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Anti-inflammatory properties of Crotoxin, the major component of the South American rattlesnake *Crotalus durissus terrificus*, in murine model of Endotoxemia

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Crotoxin (CTX) isolated from the venom of the South American rattlesnake *Crotalus durissus terrificus* have been reported to present anti-inflammatory and immunosuppressive properties, mediated by the production of the anti-inflammatory lipid mediator Lipoxin A4 (LXA4). Therefore, here we describe the capacity of CTX to modulate the inflammatory response in endotoxemia model induced by LPS in mice. Swiss male mice were administrated with CTX (30µg/Kg, s.c.) or saline, and after 2 hours with LPS (15mg/Kg, i.p.). After 6 hours of LPS administration, serum and lungs were collected for inflammatory and organ damage biomarkers quantification. CTX was responsible for a significant reduction of the serum inflammatory mediators TNF-α and IL-6, as well as lung mieloperoxidase (MPO) as indicative of lung neutrophil accumulation. The levels of heart and liver damage biomarkers creatine kinase Mb (CK-Mb) and aspartate aminotransferase (AST), respectively, were also decreased. When animals were pretreated with Boc-2 (10µg/Kg), an antagonist of the LXA4 receptor FPR (formyl peptide receptor), the anti-inflammatory and organ damage prevention induced by CTX

(as observed by the decrease in TNF-α, IL-6, MPO, CK-Mb and AST) were drastically reduced. In conclusion, the results in the present work show that CTX is capable of ameliorate the inflammatory signs of endotoxemia induced by LPS, as well as the organ damages associated with this event. Also, the anti-inflammatory effect of CTX is associated with FPR possibly via LXA4 production. These results strongly indicates CTX as a potential candidate as an immunotherapeutical agent.

Speaker Biography

Suely Vilela, former president of the University of São Paulo (2005-2009), is a Full Professor of the Faculty of Pharmaceutical Sciences of Ribeirão Preto- University of São Paulo (FCFRP-USP), a CNPq grantee of research productivity fellowship - Level 1. Graduated in Pharmacy (1974) and Pharmacy-Biochemistry (1975) by the School of Pharmacy and Dentistry of Ribeirão Preto, University of São Paulo. She obtained the Master's and Doctor's degrees in Sciences, Biochemistry area, at the Medical School of Ribeirão Preto of USP, where she also developed a Post-doctorate training (1990). She has over 114 publications in international scientific journals. Her currently publication H-index is 28. Currently she is a member of the editorial board of the Journal of Venomous Animals Including Tropical Disease (JVATiD – BioMedCentral). Her scientific area concerns in Animal Toxins and Venoms, including scorpion and snake venoms, working on biological, biochemical and biophysical properties of toxins.

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