ENDOMIX

UNDERSTANDING HOW ENDOCRINE DISRUPTORS AND CHEMICAL MIXTURES OF CONCERN TARGET THE IMMUNE SYSTEM TO TRIGGER OR PERPETUATE DISEASE (ENDOMIX)

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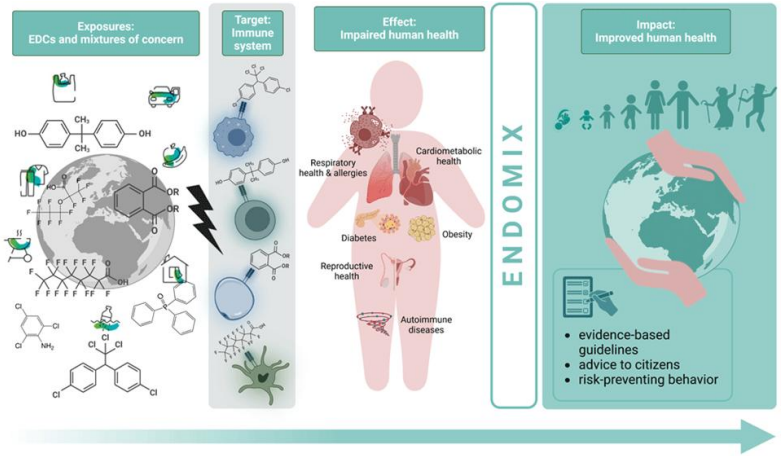
THE ENDOMIX PROJECT

ENDOMIX is a pioneering research project dedicated to **uncovering the true impact of endocrine disrupting chemicals** (EDCs) **and mixtures** on human health, **bridging gaps between science and policy** to inform regulations and protect vulnerable populations.



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KEY FACTS

Project name
Understanding how endocrine disruptors and chemical mixtures of concern target the immune system to trigger or perpetuate disease

Acronym
ENDOMIX

Runtime
January 1, 2024 - December 31, 2027

Project Coordinator
Helmholtz Centre for Environmental Research (UFZ)

Partners
10 partners from 7 European countries

Total funding
€ 6,488,875

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ENDOCRINE-DISRUPTING CHEMICALS

- EDCs are substances that can interfere with the hormonal functions in the body.
- EDCs can be found in a wide range of everyday products and the environment.
- EDCs can mimic, block, or alter the natural hormones, leading to potential health problems – such as developmental and reproductive disorders.

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MOTIVATION

Understanding Health Impact

By studying EDC mixtures, ENDOMIX aims to uncover the mechanisms through which EDCs influence immune function and trigger or perpetuate disease.

Bridging Science-Policy Gaps

By providing robust scientific evidence, ENDOMIX aims to inform regulators and policymakers, leading to better regulations and guidelines that protect public health.

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OBJECTIVES

Investigate EDC Mixtures	Identify and analyse EDC mixtures in European populations.
Understand Health Impacts	Study how EDC exposure affects immune function and leads to health issues.
Identify Biomarkers	Discover novel biomarkers to measure the health effects of EDCs.
Build a Knowledge Base	Create an evidence base to inform policy and recommendations.
Empower Citizens	Provide information to help the public reduce EDC exposure, improving public health and well-being.

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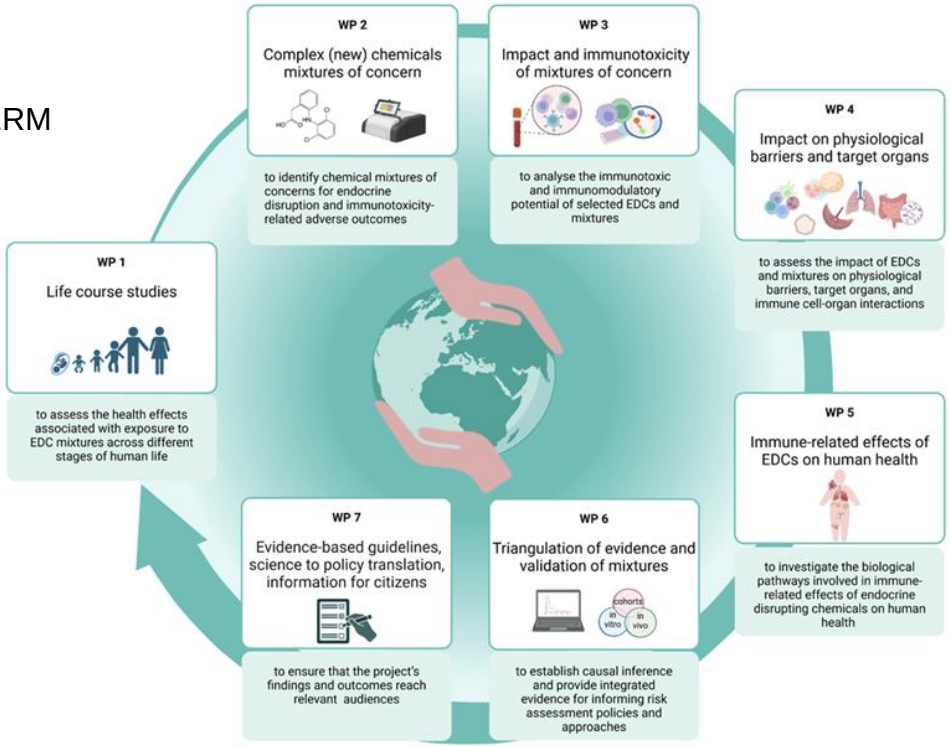
KEY RESEARCH AREAS: WORK PACKAGES (WP)

