



**NEMESIS**

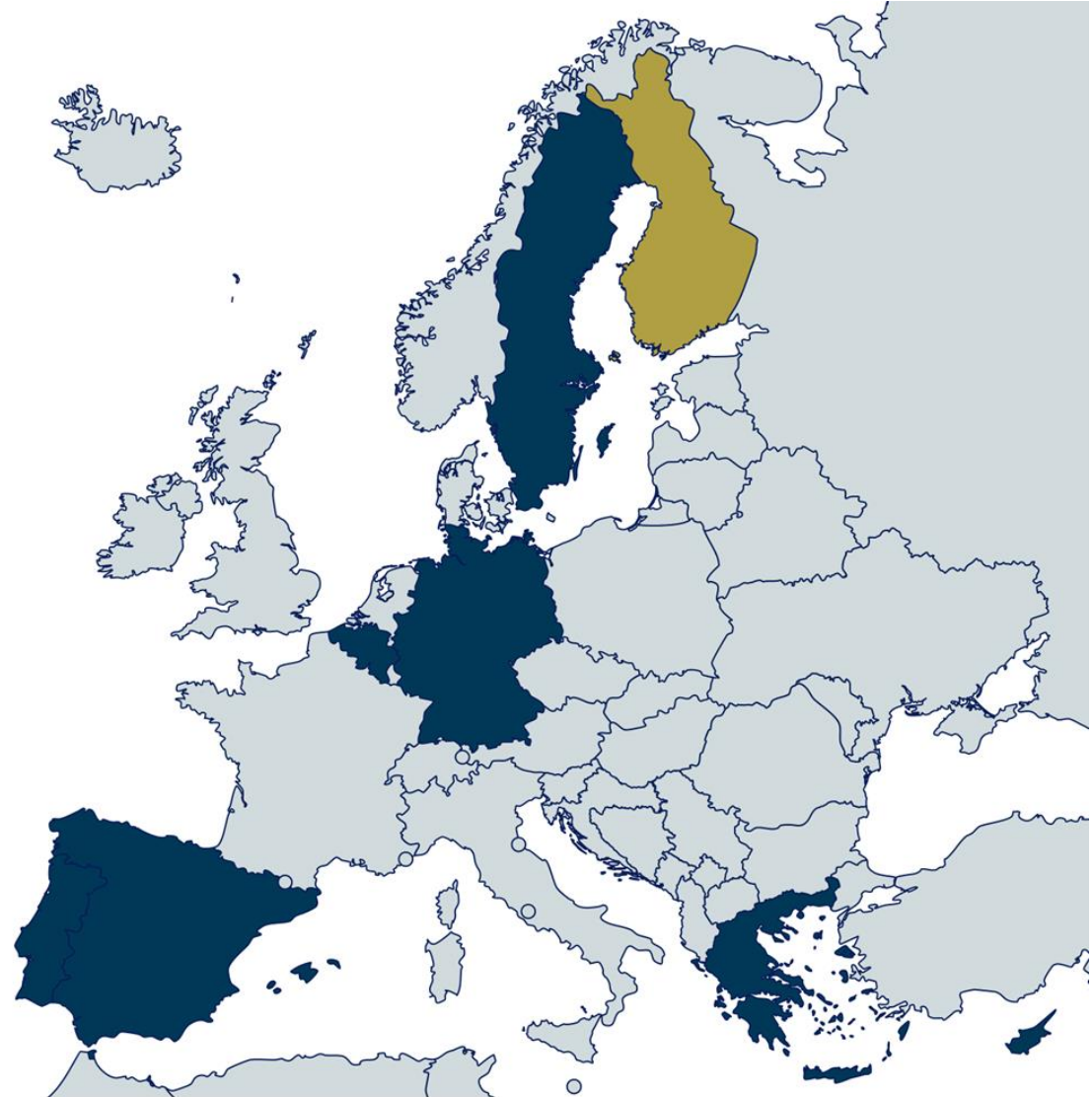
**Novel Effect biomarkers for MEtabolic disruptorS:  
evidence on health Impacts to answer  
science and policy needS**

