**Supplementary material S2**

*Preparation of hydrolysates and analyses of labeled amino acids.* A 0.5 ml plasma sample and 200 mg of digesta were each hydrolyzed for 24 h at 110oC in 2 and 3 ml of 6 N HCl, respectively. The hydrolyzed samples were centrifuged at 3,000 x g for 20 min and the supernatants (1 ml) were then passed through an ion-exchange column packed with 110 mg of Dowex 50X8-200. Amino acids were eluded with 1 ml of 4 M NH4OH and 1 ml of nanopure H2O into vials and freeze-dried. The dried AA were converted to their tert-butyldimethylsilyl derivatives by adding 600 uL of 50% of N-methyl-N-(t-butyldimethylsilyl) trifluoroacetamine and 50% of acetonitrile solution and heated for 2 h at 110oC (Molnar-Perl and Katona, 2000).

The 15N-enrichment in AA was determined on Agilent 7890A GC system connected to an Agilent 5975C MS (Santa Clara, CA). Sample processing and GC-MS analysis followed the method described by Bosch *et al.* (2007) with slight modification for optimization. The chromatographic conditions were as follows: capillary column HP5-MS; 0.25 um i.d. x 30 m with 0.25 um fitness film; carrier gas (He) at a flow rate of 1 ml/min; injection in splitless mode at 1 uL; for Exp. 1, oven temperature started at 150oC, increased 50 oC/min to 200oC, then by 20oC/min to 270oC and held for 8 min; and for Exp. 2, oven temperature started at 100oC, increased 35oC/min to 290oC, then by 40 oC/min to 360oC and held for 8 min. The MS was operated under electron ionization and selected ion monitoring modes. The enrichments or APE were determined from the molecular fragments [M/(M+1)] for 15N-AA derivatives and [M/(M+4)] for 2D4-Lys derivatives. The following mass-to-charge ratio fragments were monitored: 488 for 14N-Lys derivative (M), 492 for 2D4-Lys derivative (M + 4), 347 for 14N-Thr derivative (M), 348 for 15N-Thr derivative (M+1), 349 for 14N-Cys derivative (M), 350 for 15N-Cys derivative (M+1), 377 for 14N-Met derivative (M), 378 for 15N-Met derivative (M+1), 389 for 15N-Lys derivative (M+1), 359 for 14N-Leu derivative (M), and 360 for 15N-Leu derivative (M+1).