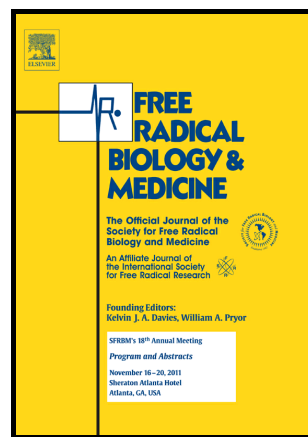


Author's Accepted Manuscript

Structural and functional changes in RNase A originating from tyrosine and histidine cross-linking and oxidation induced by singlet oxygen and peroxy radicals

Fabian Leinisch, Michele Mariotti, Per Hägglund, Michael J. Davies



www.elsevier.com

PII: S0891-5849(18)31235-8
DOI: <https://doi.org/10.1016/j.freeradbiomed.2018.07.008>
Reference: FRB13847

To appear in: *Free Radical Biology and Medicine*

Received date: 20 April 2018
Revised date: 12 July 2018
Accepted date: 16 July 2018

Cite this article as: Fabian Leinisch, Michele Mariotti, Per Hägglund and Michael J. Davies, Structural and functional changes in RNase A originating from tyrosine and histidine cross-linking and oxidation induced by singlet oxygen and peroxy radicals, *Free Radical Biology and Medicine*, <https://doi.org/10.1016/j.freeradbiomed.2018.07.008>

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.

Structural and functional changes in RNase A originating from tyrosine and histidine cross-linking and oxidation induced by singlet oxygen and peroxy radicals

Fabian Leinisch¹, Michele Mariotti², Per Hägglund^{1,2} and Michael J. Davies^{1*}

¹*Dept. of Biomedical Sciences, Panum Institute, University of Copenhagen, Copenhagen, Denmark;*

²*Department of Biotechnology and Biomedicine, Technical University of Denmark, Kongens Lyngby, Denmark*

* Corresponding author. *E-mail address:* davies@sund.ku.dk (M.J. Davies)

Abstract

Oxidation can be induced by multiple processes in biological samples, with proteins being important targets due to their high abundance and reactivity. Oxidant reactions with proteins are not comprehensively understood, but it is known that structural and functional changes may be a cause, or a consequence, of disease. The mechanisms of oxidation of the model protein RNase A by singlet oxygen ($^1\text{O}_2$) were examined and compared to peroxy radical ($\text{ROO}^\bullet$) oxidation, both common biological oxidants. This protein is a prototypic member of the RNase family that exhibits antiviral activity by cleaving single-stranded RNA. RNase A lacks tryptophan and cysteine residues which are major oxidant targets, but contains multiple

Download English Version:

<https://daneshyari.com/en/article/8264918>

Download Persian Version:

<https://daneshyari.com/article/8264918>

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