**Prof. Jaana Rysä, University of Eastern Finland**

**BRIDGING HORIZONS IN ENDOCRINE DISRUPTORS RESEARCH: FINAL EURION SYMPOSIUM AND  
KICK-OFF OF ENKORE**

**June 14, 2024**

# NEMESIS partners



# NEMESIS management team



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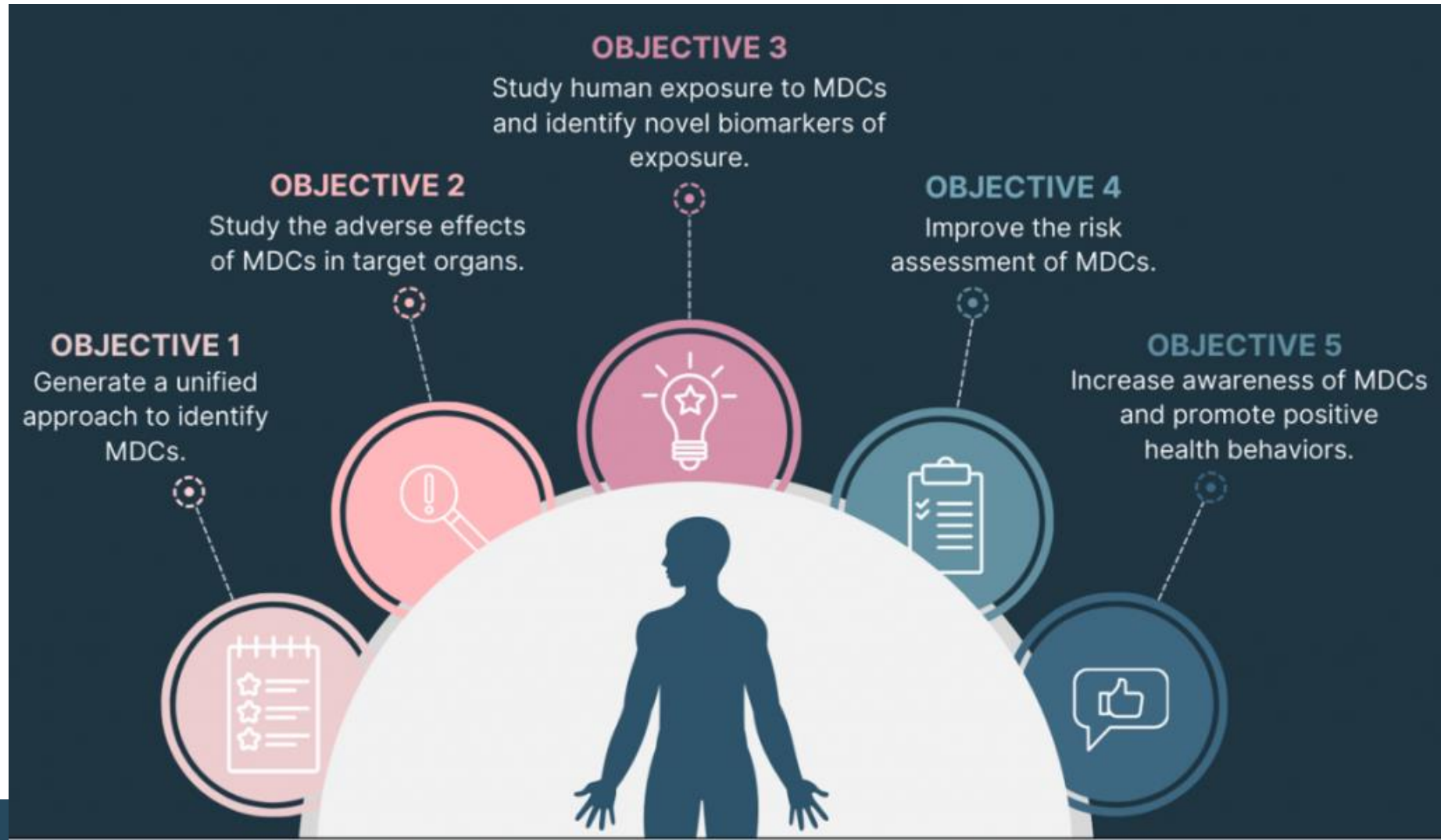
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# OBJECTIVES

