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## Newsletter - Issue 2 December 2020



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### Welcome from the coordinator



Season's Greetings and a warm welcome to the second issue of the ERGO E-Newsletter!

We have achieved a lot in the last two years and will shortly enter the third year of the project. In case you missed our first newsletter, you can read it [here](#).

This year has been a challenge for us all due to the Covid-19 pandemic. The way we all usually communicate and work with each other had to change dramatically. As a result of the various restrictions imposed around Europe, some of our research has unfortunately suffered delays. We were, however, extremely lucky to have scheduled both the EURION and ERGO annual meetings in Paris in February 2020, ahead of all the Covid-19 restrictions! ERGO partners met at [L'Oréal's](#) impressive Research Institute in Paris, France to plan and discuss activities for the next year of the project. For our next meeting, we hope to welcome the ERGO consortium to the [University of Southern Denmark](#) in Odense in April 2021, but unfortunately, due to the ongoing uncertainty around the Covid-19 pandemic, we may be forced to meet online instead.

ERGO is proud to be part of [EURION](#), a cluster of eight research projects, dedicating their research to “New Testing and Screening Methods to Identify Endocrine Disrupting Chemicals”. This month, EURION is involved in two events. Following a consultation with stakeholders on their needs in relation to the development of Endocrine Disruptor (ED) test methods and international strategies and guidelines, the results will be presented and discussed at the ‘EURION Cluster: Virtual Stakeholder Workshop’ held on 11 December 2020. The workshop brings together representatives from research, regulatory authorities, industry, civil society and contract research organisations, policymakers as well as other experts working in the field of EDs. On 17 December, EURION will hold an informative session at the European Commission’s Second Annual Forum on Endocrine Disruptors. For more information, please visit the EURION website’s [Events page](#).

Follow ERGO on its ground-breaking journey. Keep up to date with the project [website](#), watch the [video](#), [subscribe to news](#) and follow ERGO on [Twitter](#).

**Assoc. Prof. Henrik Holbech, ERGO Coordinator, Associate Professor of Ecotoxicology, University of Southern Denmark (SDU)**



## About



ERGO aims to improve identification and hazard assessment of endocrine disrupting chemicals (EDCs) for the protection of human health and the environment.

EDCs are chemicals which mimic natural hormones, harming the endocrine system which regulates important biological functions in humans and animals. Impacts of EDCs can include breast and testicular cancers, reproductive abnormalities and even neurodevelopmental delay in children.

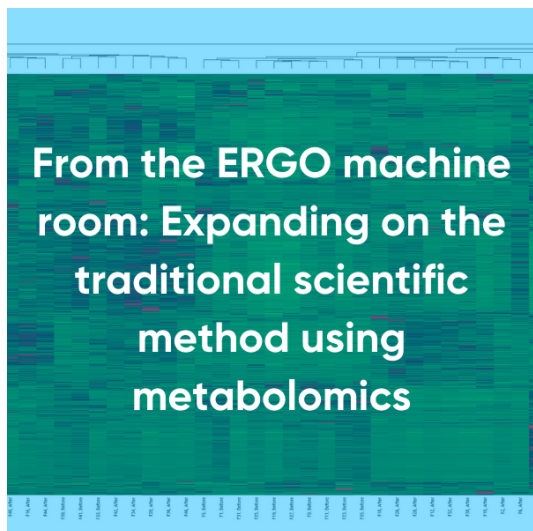
EDCs are often man-made and can be found in plastics, clothes, cosmetics, toys, flame retardants and many other household products. Total avoidance is not practical in modern life, but actions must be taken to reduce their availability and better protect people, animals and the environment. In 2019, the European Union-funded research project ERGO was launched to respond to these challenges.

ERGO’s research will break down the wall that currently exists between the different research fields (i.e. toxicology and ecotoxicology) that investigate EDC effects. So far, there has been a segregation between EDC research for human health and the environment. However, ERGO believes that research in one field will be applicable to the other and will demonstrate that harmful EDC effects observed in a fish or amphibian will also raise concern for harmful effects in humans. ERGO will do this by determining key events of thyroid disruption and identifying adverse outcomes in different species, while also investigating the bioavailability and biotransformation of chemicals in different species. ERGO’s research will enhance existing OECD guidelines for endocrine disruption testing by adding thyroid-related endpoints and biomarkers for different species.

