



## Adrenoceptors in Dopaminergic Regulation of Rat Myocardial Contractility in Rats During Ontogeny

Authors Authors and affiliations

G. A. Bilalova , F. G. Sitdikov, N. B. Dikopol'skaya, M. V. Shaikhelislamova, T. L. Zefirov

Article

First Online: 20 April 2017

DOI: 10.1007/s10517-017-3709-y

Cite this article as:

Bilalova, G.A., Sitdikov, F.G.,  
Dikopol'skaya, N.B. et al. Bull Exp Biol  
Med (2017) 162: 769.  
doi:10.1007/s10517-017-3709-y

14

Downloads

The effects of different dopamine concentrations on contractility of myocardium with blocked  $\alpha$ - or  $\beta$ -adrenoceptors were examined *in vitro* in 21- and 100-day old rats. In myocardial strips with blocked  $\alpha$ -adrenoceptors, dopamine ( $10^{-5}$  M) increased the right atrial contractile force. By contrast, this neurotransmitter ( $10^{-9}$ – $10^{-5}$  M) reduced the contractile force of atrial and ventricular strips with blocked  $\beta$ -adrenoceptors.

### Key Words

dopamine myocardium rat contractility

Translated from *Byulleten' Eksperimental'noi Biologii i Meditsiny*, Vol. 162, No. 12, pp. 738–742, December, 2016

### References

1. Anikina TA, Bilalova GA, Sitdikov FG. Effect of  $\beta$ -adrenoceptor blockade on cardiac activity in rats during postnatal ontogeny. *Bull. Exp. Biol. Med.* 2003;136(3):231–234. [CrossRef](#) [PubMed](#) [Google Scholar](#)
2. Bilalova GA, Kazanchikova LM, Zefirov TL, Sitdikov FG. Inotropic effect of dopamine on rat heart during postnatal ontogeny. *Bull. Exp. Biol. Med.* 2013;156(2):173–176. [CrossRef](#) [PubMed](#) [Google Scholar](#)
3. Zefirov TL, Ziatdinova NI, Khabibrakhmanov II, Zefirov AL. Age-dependent peculiarities of the rat's heart cholinergic regulation. *Ros. Fiziol. Zh.* 2015;101(2):189–199. Russian. [Google Scholar](#)
4. Kolacheva AA, Kozina EA, Khakimova GR, Kucheryanu VG, Kudrin VS, Nigmatullina RR, Bazyan AS, Grigor'yan GA, Ugryumov MV. Experimental modeling of Parkinson's disease. *Neurodegenerative diseases: from genome to the whole organism*. Vol. 1. Ugryumov MV, ed. Moscow, 2014. P. 356–422. Russian.
5. Leushina AV, Nurullin LF, Petukhova EO, Zefirov AL, Mukhamedyarov MA. Adrenergic mechanisms of myocardium contractility regulation in genetic model of Alzheimer's disease. *Kazan. Med. Zh.* 2015;96(1):50–55. Russian. [CrossRef](#) [Google Scholar](#)
6. Mamalyga ML. Regulation of a heart rhythm in mouse with asymptomatic and symptomatic models of Parkinson's disease. *Patol. Fiziol. Eksp. Ter.* 2014;(2):33–36. Russian. [Google Scholar](#)
7. Amenta F, Ricci A, Tayebati SK, Zaccheo D. The peripherals dopaminergic system: morphological analysis, functional and clinical applications. *Ital. J. Anat. Embryol.* 2002;107(3):145–167. [PubMed](#) [Google Scholar](#)
8. Robinson RB. Autonomic receptor — effector coupling during post-natal development. *Cardiovasc. Res.* 1996;31(Spec No):E68–E76.