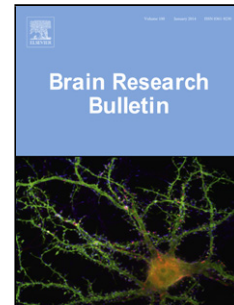


## Accepted Manuscript

Title: Streptozotocin causes neurotoxic effect in cultured cerebellar granule neurons

Author: <ce:author id="aut0005"  
author-id="S0361923016304105-  
99fbeb8890dd2a6868e89410d5aded1"> Elisaveta E.  
Genrikhs<ce:author id="aut0010"  
author-id="S0361923016304105-  
f2b7b7eb764909b32eab36ba04f07eff"> Elena V.  
Stelmashook<ce:author id="aut0015"  
author-id="S0361923016304105-  
3a37aa05a01f4bd2cf43c4e6a0f04440"> Sergey A.  
Golyshev<ce:author id="aut0020"  
author-id="S0361923016304105-  
6a4b2bdf9f649c009f5061e6c62ddbe3"> Olga P.  
Aleksandrova<ce:author id="aut0025"  
author-id="S0361923016304105-  
9876930bf4fa43b0e45b11652e675b5f"> Nickolay K.  
Isaev



PII: S0361-9230(16)30410-5  
DOI: <http://dx.doi.org/doi:10.1016/j.brainresbull.2017.01.004>  
Reference: BRB 9144

To appear in: *Brain Research Bulletin*

Received date: 15-11-2016  
Revised date: 29-12-2016  
Accepted date: 3-1-2017

Please cite this article as: Elisaveta E.Genrikhs, Elena V.Stelmashook, Sergey A.Golyshev, Olga P.Aleksandrova, Nickolay K.Isaev, Streptozotocin causes neurotoxic effect in cultured cerebellar granule neurons, Brain Research Bulletin <http://dx.doi.org/10.1016/j.brainresbull.2017.01.004>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# Streptozotocin causes neurotoxic effect in cultured cerebellar granule neurons

Elisaveta E. Genrikhs<sup>a</sup>, Elena V. Stelmashook<sup>a,\*</sup>, Sergey A. Golyshev<sup>b</sup>, Olga P. Aleksandrova<sup>a</sup>, Nickolay K. Isaev<sup>a,b</sup>

<sup>a</sup> *Research Center of Neurology, Volokolamskoe Shosse 80, 125367, Moscow, Russia*

<sup>b</sup> *M. V. Lomonosov Moscow State University, N. A. Belozersky Research Institute of Physico-Chemical Biology, Leninskiye gory, 1, b. 40, 119991, Moscow, Russia*

<sup>1</sup> \* Correspondence to: Dr Elena V. Stelmashook, Research Center of Neurology, bs. Obukha, 5, Brain Research Department, Research Center of Neurology, Moscow, Russia. Tel. +7(495)9171908, Fax +7 495 9179263, E-mail address: estelmash@mail.ru

**Running title: Streptozotocin toxicity in neuronal cultures**

## HIGHLIGHTS

Viability of cultured cerebellar neurons decreases under streptozotocin toxicity.

Pyruvate and insulin attenuate toxic effect of streptozotocin.

Streptozotocin increases intracellular calcium in cultured cerebellar neurons.

Streptozotocin decreases neuronal mitochondrial membrane potential.

Streptozotocin induces ultrastructural alterations in cultured cerebellar neurons.

## Abstract

Streptozotocin (STZ) is a glucosamine-nitrosourea compound used for experimental simulation of sporadic Alzheimer's disease at intracerebroventricular administration *in vivo*. The studies of STZ influence on neurons of central nervous system performed on the primary cultures are practically absent. We have shown the application of STZ (1–5 mM) in primary culture for 48 h induced strong dose-dependent death in cultured cerebellar granule neurons. This toxic effect was decreased by pyruvate, insulin partially. Using the indicator Fluo-4 AM for measurements of intracellular calcium ions and tetramethylrhodamine ethyl ester (TMRE) for detection of changes of mitochondrial membrane potential in live cells we have shown that 5 h-exposure to STZ

Download English Version:

<https://daneshyari.com/en/article/5736365>

Download Persian Version:

<https://daneshyari.com/article/5736365>

[Daneshyari.com](https://daneshyari.com)