

Author's Accepted Manuscript

Cholesterol and related sterols autoxidation

Chiara Zerbinati, Luigi Iuliano



www.elsevier.com

PII: S0891-5849(17)30216-2
DOI: <http://dx.doi.org/10.1016/j.freeradbiomed.2017.04.013>
Reference: FRB13294

To appear in: *Free Radical Biology and Medicine*

Received date: 2 February 2017
Revised date: 9 April 2017
Accepted date: 12 April 2017

Cite this article as: Chiara Zerbinati and Luigi Iuliano, Cholesterol and related sterols autoxidation, *Free Radical Biology and Medicine* <http://dx.doi.org/10.1016/j.freeradbiomed.2017.04.013>

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

Chiara Zerbinati, Luigi Iuliano*

Vascular Biology and Mass Spectrometry Laboratory, Department of Medical Sciences and Biotechnology, Sapienza University of Roma. Latina. Italy.

*Correspondence to: Sapienza University of Rome, Department of Medical Sciences and Biotechnology, Vascular Biology & Mass Spectrometry Lab, corso della Repubblica 79, 04100 Latina. Italy. phone: +39 0773 1757231; fax: +39 06 62 29 1089.

luigi.iuliano@uniroma1.it

Abstract

Cholesterol is a unique lipid molecule providing the building block for membranes, hormone, vitamin D and bile acid synthesis. Metabolism of cholesterol involves several enzymes acting on the sterol nucleus or the iso-octyl tail. In the recent years, research interest has been focused on oxysterols, cholesterol derivatives generated by the addition of oxygen to the cholesterol backbone. Oxysterols can be produced enzymatically or by autoxidation. Autoxidation of cholesterol proceeds through type I or type II mechanisms. Type I autoxidation is initiated by free radical species, such as those arising from the superoxide/hydrogen peroxide/hydroxyl radical system. Type II autoxidation occurs stoichiometrically by non-radical highly reactive oxygen species such as singlet oxygen, HOCl, and ozone. The vulnerability of cholesterol towards high reactive species has raised considerable interest for mechanistic studies and for the potential biological activity of oxysterols, as well as for the use of oxysterols as biomarkers for the non-invasive study of oxidative stress *in vivo*.

Key words: cholesterol, cholesterol autoxidation, free radicals, lipid peroxidation, oxidative stress, oxysterols

Download English Version:

<https://daneshyari.com/en/article/5501639>

Download Persian Version:

<https://daneshyari.com/article/5501639>

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