Developmental neurotoxicity assessment of mixtures in children

DENAMIC

Contract Nr. 186/23.10.2012. Acest proiect este finantat 25% de catre Unitatea Executiva pentru Finantarea Invatamantului Superior, a Cercetarii, Dezvoltarii si Inovarii si 75% de catre Comisia Europeana program FP7.

Project Leader (PL) FROM INCEMC:
CSI Dr. Raluca-loana van Staden

PL’s Project Laboratory:
Laboratory of Electrochemistry and PATLAB Bucharest

PL’s Host Institution for the project: National Institute of Research and Development for Electrochemistry and Condensed Matter (INCDEMC), Timisoara

Project duration in months: 48 months (2012-2015)
Project budget: 70000EURO

Website of the project at EC: http://www.denamic-project.eu/

Grant agreement no: 282957

THEME [ENV.2011.1.2.2-1] [Combined exposures to environmental agents: integrated approaches to evaluate environment-health relationships in children]
Project Summary

Various recent epidemiological studies have indicated that exposure to low doses of environmental biologically active contaminants during human development can alter gene expression and have deleterious effects on cognitive development in childhood. The DENAMIC project is ultimately focused on reducing such effects of environmental contamination on learning and developmental disorders in children. It aims to study and evaluate environment-health relationships in children. Key elements are: development of sophisticated tools and methods for early warning and screening of compounds for neurotoxicity, to study mechanisms of disease development and the role of individual susceptibility, to improve assessment of exposures and effects, focus on combined exposures to environmental agents that can interact to enhance adverse effects and reduction of health inequalities of children through Europe. One of the main aims of DENAMIC is to develop tools and methods for neurotoxic effects of mixtures of environmental pollutants at low levels, possibly resulting in (subclinical) effects on learning (cognitive skills) and developmental disorders in children (e.g ADHD, autism spectrum disorders and anxiety disorders). A broad suite of contaminants will be included in the studies, with options to bring in new chemicals in case evidence comes up during the project. With 14 partners from ten different countries DENAMIC has a true international character. It is a comprehensive, multi-disciplinary project. Six SME’s will play a key role in the development of biotechnological screening tools. The most modern techniques in the fields of genomics, proteomics, metabolomics and transcriptomics will be applied. Dissemination will ensure the project results to arrive at policymakers' desks, and will also illustrate the subject for a scientific audience and the public. The very large network of the consortium ensures dissemination to European industries, and every other interested stakeholder.
Team Members

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<tr>
<th>Name</th>
<th>Role in the project</th>
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<tr>
<td>Raluca-Ioana van Staden, PhD, CSI</td>
<td>Project leader</td>
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<td>Jacobus Frederick van Staden, DSc, Prof., CSI</td>
<td>Principal researcher</td>
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<td>Iuliana Moldoveanu, MSc</td>
<td>PhD student</td>
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Contribution of the team to the project:

WP2, WP3, WP4, Dissemination. Creation of new fast screening tools for specific biomarkers.

Dissemination

Papers published:

1. Flow-injection analysis systems with different detection devices and other related techniques for the in vivo and in vitro determination of dopamine as neurotransmitter. A review.
   J.F. van Staden and R.I. Stefan-van Staden.
   Talanta, 102 (2012) 34-43. [http://dx.doi.org/10.1016/j.talanta.2012.05.017](http://dx.doi.org/10.1016/j.talanta.2012.05.017)