Contaminant mixtures and human reproductive health - novel strategies for health impact and risk assessment of endocrine disrupters (CONTAMED)

Resumen: CONTAMED intends to prepare the ground for epidemiological studies able to capture cumulative EDC exposure by developing and evaluating biomarkers for total effective internal EDC load. This will rely on in vitro bioassays representative of various EDC actions (“mode-of-action screens”) and will utilize tissue specimens from three existing European mother-child cohorts. With the aim of substantiating observations from human studies in extended developmental toxicity rat studies the project will investigate the possible role of mixtures of estrogens, anti-androgens and other classes of EDC in producing long-lasting delayed adverse reproductive effects at environmentally relevant levels. CONTAMED also aims to compare internal EDC exposures in humans with those resulting from controlled exposures producing clear effects in laboratory animal experiments. It is hoped that this will enhance the usefulness of animal data in making extrapolations to the human. Finally, the project intends to search for previously unrecognized EDCs in human tissues by combining analytical chemistry with in vitro EDC mode-of-action screens in bioassay-directed fractionations (“toxicity identification and evaluation”, TIE) and by using metabolomic profiling to identify xenobiotic as well as endogenous biomarker metabolites.

Objetivos: CONTAMED intends to prepare the ground for epidemiological studies able to capture cumulative EDC exposure by developing and evaluating biomarkers for total effective internal EDC load. This will rely on in vitro bioassays representative of various EDC actions (“mode-of-action screens”) and will utilize tissue specimens from three existing European mother-child cohorts. With the aim of substantiating observations from human studies in extended developmental toxicity rat studies the project will investigate the possible role of mixtures of estrogens, anti-androgens and other classes of EDC in producing long-lasting delayed adverse reproductive effects at environmentally relevant levels. CONTAMED also aims to compare internal EDC exposures in humans with those resulting from controlled exposures producing clear effects in laboratory animal experiments. It is hoped that this will enhance the usefulness of animal data in making extrapolations to the human. Finally, the project intends to search for previously unrecognized EDCs in human tissues by combining analytical chemistry with in vitro EDC mode-of-action screens in bioassay-directed fractionations (“toxicity identification and evaluation”, TIE) and by using metabolomic profiling to identify xenobiotic as well as endogenous biomarker metabolites.

Objectivos contribución: Epidemiology of male reproductive diseases. Develoment of biomarkers of combined effects for endocrine disrupting chemicals (EDC). Human exposure to environmental chemicals

Impacto: Project running until October 2012. Expected: A better knowledge of human reproductive diseases in Europe. New data on human exposure as a tool for exposure reduction and prevention.

8 Participantes

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- University of Sussex, School of Life Sciences, Falmer, Brighton, UK
- University of Granada, Centre for Biomedical Research, Spain
- Erasmus Dept Public Health, Univ. Medical Center Rotterdam, The Netherlands
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Presupuesto: 3,490,000.00

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