SEACSM Annual Meeting

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Tue 11/20/2018 8:08 AM

To: Paul Roberson <par0021@tigermail.auburn.edu>;

P. Roberson

We are pleased to tell you that your abstract LAT1 IMMUNOHISTOCHEMICAL ALTERATIONS FOLLOWING TRAINING AND EFFECTS OF LAT1 OVEREXPRESSION IN C2C12 MYOBLASTS AND MYOTUBES has been accepted for a Poster Free Communication presentation at the Annual Meeting of the Southeast Chapter of the American College of Sports Medicine being held at the Hyatt Regency Hotel in Greenville, SC on February 14-16, 2019.

A poster free communication is presented during a 90 minute session allowing for attendees to view posters and discuss with presenters. See below for the date, time, and location of your poster free communication. Please check the final program to make sure your poster number and presentation time has not changed.

Presentation day: Saturday
Section Presentation: Poster 4
Time Presentation: 8:00-9:30am
Location: Studio
Number: P231

LAT1 IMMUNOHISTOCHEMICAL ALTERATIONS FOLLOWING TRAINING AND EFFECTS OF LAT1 OVEREXPRESSION IN C2C12 MYOBLASTS AND MYOTUBES
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Large Neutral Amino Acid Transporter 1 (LAT1) has gained attention due to its potential anabolic properties in skeletal muscle. It has been demonstrated LAT1 transports leucine and is upregulated following resistance training. PURPOSE: To determine alterations in LAT1 following resistance training using immunohistochemistry (IHC), and determine how overexpression of LAT1 in C2C12 myoblasts and myotubes (MYO) affects protein synthesis, via puromycin integration (SUnSET method), and 20S proteasome activity. METHODS: Untrained, college-aged males were separated into a Placebo (PLA, n=10), Leucine (LEU, n=9), or Whey Protein Concentrate (WPC, n=9) group and underwent 12 weeks of resistance training. Skeletal muscle biopsies were obtained prior to and following training. LAT1 was stained using IHC to determine total LAT1, membrane LAT1, and both measurements made relative to fiber count. C2C12 myoblasts were plated and transfected with a LAT1 overexpression plasmid (OvEX) and compared to cells transfected with a scramble overexpression plasmid (CTL). RESULTS: Total LAT1, membrane LAT1, and membrane LAT1/fiber were unaltered following training ($p>0.050$). Total LAT1/fiber increased following training ($p=0.003$). LAT1 overexpression in C2C12 MYO increased LAT1 protein ($p=0.026$), decreased puromycin content ($p=0.002$), decreased BCKDHa protein ($p=0.001$), and did not alter 20S proteasome activity ($p=0.347$). CONCLUSIONS: LAT1 measured via several techniques (IHC, WB, PCR) increases following training; however, may lead to decreases in protein synthesis given that C2C12 MYO overexpressing LAT1 presented decreases in protein synthesis and decreased BCKDHa potentially suggesting increased oxidation of leucine.

The 2019 SEACSM Program Committee thanks you for your contribution to the program. We look forward to your presentation.

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