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## Proteomic analysis of plasma after branched chain enriched mixture supplementation in mice

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 Journal of the  
International  
Society of  
Sports Nutrition  
Volume 10
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*Journal of the International Society of Sports Nutrition* 2013, **10**:19

doi:10.1186/1550-2783-10-19

Published: 3 April 2013

## Abstract

### Background

Branched chain amino acid (BCAA) supplementation is a recently identified strategy to promote longevity in mice. A proteomic approach was used to identify proteins which are differentially expressed in the sera of mice following supplementation with selected branched chain amino acid enriched mixture (BCAAem).

### Findings

12 male mice (C57Bl6, 9 months-old) were randomly assigned to unsupplemented (Control, n = 6) and supplemented (BCAA, n = 6, 0.1 mg/gr/day in drink water for 4 weeks). At the end of treatment total plasma samples from Control and BCAAem mice were separated by two-dimensional gel electrophoresis (2-DE). After staining, the gels were imaged and differential protein expression patterns were interrogated using image analysis software. Spots showing a different expression level were identified through a comparison with 2D maps found in databases officially

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Master gels of Control and BCAA mice exhibited slightly different 2-DE patterns as only 10 spots out of 500 appeared differentially expressed: 8 were upregulated (corresponding to Apolipoprotein A-I (APOA1), Complement factor B, Complement C3, Immunoglobulin light chain) and 2 appeared downregulated (Alpha-1-antitrypsin and unknown).

## Conclusions

Supplementation with BCAAem in mice results in a slight perturbation of the host serum proteome. Of particular interest is the increased Apolipoprotein A-I (APOAI) following treatment.

**Keywords:** Amino acids; Proteome; Dietary supplements

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