

# Action of ATP on Ca<sup>2+</sup>-Transient in Different Parts of the Frog Motor Nerve Ending

Khaziev E., Golovyahina A., Bukharaeva E., Nikolsky E., Samigullin D.

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

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## Abstract

© 2016, Springer Science+Business Media New York. Electrophysiological evidence indicates a difference in neurotransmitter secretion along the motor nerve terminals of the frog neuromuscular junction. This includes a decrease of the minimal synaptic delay value and a reduction in the quantal content of the evoked endplate currents from the proximal to distal portion of the motor nerve ending. Besides, various physiologically active compounds may have different effects on the acetylcholine secretion in the proximal and distal parts of the nerve terminal. Here, we explored the effects of ATP on Ca<sup>2+</sup>-transient using optical detection methods with high-speed camera in different parts of the frog nerve terminal. There was shown a significant inhibitory effect of ATP on Ca<sup>2+</sup>-transient in both the proximal and distal regions of nerve terminals. However, in different parts of nerve endings, any significant differences in ATP effects were not found. Thus, ATP decreases the Ca<sup>2+</sup>-transient along the entire presynaptic terminal.

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## Keywords

ATP, Ca<sup>2+</sup>-transient, Frog, Neuromuscular junction, Proximal-distal gradient, Synapse

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