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MEETING ABSTRACT Open Access

The influence of alpha-melanocortin enantiomers on acetaminophen-induced hepatis in mice

Petra Turčić[1*], Karlo Houra[2], Mirna Bradamante[3], Paško Konjevoda[4], Tomislav Kelava[5], Nikola Štambuk[4]

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Background

L-alpha-Melanocortin is a strong inhibitor of inflammation. It is a promising new anti-inflammatory and hepatoprotective peptide. Consequently, its melanocortin receptors (MC_1, MC_3, MC_4 and MC_5) could be possible targets for the development of new antiinflammatory drugs for chronic inflammatory liver disease. For a long time it has been believed that only the L-enantiomers of amino acids are present in higher animals, but recent investigations show that D-amino acids also exhibit physiological effects *in vivo*, despite their very small quantities. The aim of this study was to compare hepatoprotective effects of L-alpha-melanocortin and D-alpha-melanocortin using the acetaminophen model of chemical liver damage in male CBA mice.

Methods

Tested substances were applied intraperitoneally 60 minutes prior to the intragastric application of acetaminophen (150 mg/kg). Animals were sacrificed 24 hours after the administration of acetaminophen. The criteria for monitoring hepatoprotective effects of the tested substances were biochemical parameters (AST and ALT) and histopathological analysis.

Results

The results obtained by the histopathological analysis and biochemical findings show potent hepatoprotective and anti-inflammatory effects of L-alpha-melanocortin in the liver, and suggest the possibility of modulating liver inflammation by means of melanocortin molecules and related receptors. D-alpha-melanocortin did not show any hepatoprotective effects *in vivo*.

Conclusions

Our results show that peptide enantiomerism influences the protective effects of alpha-melanocortin peptides *in vivo*. This concept may be used to modulate peptide function *in vivo* and antibody binding assay *in vitro*.

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Author details
[1]Department of Pharmacology, Faculty of Pharmacy and Biochemistry, University of Zagreb, 10000 Zagreb, Croatia. [2]St. Catherine's Hospital, 49210 Zabok, Croatia. [3]Department of Dermatology and Venerology, University Hospital Center Zagreb, 10000 Zagreb, Croatia. [4]Ruđer Bošković Institute, 10000 Zagreb, Croatia. [5]Department of Physiology and Immunology, School of Medicine, University of Zagreb, 10000 Zagreb, Croatia.

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* Correspondence: petra.turcic@gmail.com
[1]Department of Pharmacology, Faculty of Pharmacy and Biochemistry, University of Zagreb, 10000 Zagreb, Croatia
Full list of author information is available at the end of the article