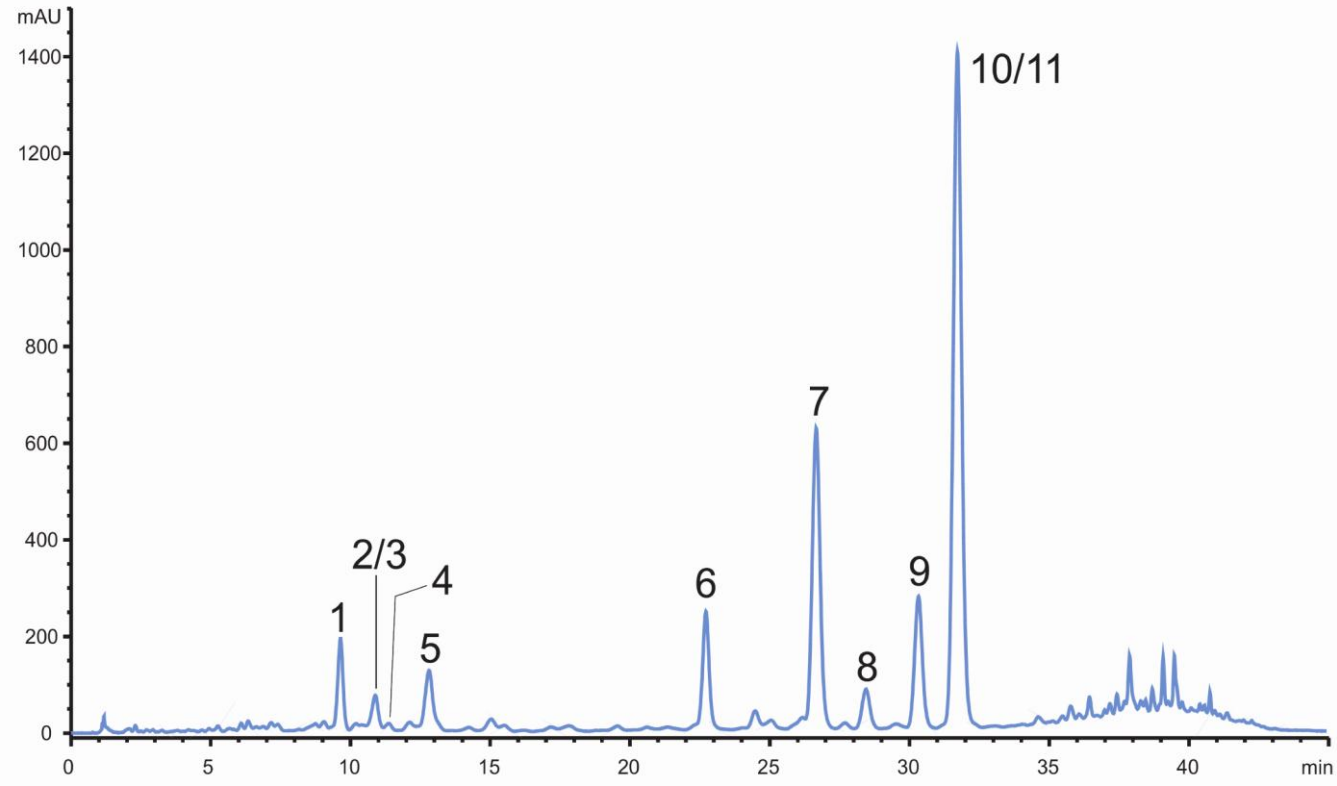
Supplementary Figure 3

The DCM extract of Ratanhiae radix enhances basal glucose uptake by activation of AMP-activated kinase (AMPK).

