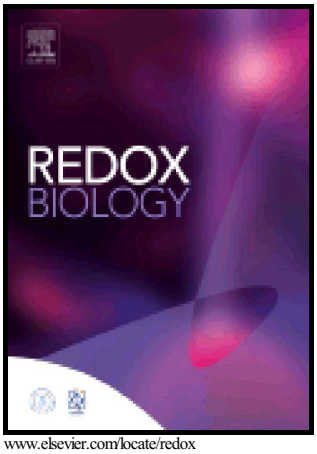
Author's Accepted Manuscript



www.elsevier.com/locate/redox

Nrf2 Mediates Redox Adaptations to Exercise

Aaron J. Done, Tinna Traustadóttir

PII: S2213-2317(16)30186-0
DOI: http://dx.doi.org/10.1016/j.redox.2016.10.003
Reference: REDOX478

To appear in: *Redox Biology*

Received date: 17 September 2016
Revised date: 6 October 2016
Accepted date: 11 October 2016

Cite this article as: Aaron J. Done and Tinna Traustadóttir, Nrf2 Mediates Redox Adaptations to Exercise, *Redox Biology* http://dx.doi.org/10.1016/j.redox.2016.10.003

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

ACCEPTED MANUSCRIPT

Nrf2 Mediates Redox Adaptations to Exercise.

Aaron J. Done, Tinna Traustadóttir*

Department of Biological Sciences, Northern Arizona University, Flagstaff, Arizona

*Correspondence to: Tinna Traustadóttir, Ph.D., Department of Biological Sciences, Northern Arizona University, PO Box 5640, Flagstaff, AZ 86011-5640. Tel.: +928 523 7291; fax: +928 523 7500. tinna.traustadottir@nau.edu

Accepted manuscript

Abstract

The primary aim of this review is to summarize the current literature on the effects of acute exercise and regular exercise on nuclear factor erythroid 2-related factor 2 (Nrf2) activity and downstream targets of Nrf2 signaling. Nrf2 (encoded in humans by the NFE2L2 gene) is the master regulator of antioxidant defenses, a transcription factor that regulates expression of more than 200 cytoprotective genes. Increasing evidence indicates that Nrf2 signaling plays a key role in how oxidative stress mediates the beneficial effects of exercise. Episodic increases in oxidative stress induced through bouts of acute exercise stimulate Nrf2 activation and when applied repeatedly, as with regular exercise, leads to upregulation of endogenous antioxidant defenses and overall greater ability to counteract the damaging effects of oxidative stress. The evidence of Nrf2 activation in response to exercise across variety of tissues may be an important mechanism of how exercise exerts its well-known systemic effects that are not limited to skeletal muscle and myocardium. Additionally there are emerging data that results from animal studies translate to humans.

Download English Version:

https://daneshyari.com/en/article/8287137

Download Persian Version:

https://daneshyari.com/article/8287137

Daneshyari.com