

# 4<sup>th</sup> Global Summit on **Toxicology**

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## **Higher sensitivity to cadmium induced cell death of basal forebrain cholinergic neurons: A cholinesterase dependant mechanism**

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Cadmium is an environmental pollutant which is a cause of concern because it can be greatly concentrated in the organism causing severe damage to a variety of organs, being and the nervous system is one of the most affected. Cadmium has been reported to produce learning and memory dysfunctions and Alzheimer like symptoms though the mechanism is unknown. On the other hand, cholinergic system in central nervous system (CNS) is implicated on learning and memory regulation, and it has been reported that cadmium can affect cholinergic transmission and it can also induce selective toxicity on cholinergic system at peripheral level, producing cholinergic neuron loss, which may explain cadmium effects on learning and memory processes if produced on central level. The present study is aimed at researching the selective neurotoxicity induced by cadmium on cholinergic system in CNS. For this purpose we evaluated, in basal forebrain region, the cadmium toxic effects on neuronal viability. This study proves that cadmium induces a more pronounced, but not selective, cell death on acetylcholine esterase (AChE) on cholinergic neurons. Our present results provide new understanding of the mechanisms contributing to the harmful effects of cadmium on the function and viability of neurons, and the possible relevance of cadmium in the pathogenesis of neurodegenerative diseases.

### **Biography**

Javier Del Pino received his PharmD degree at the University Complutense University of Madrid in 2004. He has two Masters in Sciences 2009 and 2010. He specialized in neurotoxicology and neurodevelopmental toxicology and received his PhD in Toxicology in 2009. In 2010, he worked in Institute of Health Carlos III in the National Center of Environmental Health. From 2010 to 2012, he was Associated Researcher at University of Massachusetts (UMASS) working in Sandra Petersen's Lab in a National Institute of Health (NIH) project on developmental effects of TCDD endocrine disruptor on sexual differentiation. In 2012, he got a position as Assistant Professor of Toxicology at the Complutense University of Madrid.

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