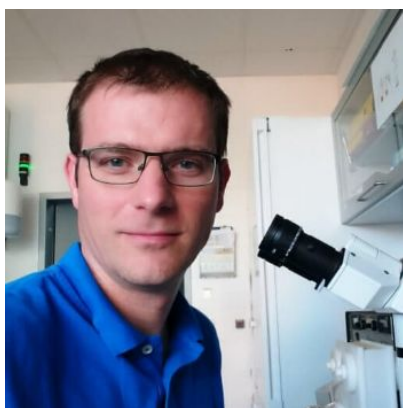
[Click here to find out more](#)



## Project news and highlights



## ERGO researcher profile



**Name:** Jiří Novák

**Based in:** Brno, Czech Republic

**Member of ERGO partner:** Masarykova Univerzita (MU)

**Research areas:** Jiří has broad experience in the fields of ecotoxicology of pollutants and their complex mixtures, specific mechanisms of toxicity, *in vitro* testing and environmental endocrine disruptors. His research focuses on the development and application of tools for the assessment of endocrine

disrupting properties of environmental pollutants and complex mixtures associated with various environmental matrices such as ambient and indoor air, dust, water and sediment.

**Academic background:** During his PhD and postdoctoral research, Jiří focused mainly on the endocrine disruption potential of model pollutants and environmental mixtures of chemicals studied by a set of mammalian cell-based *in vitro* bioassays and modeling of the toxic potential of the mixtures based on data from chemical analyses.

**Current research role and work within ERGO:** Jiří is a junior researcher in the Ecotoxicology research program at the Research Centre for Toxic Compounds in the Environment (RECETOX). Within ERGO, Jiří contributes to WP4, he is responsible for the establishment and optimisation of *in vitro* bioassay set at RECETOX within WP5 and their validation in WP7 as well as performing bioanalysis of model compounds using this set.



## EDCs in the news





**Green Deal:  
Commission adopts new  
Chemicals Strategy  
towards a toxic-free  
environment**


#ChemicalsStrategy  
#EUGreenDeal



**Many bisphenol A  
alternatives may also  
be endocrine disruptors**



**Are bioplastics and  
plant-based materials  
safer than conventional  
plastics?**



**Public  
awareness of endocrine  
disrupting chemicals is  
low**



## Publications

Knapen, D., Stinckens, E., Cavallin, J., Ankley, G., Holbech, H., Villeneuve, D. and Vergauwen, L. (2020). Toward an AOP Network-Based Tiered Testing Strategy for the Assessment of Thyroid Hormone Disruption. *Environmental Science & Technology*, 54(14), pp. 8491–8499.

DOI: [HTTPS://DOI.ORG/10.1021/ACS.EST.9B07205](https://doi.org/10.1021/ACS.EST.9B07205).

Repository link coming soon.

Stinckens, E., Vergauwen, L., Blackwell, B., Ankley, G., Villeneuve, D. and Knapen, D. (2020). Effect of Thyroperoxidase and Deiodinase Inhibition on Anterior Swim Bladder Inflation in the Zebrafish. *Environmental Science & Technology*, 54(10), pp.6213-6223.

DOI: [HTTPS://DOI.ORG/10.1021/ACS.EST.9B07204](https://doi.org/10.1021/ACS.EST.9B07204)

[REPOSITORY LINK 1](#)

[REPOSITORY LINK 2](#)

Holbech, H.; Matthiessen, P.; Hansen, M.; Schüürmann, G.; Knapen, D.; Reuver, M.; Flamant, F.; Sachs, L.; Kloas, W.; Hilscherova, K.; Leonard, M.; Arning, J.; Strauss, V.; Iguchi, T.; Baumann, L. (2020). ERGO: Breaking Down the Wall between Human Health and Environmental Testing of Endocrine Disruptors.

Richard S, Guyot R, Rey-Millet M, Prieux M, Markossian S, Aubert D and Flamant F. (2020). A Pivotal Genetic Program Controlled by Thyroid Hormone during the Maturation of GABAergic Neurons. *iScience* 23 (3): 100899.

DOI: [10.1016/J.ISCI.2020.100899](https://doi.org/10.1016/J.ISCI.2020.100899)



## EURION news



## Dates for your diary

- [EURION Virtual Stakeholder Workshop. 11 December 2020. Online.](#)
- [Second Annual Forum on Endocrine Disruptors. 17-18 December 2020. Online.](#)
- [EURION Adverse Outcome Pathway \(AOP\) Workshop. 27 January 2021. Online.](#)
- [EURION Cluster Annual Meeting. 28-29 January 2021. Online.](#)
- [ERGO Annual Partner Meeting. 22-23 April 2021. Odense, Denmark.](#)
- [SETAC Europe 2021. 3-6 May 2021. Online](#)
- [PROTECTED: First International Endocrine Disruptor Conference in Ireland. 15-17 June 2021. Belfast, Northern Ireland.](#)

Full list of events



## EDCs under the spotlight

**Phthalates (e.g. diethylphthalate (DEP))**



### **What is it?**

Phthalates are a group of synthetic chemicals with diverse uses in consumer products. Primarily, they are used as plasticisers which make plastics more flexible and harder to break. But they can also be used as solvents, dispersion agents, coatings, emulsifying agents, gelling agents, to name but a few.

