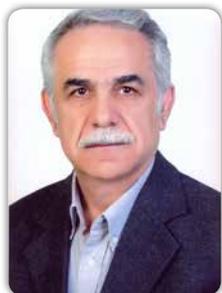


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SUMAS, Iran

Effects of Resveratrol on the activity and transcript levels of peptidyl arginine deiminase in the brain cortex of rats

Statement of the Problem: Demyelination that is the hallmark of multiple sclerosis is a complex process that partly involves deimination of myelin basic protein. Peptidylarginine deiminase (PAD) family of enzymes catalyze the deimination of protein-bound arginine to citrulline. The 2 isoform of PAD is present in the myelin sheet of both the CNS and the PNS. Resveratrol, a polyphenol with neuroprotective effects unexpectedly has shown to exacerbate demyelination in models of multiple sclerosis. The purpose of this study was to evaluate the effects of resveratrol on the enzymatic activity of PAD and on the mRNA levels of the 2 isoform of PAD in the brain cortex of rats. **Methodology & Theoretical Orientation:** Rats were gavaged with resveratrol or water (control) and or ethanol (vehicle) for 3 weeks. Cortical tissues were assayed for the PAD activity. Real-time RT-PCR was used to assess the mRNA levels of PAD2. **Findings:** Resveratrol at the dose of 120mg/Kg bw/day significantly increased ($P < 0.05$, Tukey's test) the activity of PAD2 in the brain cortex of rats as compared to the control group. Levels of the mRNA

for PAD2 in the cortex of rats treated by resveratrol was not significantly different ($P > 0.05$ Tukey's test) from those treated by water or ethanol. **Conclusion & Significance:** The finding that oral resveratrol induces PAD activity in the cortex of rats is in line with the adverse effects of resveratrol on multiple sclerosis.

Speaker Biography

Ali Akbar Owji is an Emeritus Professor in the Department of Biochemistry at the Shiraz University of Medical Sciences, Iran. He received his BSc in Chemistry and his PhD in Medical Biochemistry from Tehran University, Iran. His research has mainly concerned the Pharmacological and functional characterization of receptors for neuropeptides in the CNS. He has also worked on the expression pattern of various BDNF transcripts and on the epigenetic changes around the promoters of BDNF gene in the rat brain during tolerance to and withdrawal from morphine. During the past eight years, he has also worked on the expression status of the novel human genes UBE2Q2 and UBE2Q1 in human tumors and cell Lines. His career has also involved teaching Medical Biochemistry, Molecular Endocrinology and Biochemistry of the Nervous System. He has supervised six Ph.D and fifteen MSc students to completion.

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