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LSU ir TU Biologijos bendros
doktorantūros komiteto pirmininkui

P R A Š Y M A S

2019 m. _kovo_ mėn. _12_d.

Prašau leisti dalyvauti Biologijos mokslų krypties Lietuvos sporto universiteto disertacijų tematikų ir doktorantų vadovų konkurse. Siūlau šią (šias) disertacijos temas (ą) **Dose-depended cfDNA and ms_cfDNA kinetics to muscle-damaging exercise**

Jeigu šį vadovavimo doktorantui konkrečia disertacijos tema konkursą laimėsiu, visą man paskirto doktoranto studijų laikotarpį vadovausiu ne daugiau kaip 5 biologijos mokslo krypties doktorantams.

Parašas

Perikles Simon
Marius Brazaitis
Vardas, pavardė

Reasoning of dissertation topic and competency of potential supervisor for admission onto joint LSU and TU doctoral studies in 2019

Area of research (title and code)	**Biomedical sciences, Biology, 01B**
Field of research (title and code)	**Physiology, B470**
Topic of research	**Cell free DNA, Physiological stress, Prevention**
Institution	**Johannes Gutenberg University Mainz, Department of Sports Medicine; Lithuanian Sports University/ Institute of Sport Science and Innovations**

Potential supervisor

Pedagogical and scientific degree	**Name, surname**	**Academic position**
Prof. MD, PhD	Perikles Simon	Professor
Prof. PhD	Marius Brazaitis	Professor

Short reasoning of proposed dissertation topic

Title

Dose-depended cfDNA and ms_cfDNA kinetics to muscle-damaging exercise

Summary

Acute strenuous exercise leads to a dose dependent transient inflammation and can lead to muscle tissue trauma. Without sufficient recovery, a more severe form of chronic tissue trauma can develop which finally leads to reduced performance and overtraining syndrome. Here, we aim to analyse the kinetics of cell free DNA (cfDNA) and classical markers such as interleukine-6 (IL-6) and creatine kinase (CK), after the induction of delayed onset muscle soreness (DOMS). Inflammation related, acute, and transient increases in cfDNA have been observed in a number of different exercises (Breitbach et al. 2012) and chronic increases have been observed after 12 weeks of high intensity resistance training (Fatouros et al. 2006). However, the tissue specificity of the cfDNA has not been evaluated yet. Next to the conventional analysis of cfDNA kinetics we will start to establish and conduct an analysis of muscle specific DNA sequences (ms_cfDNA). The analysis will be based on de-methylated DNA sequences, which are main regulatory sequences during muscle cell development. The analysis might result in a highly specific and sensitive muscle tissue marker to prevent chronic overtraining.

Please indicate the links between the proposed topic for the doctoral thesis and health promotion / physical therapy / sports study programs.

Sports

Is the proposed topic for the doctoral thesis related to currently funded research projects?

Yes. The Baltic-German University Liaison Office funding.

Is the proposed topic for the doctoral thesis related to joint research with a foreign institution?

Yes. Johannes Gutenberg University Mainz, Department of Sports Medicine. Prof. Perikles Simon

Currently I am supervisor of ___3___ doctoral students.

Supervisor

Perikles Simon
Marius Brazaitis

(Signature)

PERIKLES SIMON

(Name, surname)

Date: 2019 03 12