WP Leads:

- **WP 1:** Charline Warembourg, INSERM & Liesbeth Duijts, EMC
- **WP 2:** Beate Escher, UFZ
- **WP 3:** Anne Schumacher, UFZ
- **WP 4:** Yvonne Kohl, Fraunhofer
- **WP 5:** Janine Felix, EMC
- **WP 6:** Roel Vermeulen, UU
- **WP 7:** Katharina Krischak, EIBIR

Leading PI and coordinator:

- Ana Zenclussen, UFZ



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METHODOLOGIES

- Advanced *in vitro* and *in vivo* models
- High-throughput screening assays
- Systematic *in silico* prioritization
- High-throughput toxicity and exposure methods
- Mixture effect models
- Barrier models and organ model systems including organoids
- Transgenerational models
- Weight-of-evidence approach
- AI-driven data analysis

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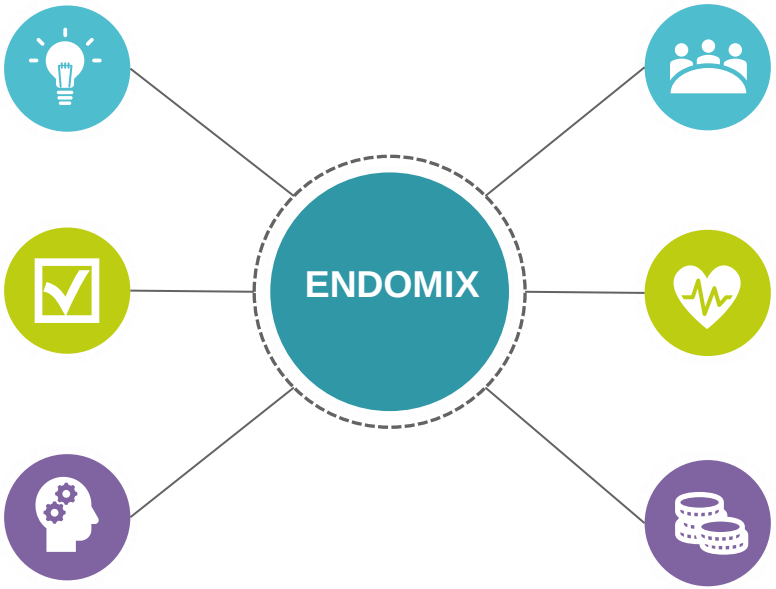
ENDOMIX

Disruptive Insights
Deliver groundbreaking insights into the immunotoxic and immunomodulatory effects of EDC mixtures.

Biomarker Identification
Provide biomarkers of EDC exposure that can serve as diagnostic tools and be routinely integrated into future cohort studies.

Scientific Knowledge Base
Generate a solid scientific foundation for the impact of EDC mixtures on human health.



Policy Influence
Inform evidence-based policies to minimise exposure to hazardous chemicals.

Public Health Improvement
Significantly contribute to public awareness around EDCs, thereby improving public health and well-being.

Economic Benefits
Alleviate the economic burden of diseases associated with EDC exposure on the healthcare system.

IMPACT

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ENDOMIX

OUR PARTNERS

UFZ HELMHOLTZ Zentrum für Umweltforschung

Inserm

Erasmus MC

Fraunhofer IBMT

MUNI | RECETOX SCI

ISGlobal Barcelona Institute for Global Health

BfR German Federal Institute for Risk Assessment

Utrecht University

EIBIR EUROPEAN INSTITUTE FOR BIOMEDICAL IMAGING RESEARCH

Imperial College London

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COLLABORATION: THE ENKORE CLUSTER

- A cluster of five EU research projects studying the health impacts of EDCs to bridge science-policy gaps
  - **ENDOMIX:** Understanding the impact of EDCs on the immune system and health
  - **EDC-MASLD:** Investigating EDCs' impact on liver health and metabolic dysfunction
  - **HYPIEND:** Studying EDCs' effects on the hypothalamus-pituitary axis
  - **MERLON:** Exploring EDCs' impact on sex development and reproductive health
  - **NEMESIS:** Addressing the metabolic effects of EDCs
- Focuses on optimizing synergies, strengthening collaboration, avoiding overlaps, and increasing the impact of individual projects

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