

Studies of the expression of subunits $\alpha 2$ and $\beta 1$ of Na^+/K^+ -ATPase, $\alpha 1\text{S}$ (L-type) Ca^{2+} -channel, and SERCA 1/2/3 of Ca^{2+} -ATPase of phasic and postural rat muscles in a model of hypogravity using the method of fluorescent microscopy

Nurullin L., Tyapkina O., Volkov E.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2016, Pleiades Publishing, Ltd. Using fluorescent microscopy, we found decreased expression of the $\beta 1$ subunit of Na^+/K^+ -ATPase and subunits of Ca^{2+} -ATPase, increased expression of the $\alpha 1\text{S}$ subunit of the L-type Ca^{2+} -channel, and no changes in the expression of the $\alpha 2$ subunit of Na^+/K^+ -ATPase in rat postural muscle under the conditions of modeled hypogravity. In the phasic muscle, we observed decreased expression of the $\beta 1$ subunit, which was similar to that found in the postural muscle, whereas the other studied parameters remained without alterations. However, a decrease in the fluorescence intensity of the $\beta 1$ subunit was insignificant due to a high variability of data. Thus, hypogravity negatively influenced primarily those skeletal muscles that are responsible for static load.

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Keywords

Ca^{2+} -ATPase, hypogravity, L-type Ca^{2+} -channel, Na^+/K^+ -ATPase, skeletal muscle