Resolvins D1 and D2 improve protective role of EPA in RAW 264.7 cells

Conference Paper · September 2015

CITATIONS
0

READS
59

6 authors, including:

Joanna Gdula-Argasińska
Jagiellonian University
152 PUBLICATIONS **697** CITATIONS
SEE PROFILE

Michał Woźniakiewicz
Jagiellonian University
95 PUBLICATIONS **810** CITATIONS
SEE PROFILE

Tadeusz Librowski
Jagiellonian University
211 PUBLICATIONS **1,596** CITATIONS
SEE PROFILE

Jacek Czepiel
Jagiellonian University
101 PUBLICATIONS **753** CITATIONS
SEE PROFILE

JOSEPH DIETL MALOPOLSKA
HIGHER SCHOOL IN CRACOW

Dietl.

THE XXIV INTERNATIONAL SYMPOSIUM

MOLECULAR AND PHYSIOLOGICAL ASPECTS OF REGULATORY PROCESSES OF THE ORGANISM

edited by Henryk Lach

CRACOW, POLAND

THE XXIV INTERNATIONAL SYMPOSIUM ORGANIZING COMMITTEE

Krystyna Pierzchała-Koziec
Department of Animal Physiology and Endocrinology
University of Agriculture in Cracow

Teodora Król
The Jan Kochanowski University of Humanities and Sciences in Kielce

Krystyna Skwarło-Sońta
Department of Animal Physiology, University of Warsaw

Lidia Mazur
Department of Experimental Hematology, Jagiellonian University

Tadeusz Librowski
Department of Radioligands, Medical College, Jagiellonian University

Anna Gibowska-Sikora
Joseph Dietl Malopolska Higher School in Cracow

Anna Michalak
Joseph Dietl Malopolska Higher School in Cracow

Barbara Ślusarczyk
Joseph Dietl Malopolska Higher School in Cracow

1.30-3.30 p.m. Plenary session II

Chairpersons
Henryk Marona
Maria Krotewicz
Krystyna Pierzchała-Koziec
Teodora Król
Tadeusz Librowski

1.30 Adrian Podkowa: **Effect of a novel GABA re-uptake inhibitor on cognitive functions in Morris water maze and radial-arm water maze in mice.** Jagiellonian University, Cracow

1.45 Magdalena Olbert: **Influence of two-week administration of zinc oxide nanoparticles on the superoxide dismutase and glutathione activity in rat serum and organs.** Jagiellonian University, Cracow

2.00 Magdalena Gaweł: **Anti-inflammatory and gastric activity of zinc-ibuprofen complex.** Jagiellonian University, Cracow

2.15 Małgorzata Tyszka-Czochara: **Evaluation of cytotoxic properties of amaranth sprouts grown with selenium and amaranth seeds in cervical carcinoma cells.** Jagiellonian University, Cracow

2.30 Joanna Gdula-Argasińska: **Resolvins D1 and D2 improve protective role of EPA in RAW-264.7 cell lines treated with benzo(a)anthracene.** Jagiellonian University, Cracow

2.45 Ewelina Frąckiewicz: **Antidepressant activity of mGlu5 receptor antagonists.** Jagiellonian University, Cracow

3.00 Anna Lipkowska: **Gastroprotective properties of various xanthones.** Jagiellonian University, Cracow

3.15-3.30 Discussion

3.30-3.45 Coffee break

Resolvins D1 and D2 improve protective role of EPA in RAW 264.7 cell lines treated with benzo(a)anthracene

Joanna Gdula-Argasińska1, Aneta Woźniakiewicz2, Michał Woźniakiewicz2, Tadeusz Librowski1, Jacek Czepiel3, Ayla Batu4

1Department of Radioligands, Faculty of Pharmacy, Jagiellonian University Medical College, Krakow, Poland; 2 Laboratory of Forensic Chemistry, Faculty of Chemistry, Jagiellonian University, Krakow, Poland; 3Department of Infectious Diseases, Jagiellonian University Medical College, Krakow, Poland; 4 Mersin University, Mersin, Turkey

Macrophages are essential cells involved in physiological processes including the regulation of innate and adaptive immunity, but they are also central to a number of inflammatory or disease states. Understanding the complex networks of eicosanoid metabolism and signalling at the physiological level as well as inflammatory or environmental stress can provide the information about molecular mechanism of diseases. The aim of our study was to assess the effect of eicosapentaenoic acid (EPA) supplementation with added RvD1 and RvD2 and benzo(a)anthracene (Baa) treatment on RAW 264.7 cells by using Western blot and UHPLC/MS-TOF method for the quantification of proteins expression as well as isoprostanes. It was observed that COX-2 and AHR expression were decreased after treatment of cells with resolvins. cPLA2 activity was increased during treatment with BaP. PGF3a and PGF2a was decreased after treatment with resolvins. In summary we demonstrate, that eicosapentaenoic acid together with resolvins D1 and D2 have an anti-oxidative stress effect under benzo(a)anthracene exposition. Our findings strongly suggest that EPA plays a role in enhancement of the anti-oxidant defence and has a high therapeutic value, and thus should be one of the therapeutic approaches due to its dynamically modulatory properties.

Acknowledgments: This project was possible through the support given by National Science Centre, Poland to the author Joanna Gdula-Argasinska DEC-2011/01/B/NZ7/00038 and was partially supported Jagiellonian University Medical College project K/ZDS/004681.

Dietl

Małopolska Wyższa Szkoła
im. Józefa Dietla w Krakowie

JOSEPH DIETL MALOPOLSKA

HIGHER SCHOOL IN CRACOW

Rynek Główny 34, 31-010 Kraków

tel.: (12) 426 20 65

e-mail: rektorat@dietl.edu.pl

www.dietl.edu.pl