Accepted Manuscript

Title: Protective effects of a radical scavenger edaravone on oligodendrocyte precursor cells against oxidative stress

Authors: Hajime Takase, Anna C. Liang, Nobukazu Miyamoto, Gen Hamanaka, Ryo Ohtomo, Takakuni Maki, Loc-Duyen D. Pham, Josephine Lok, Eng H. Lo, Ken Arai

PII: S0304-3940(18)30018-1
DOI: https://doi.org/10.1016/j.neulet.2018.01.018
Reference: NSL 33352
To appear in: Neuroscience Letters

Received date: 30-10-2017
Revised date: 26-12-2017
Accepted date: 10-1-2018

Please cite this article as: Hajime Takase, Anna C.Liang, Nobukazu Miyamoto, Gen Hamanaka, Ryo Ohtomo, Takakuni Maki, Loc-Duyen D.Pham, Josephine Lok, Eng H.Lo, Ken Arai, Protective effects of a radical scavenger edaravone on oligodendrocyte precursor cells against oxidative stress, Neuroscience Letters https://doi.org/10.1016/j.neulet.2018.01.018

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.
Protective effects of a radical scavenger edaravone on oligodendrocyte precursor cells against oxidative stress
Hajime Takase1,2,3, Anna C. Liang1#, Nobukazu Miyamoto1, Gen Hamanaka1, Ryo Ohtomo1, Takakuni Maki1, Loc-Duyen D. Pham1, Josephine Lok1,2, Eng H. Lo1, Ken Arai1
1Neuroprotection Research Laboratory, Departments of Radiology and Neurology, Massachusetts General Hospital and Harvard Medical School, USA
2Department of Pediatrics, Massachusetts General Hospital, Boston, MA, USA
3Department of Neurosurgery, Graduate School of Medicine, Yokohama-City University, Japan
*These two authors equally contributed to this work.
Corresponding author: Ken Arai, Neuroprotection Research Laboratory, MGH East 149-2401, Charlestown, MA 02129, USA. Tel: +1-617.724.9503, Email: karai@partners.org

Highlights:
- Edaravone protected OPCs in a mouse model of prolonged cerebral hypoperfusion.
- Edaravone did not induce cell death in OPC culture
- \( \text{H}_2\text{O}_2 \) exposure or starvation stress caused ROS accumulation in OPCs
- Edaravone protected OPCs against oxidative stress in vitro

Abstracts:
Oligodendrocyte precursor cells (OPCs) play critical roles in maintaining the number of oligodendrocytes in white matter. Previously, we have shown that oxidative stress dampens oligodendrocyte regeneration after white matter damage, while a clinically proven radical scavenger, edaravone, supports oligodendrocyte repopulation. However, it is not known how edaravone exerts this beneficial effect against oxidative stress. Using in vivo and in vitro experiments, we have examined whether edaravone exhibits direct OPC-protective effects. For in vivo experiments, prolonged cerebral hypoperfusion was induced by bilateral common carotid artery stenosis in mice. OPC damage was observed on day 14 after the onset of cerebral hypoperfusion, and edaravone was demonstrated to decrease OPC death in cerebral
دریافت فوری متن کامل مقاله

امکان دانلود نسخه تمام متن مقالات انگلیسی
امکان دانلود نسخه ترجمه شده مقالات
پذیرش سفارش ترجمه تخصصی
امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
امکان دانلود رایگان ۲ صفحه اول هر مقاله
امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
دانلود فوری مقاله پس از پرداخت آنلاین
پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات