New EU research project investigates possible combination effects of chemicals in the womb

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Already during pregnancy, the unborn child is exposed to many different chemical compounds. Up to now, however, mainly individual substances have been tested for potential health risks. A European team with the participation of the Federal Institute for Risk Assessment (BfR) is breaking new ground here. The "Panoramix" research project is inter alia looking into whether mixtures of different substances have harmful effects on unborn and developing children that are not adequately covered by the existing assessment system. The project, led by the Technical University of Denmark, will run for four years and is supported by the European Commission through the Horizon 2020 programme with €4.4 million. Panoramix does not involve animal testing.

In the project, extracts from drinking water, food and umbilical cord blood, are inter alia examined for possible harmful effects using in vitro methods that do not involve animal experiments. The focus is on effects that impair the child's development of the nervous system or reproductive ability before and also after birth. Samples, in which the in vitro tests indicate an effect, are analysed further and the substances in the sample that contribute most to a possible health hazard are identified.

The information obtained in this way will inter alia be compared with data obtained in the "Odense Child Cohort" project. The aim of this long-term project is to study environmental influences on early child development. Between 2010 and 2012, blood samples were taken from the parents of over 2500 pregnancies at the University Hospital in the Danish municipality of Odense. The development of the children born from these pregnancies has been monitored medically ever since.

The researchers want to use Panoramix to find out whether certain environmental mixtures already affecting the unborn child in the womb can cause long-term effects that are not adequately covered by the existing system of risk assessment based on the testing of individual substances. At the same time, for a number of substances analytical limit values shall be derived at which, if complied with, damage to health – also via possible combination effects - is unlikely.

A total of eleven European institutions are involved in Panoramix, in addition to the Technical University of Denmark and the BfR, including the Free University of Amsterdam, the Helmholtz Centre for Environmental Research, Brunel University London and the University of Southern Denmark.

Further information on the subject from the BfR website:

Press release of the Panoramix project:

https://www.prnewswire.com/news-releases/panoramix-research-project-set-out-to-evaluate-the-risk-of-chemical-mixtures-for-human-health-301412107.html

Odense Child Cohort:

https://www.sdu.dk/en/om_sdu/institutter_centre/klinisk_institut/forskning/forskningsenheder/paediatri/odense+boernekohorte

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