

Accepted Manuscript

The role of natural polyphenols in cell signaling and cytoprotection against cancer development

H. Lewandowska, M. Kalinowska, W. Lewandowski, T.M. Stepkowski, K. Brzóska

PII: S0955-2863(15)00340-X
DOI: doi: [10.1016/j.jnutbio.2015.11.006](https://doi.org/10.1016/j.jnutbio.2015.11.006)
Reference: JNB 7501

To appear in: *The Journal of Nutritional Biochemistry*

Received date: 15 September 2015
Revised date: 13 October 2015
Accepted date: 9 November 2015



Please cite this article as: Lewandowska H, Kalinowska M, Lewandowski W, Stepkowski TM, Brzóska K, The role of natural polyphenols in cell signaling and cytoprotection against cancer development, *The Journal of Nutritional Biochemistry* (2015), doi: [10.1016/j.jnutbio.2015.11.006](https://doi.org/10.1016/j.jnutbio.2015.11.006)

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.

The role of natural polyphenols in cell signaling and cytoprotection against cancer development

H. Lewandowska^{*1}, M. Kalinowska², W. Lewandowski², T. M. Stepkowski, K. Brzóska¹

¹ Institute of Nuclear Chemistry and Technology, Centre for Radiobiology and Biological Dosimetry, Dorodna 16, 03-195 Warsaw, Poland

² Division of Chemistry, Bialystok University of Technology, Zamenhofa 29, 15-435 Bialystok, Poland

Abstract

The cytoprotective and anticancer action of dietary in-taken natural polyphenols have for long been attributed only to their direct radical scavenging activities. Currently it is well supported that those compounds display a broad spectrum of biological and pharmacological outcomes mediated by their complex metabolism, interaction with gut microbiota as well as direct interactions of their metabolites with key cellular signaling proteins. The beneficial effects of natural polyphenols and their synthetic derivatives are extensively studied in context of cancer prophylaxis and therapy. Herein we focus on cell signaling to explain the beneficial role of polyphenols at the three stages of cancer development: we review the recent proceedings about the impact of polyphenols on the cytoprotective antioxidant response, their pro-apoptotic action at the pre-malignant stage and finally we present data showing how phenolic acids (e.g. caffeic, chlorogenic acids) and flavonols (e.g. quercetin) hamper the development of metastatic cancer.

Keywords: phenolic compounds, caffeic acid, chlorogenic acid, quercetin, anticancer, antioxidant

Highlights

Diverse mode of action of polyphenolics makes them a source of new therapeutics.

Graphical abstract

¹ Author to correspondence: H. Lewandowska, e-mail: h.lewandowska@ichtj.waw.pl

Download English Version:

<https://daneshyari.com/en/article/8336586>

Download Persian Version:

<https://daneshyari.com/article/8336586>

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