

EU project Panoramix to scan humans and the environment for toxic mixtures

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In vitro results will link to Odense Child Cohort



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Reporter

A new €4.4m EU project will use *in vitro* tests on 'real-life' chemical mixtures found in humans, food and the environment to scan for toxicity before homing in on the chemicals responsible. It will compare results with data from the Odense Child Cohort project in a bid to uncover potential long-term health effects induced by exposure to chemical mixtures.

The Panoramix project – providing risk assessments of complex real-life mixtures for the protection of European citizens and the environment – has funding from the EU's H2020 programme. Coordinated by the Technical University of Denmark (DTU), it involves researchers from 11 universities and organisations in Europe and the UK (see box).

The researchers will collect samples from a range of sources across the EU, including tap and bottled water, surface water and waste water. They will also analyse fish and milk, as well as human blood from various age groups.

In the project's first phase, researchers will combine samples to obtain a European average before analysing

them using a battery of *in vitro* bioassays covering reproductive toxicity, genotoxicity and neurotoxicity. The tests will scan for adverse effects caused by mixtures before the teams focus on which chemicals are responsible for toxicity.

The first results will also help to guide which *in vitro* tests to use for the project's second phase, which will analyse blood samples from umbilical cords.

The teams will rely on well-established *in vitro* tests and do not plan to develop new ones. "We use *in vitro* tests as a kind of filter before we start the non-targeted identification of compounds in our samples," said project leader Anne Marie Vinggaard from the DTU.

"It's simply too complicated to just use non-targeted analysis on complex samples like blood and water because you find so many compounds. It's not possible to identify all of the compounds that are in there," she told Chemical Watch.

Information from the bioassays will be compared with health data from the Odense Child Cohort, an ongoing project studying the impact of the environment on foetal and child development. This studies children from birth and seeks to identify adverse developmental health outcomes related to exposure to mixtures.

The project has plans for computer modelling, leading to software for calculating mixture effects and for defining effect-based “trigger values” for *in vitro* effects. For example, a team from Brunel University London, led by Andreas Kortenkamp and Martin Scholze, will provide expertise in mixture effect modelling and statistical evaluation of experimental data. The teams will also use their data to propose safety levels for chemical mixtures to guide regulators.

Panoramix will have its kick-off meeting in Copenhagen on 22-23 November. The project will run until the end of October 2025.

Panoramix consortium members

- Technical University of Denmark
- Vrije University, Amsterdam
- Helmholtz Centre for Environmental Research, Germany
- Nantes-Atlantic National College of Veterinary Medicine, Food Science and Engineering
- Brunel University London
- University of Southern Denmark, Odense
- German Federal Institute for Risk Assessment (BfR)
- Altertox, Belgium
- Biomax Informatics, Germany
- PrediTox, France
- Odense University Hospital, Denmark