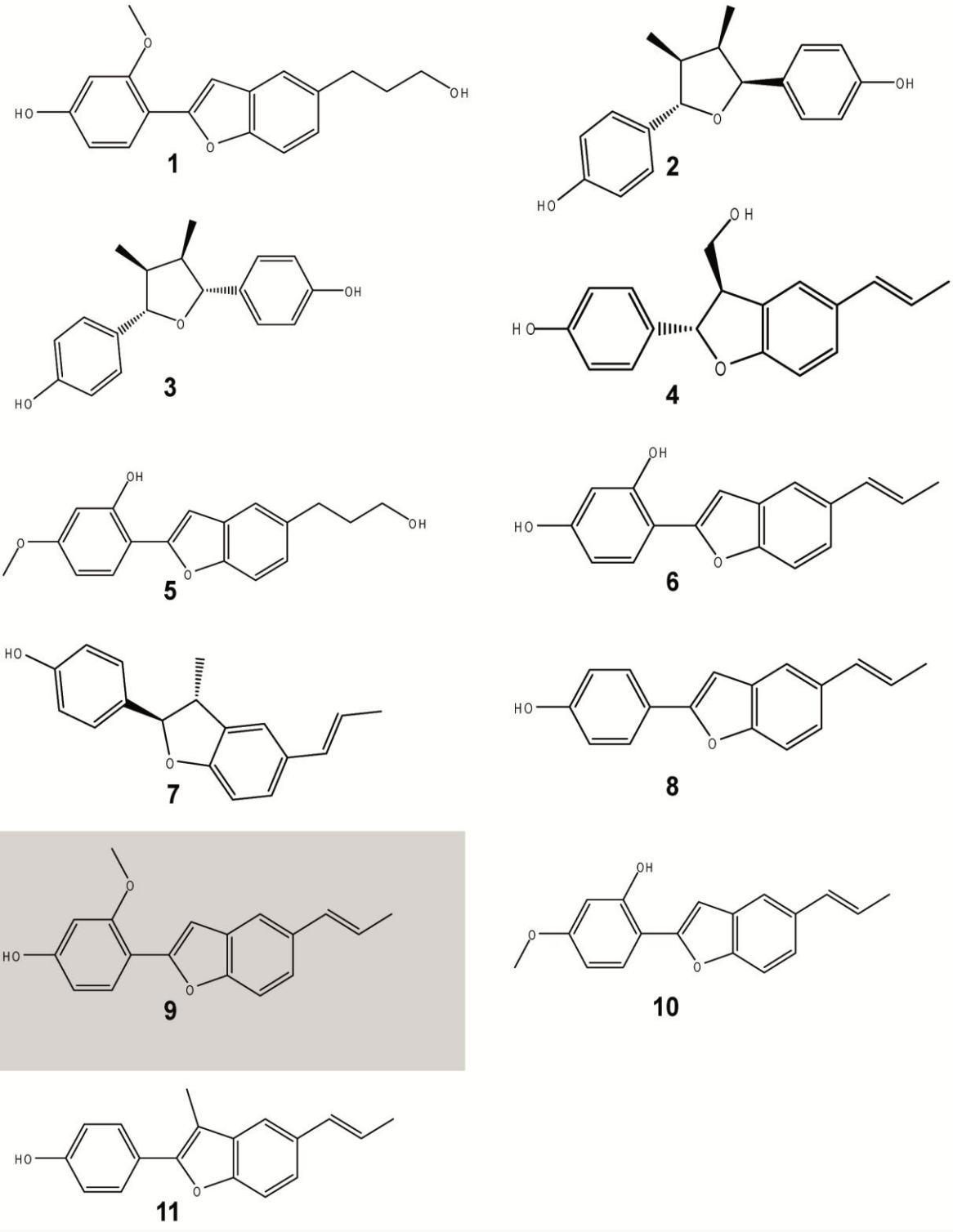
(**A**) C2C12 myocytes were pretreated with 15 µM dorsomorphin (dorso), an AMPK inhibitor, for 30 min, exposed to DMSO (-) and 30 µg/mL *RR_ex* for 2 h before their glucose uptake rate was assessed. The bar graph depicts the mean of three independent experiments (expressed as fold DMSO control). Bars with different superscript letters derive from significantly different data sets (two-way ANOVA, Bonferroni´s post test, $p<0.05$). (**B**) C2C12 myocytes were treated with 0-30 µg/mL *RR_ex* as well as 500 µM AICAR (positive control) for 2 h. Cells were lysed, and lysates were subjected to immunoblot analyses for phospho-AMP-activated kinase (pAMPK, T172), phospho-acetyl-CoA-

carboxylase (pACC, S79), indications for active AMPK, and the respective unphosphorylated proteins. Representative blots of three experiments with consistent results are depicted. The numbers below the blots represent the mean densitometric ratios of pAMPK/totAMPK and pACC/ totACC (normalized to the DMSO control), respectively.

Supplementary Figure 1



Supplementary Figure 2



Supplementary Figure 3