Main objective: To determine the impact of EDC-mediated metabolic disruption



# WP1: Coordination, management and dissemination

**Prof. Jaana Rysä**, University of Eastern Finland

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- Communicate and disseminate NEMESIS results.
- Collaborate with other HORIZON research projects on metabolic effects of EDCs.
- NEMESIS web page <https://www.nemesis-project.eu/fi/>
- Social media accounts in Facebook, Instagram and LinkedIn



# WP2: Exposure assessment of EDCs and biomarker discovery for EDC-mediated health effects

**Prof. Tim Nawrot**, Hasselt University

[tim.nawrot@uhasselt.be](mailto:tim.nawrot@uhasselt.be)

- Cohorts from Southern, Central and Northern Europe
  - ENVIRONAGE (Belgium)
  - IMNA-Asturias (Spain)
  - Kuopio Birth Cohort (KuBiCo, Finland)
  - NorthPop (Sweden)
  - Northern Sweden Health and Disease Study (NSDHS)
  - Cohort of Obesity Trials (COT, Finland)
- Novel predictive biomarkers of metabolic disruption
- EDCs and placenta



# WP3: EDC effects and mechanisms in liver

**Prof. Volker Lauschke**, Robert Bosch Gesellschaft  
für Medizinische Forschung MBH  
[volker.lauschke@ikp-stuttgart.de](mailto:volker.lauschke@ikp-stuttgart.de)

- Increase mechanistic understanding of the adverse metabolic effects of EDCs and their mixtures in liver
  - Primary human liver cultures
  - Human liver development
  - Interactions of EDCs with human metabolism-associated nuclear receptors
  - EDC effects on mitochondrial function



# WP4: EDC effects and mechanisms in the endocrine pancreas

**Prof. Miriam Cnop**, Universite libre de Bruxelles  
[miriam.cnop@ulb.be](mailto:miriam.cnop@ulb.be)



- Increase mechanistic understanding of the adverse metabolic effects of EDCs and their mixtures in the endocrine pancreas
  - Human pancreatic islet development
  - Mature human pancreatic  $\beta$  cell function and survival
  - Molecular mechanisms of EDC effects on human pancreatic  $\beta$ -cells.
  - Specific drivers of EDC effects on human pancreatic  $\beta$ -cell phenotype



# WP5: EDC mechanisms and effects: the influence of gut microbiota

**Dr. Nanna Fyhrquist**, Karolinska Institutet  
[nanna.fyhrquist@ki.se](mailto:nanna.fyhrquist@ki.se)



- EDC exposure induced alterations in gut microbial taxa in human cohort samples, mouse and zebrafish models
- Associations between microbial taxa and gene functions with host metabolism, epithelial barrier function and immune responses following EDC exposure

# WP6: Non-mammalian and mammalian in vivo models for metabolic effects of EDCs

**Prof. Jukka Hakkola**, University of Oulu  
[jukka.hakkola@oulu.fi](mailto:jukka.hakkola@oulu.fi)



- Zebrafish and mice
  - Metabolic and cardiovascular adverse outcomes in developing individuals or in combination with predisposing lifestyle factors.
  - Non-mammalian species in toxicity testing and risk assessment.
- Mechanistic information to enable AOP formation and toxicity prediction.

# WP7: MDC systems biology and novel biomarkers

**Assoc. Prof. Vittorio Fortino**, University of Eastern Finland

[vittorio.fortino@uef.fi](mailto:vittorio.fortino@uef.fi)



- A computational framework of utilizing AOP modeling, network analysis, and machine learning to generate mechanistic insights into the metabolic disruption caused by ED exposure.
  - Causal relationships between EDC exposure and health outcomes
  - Omics-based biomarkers for predicting EDC-mediated health effects
  - IATA approach(es) for NGRA
- Data management

