

# Effects of 6-hydroxy-nicotine on chlorisondamine-induced oxidative stress and neurotoxicity: relevance for Alzheimer's disease

<https://neurodegenerationresearch.eu/survey/effects-of-6-hydroxy-nicotine-on-chlorisondamine-induced-oxidative-stress-and-neurotoxicity-relevance-for-alzheimer%92s-disease/>

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### Country

Romania

## Title of project or programme

Effects of 6-hydroxy-nicotine on chlorisondamine-induced oxidative stress and neurotoxicity: relevance for Alzheimer's disease

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The Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI)

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€ 125,000

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10/01/2015

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2

## Keywords

### Research Abstract

The search for neuroprotective therapeutics for Alzheimer's disease (AD) has been recently geared toward the identification of modulators for nicotinic acetylcholine receptors (nAChR).

Using computational methods, the *Arthrobacter nicotinovorans* metabolic intermediate 6-hydroxy-nicotine (6HNic) have been identified as a putative nAChR ligand. The cognitive-functions tests performed on normal rats showed that chemically synthesized 6HNic has positive effects on spatial memory, mainly by decreasing brain oxidative stress. The current research project aims to form a team with the goal to isolate 6HNic and to evaluate its potential of improving the cognitive and non-cognitive functions in a rodent model of AD. For this, the *Arthrobacter nicotinovorans* enzyme responsible for 6HNic production will be cloned, expressed, purified and further used to produce the compound in an in-vitro reaction. After its isolation by HPLC from the reaction mixture, 6HNic will be injected in chlorisondamine-treated rats and its neuroprotective and anti-oxidant properties will be assessed using a combination of behavioral tests, flow-cytometry and biochemistry techniques. Also, the systemic toxicity as well as pro-apoptotic properties will be investigated, in an attempt to fully characterize the compound and to conclude its applicability in the field of AD.

**Further information available at:**

<http://www.bio.uaic.ro/cercetare/grupuri/bioactive/content/grants/te2015.html>

**Types:**

Investments < €500k

**Member States:**

Romania

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