### **Where is it found?**

Products that contain phthalates include detergents, adhesives, flooring, clothes containing plastics such as raincoats and in many cosmetics and personal care products such as soaps, shampoos, nail varnishes, perfumes and other fragranced products. Phthalates are commonly used in polyvinyl chloride plastics, these plastics are used to make products such as plastic packaging, medical tubing and some children's toys.

### **How can we be exposed to it?**

By inhalation, skin-contact or ingestion, they can be released by evaporation and migration. For example, people can be exposed to phthalates by eating and drinking food that has been in packaging and containers containing phthalates. Exposure can also occur from breathing air that contains phthalate vapours or dust contaminated with phthalate particles. Small children may be at greater risk to phthalate particles in dust due to hand-to-mouth behaviour and by direct mouth contact with toy materials containing phthalates. Furthermore, workers who manufacture products that contain phthalates are also exposed. Once phthalates enter the body, they are broken down into metabolites that are excreted in urine.

### **What can exposure cause?**

Phthalates have been linked to:

- Asthma
- Attention-deficit hyperactivity disorder (ADHD)
- Breast cancer
- Obesity
- Type II diabetes
- Autism spectrum disorders
- Altered reproductive development and in particular, male fertility issues

It is important to note human health effects from exposure to low levels of phthalates are unknown, and more research is needed.

### **How to reduce your risk**

We can't avoid every chemical that we come into contact with, but we can make more informed choices about what we eat, drink and use in our home:

- Check for phthalate-free labels on plastic products, avoid using plastic products marked with recycle codes #3 as they contain phthalates;
- Avoid products that include the vague ingredient 'fragrance', as more than likely they contain a phthalate;

- Avoid heating plastics in the microwave, as this can cause phthalates and other chemicals to leach into your food;
- Remove any food packaged in plastic once home as phthalates continue to leech over time. Even if you bought the product in plastic packaging, you can actually reduce your exposure by storing it out of the packaging;
- Replace plastic storage containers, bottles and travel cups with reusable glass, porcelain or stainless-steel ones;
- Avoid processed foods, wash and eat fresh foods as much as possible.

**For more information please visit:**

Centers for Disease Control and Prevention:

[https://www.cdc.gov/biomonitoring/Phthalates\\_FactSheet.html](https://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html)

Endocrine Society:

<https://www.endocrine.org/topics/edc/what-edcs-are/common-edcs>

Benjamin, S., Masai, E., Kamimura, N., Takahashi, K., Anderson, R. and Faisal, P. (2017). Phthalates impact human health: Epidemiological evidence and plausible mechanism of action. *Journal of Hazardous Materials*, 340, pp.360-383. DOI: <https://doi.org/10.1016/j.jhazmat.2017.06.036>



## How to make your own EDC free...

### Laundry detergent



**Ingredients:**

- 84g baking soda
- 125ml liquid castile soap
- 1.65L hot water
- 32g salt
- 15 drops essential oil of choice (optional)
- Vinegar (to pre-treat stains)\*

**Materials:** 2L container

**Method:**

1. In a large glass measuring cup or bowl, combine 825ml of the hot water with half the baking soda (42g) and half the salt (16g). Stir well until completely dissolved. The mixture will be cloudy and fizzy but, once completely dissolved, it will become mostly clear. Pour the mixture into a 2L container.



2. Repeat step one with the rest of the hot water, baking soda and salt. Then add it to the mixture in the 2L container.
3. Add in the 125ml of liquid castile soap and, if you would like a scent, add 15 drops of your preferred essential oil e.g. lavender.
4. Mix gently, close and label. Always ensure all cleaning products are labelled and kept out of reach of children.
5. Before use, shake the container to mix ingredients. For a large load, pour 125ml (1/2 cup) of the laundry detergent into the detergent dispenser drawer (you might need to do some trial-and-error with the quantity for your machine). If it is a particularly dirty or large load, then you can use more.

Note: This recipe has only been tested in a top loading washing machine.

\*For stains: you can pre-treat all stains by putting castile soap directly on the stain. Vinegar can also be used for most food, sweat and set-in stains. Just spray the stain thoroughly with vinegar prior to washing.

Another natural laundry cleaner you can also try is soapberries, more commonly known as soap nuts. They are from the Soap Berry tree, *Sapindus mukorossi*, and it is the berry shell that naturally contains a cleaning agent called saponin that works like detergent.

Sources:

<https://wholefully.com/homemade-borax-free-laundry-detergent/>

<https://learn.eartheasy.com/guides/non-toxic-home-cleaning/>



## Follow ERGO



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