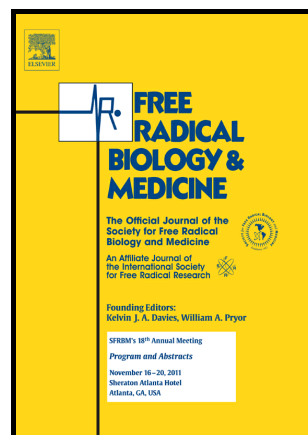


# Author's Accepted Manuscript

Peroxiredoxin 2 deficiency accelerates age-related ovarian failure through the reactive oxygen species-mediated JNK pathway in mice

Sun-Ji Park, Jung-Hak Kim, Dong Gil Lee, Jin-Man Kim, Dong-Seok Lee



www.elsevier.com

PII: S0891-5849(18)30882-7  
DOI: <https://doi.org/10.1016/j.freeradbiomed.2018.05.059>  
Reference: FRB13761

To appear in: *Free Radical Biology and Medicine*

Received date: 14 February 2018  
Revised date: 9 May 2018  
Accepted date: 12 May 2018

Cite this article as: Sun-Ji Park, Jung-Hak Kim, Dong Gil Lee, Jin-Man Kim and Dong-Seok Lee, Peroxiredoxin 2 deficiency accelerates age-related ovarian failure through the reactive oxygen species-mediated JNK pathway in mice, *Free Radical Biology and Medicine*, <https://doi.org/10.1016/j.freeradbiomed.2018.05.059>

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 galley proof before it is published in its final citable 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.

# **Peroxiredoxin 2 deficiency accelerates age-related ovarian failure through the reactive oxygen species-mediated JNK pathway in mice**

Sun-Ji Park<sup>a,b</sup>, Jung-Hak Kim<sup>a,c</sup>, Dong Gil Lee<sup>a</sup>, Jin-Man Kim<sup>d</sup>, Dong-Seok Lee<sup>a,\*</sup>

<sup>a</sup>School of Life Sciences and Biotechnology, BK21 Plus KNU Creative BioResearch Group, Kyungpook National University, Daegu, Republic of Korea

<sup>b</sup>Renal Division, Washington University School of Medicine, St. Louis, MO, USA

<sup>c</sup>Division of Endocrinology, Internal Medicine, University of California, Davis, CA, USA

<sup>d</sup>Cancer Research Institute and Department of Pathology, College of Medicine, Chungnam National University, Daejeon, Republic of Korea

**\*Corresponding author:** Dong-Seok Lee, College of Natural Sciences, Kyungpook National University, Daegu 702-701, Republic of Korea. Tel: 82-53-950-7366; Fax: 82-53-943-6925; E-mail: leel@knu.ac.kr

## **Abstract**

Reactive oxygen species (ROS) produced in biological reactions have been shown to contribute to ovarian aging. Peroxiredoxin 2 (Prx2) is an antioxidant enzyme that protects cells by scavenging ROS; however, its effect on age-related, oxidative stress-associated ovarian failure has not been reported. Here, we investigated its role in age-related ovarian dysfunction and 4-vinylcyclohexene diepoxide (VCD)-induced premature ovarian failure using Prx2-deficient mice. Compared to those in wildtype (WT) mice, serum levels of anti-Müllerian hormone, 17 $\beta$ -estradiol, and progesterone and numbers of follicles and corpora lutea were significantly lower in 18-month-old *Prx2*<sup>-/-</sup> mice. Moreover, levels of Bax, cytochrome c, cleaved caspase-3, and phosphorylated JNK proteins were higher and numbers of apoptotic (terminal deoxynucleotidyl transferase dUTP nick end labeling-positive) cells were considerably greater in 18-month-old *Prx2*<sup>-/-</sup> ovaries than WT ovaries.

Download English Version:

<https://daneshyari.com/en/article/8265229>

Download Persian Version:

<https://daneshyari.com/article/8265229>

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