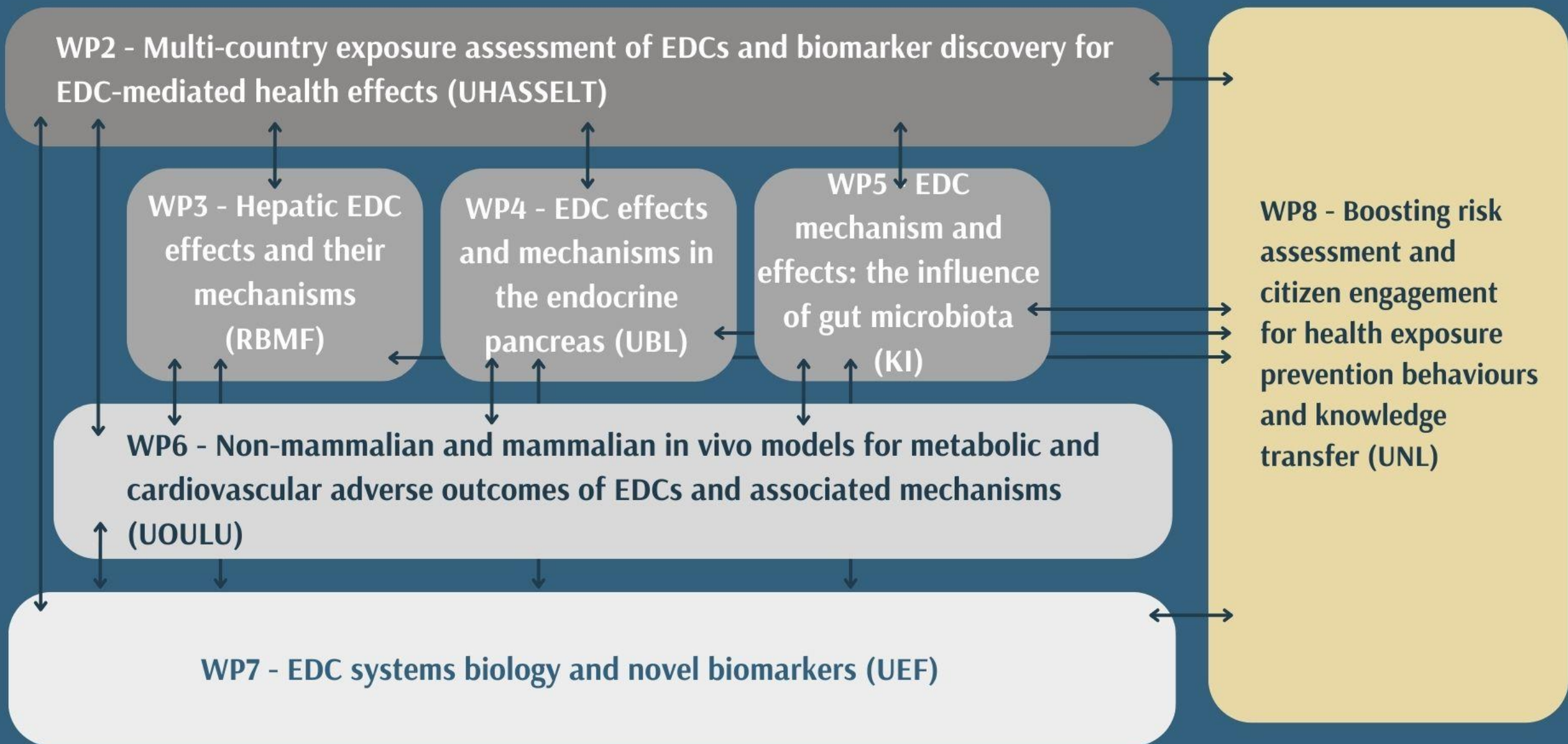
# WP8: Boosting risk assessment, policy action, and citizens engagement for EDC exposure prevention

**Prof. Susana Viegas**, NOVA University Lisbon  
[susana.viegas@ensp.unl.pt](mailto:susana.viegas@ensp.unl.pt)



- Boosting risk assessment and policy action
  - Evaluate available frameworks and perform RA of EDCs and their mixtures
  - Engage policy actors in the integration of individual and mixture RA
- Increase knowledge on metabolic adverse effects of EDCs and promote positive health behaviors
- Engage citizens in the development of chemicals policies

## WP1 - Coordination and management (UEF)



# Scientific Advisory Board

Prof. David Dorman  
North Carolina State University, USA



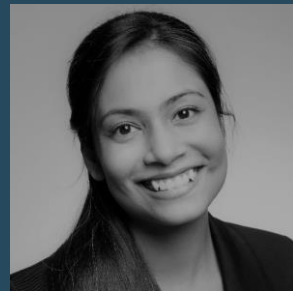
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Thank you!



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