Behind the 'BPA-Free' Label

Michaela Vykypělová, Ondřej Adamovský
Mechanistic Environmental Toxicology, RECETOX, Faculty of Science, Masaryk University
michaela.vykypelova@recetox.muni.cz, ondrej.adamovsky@recetox.muni.cz

MOTIVATION: bisphenols in everyday life

- **polycarbonate plastics** - food and beverage packaging, toys, reusable food containers and bottles
- **epoxy resins** - food and beverage cans, flooring, car interiors

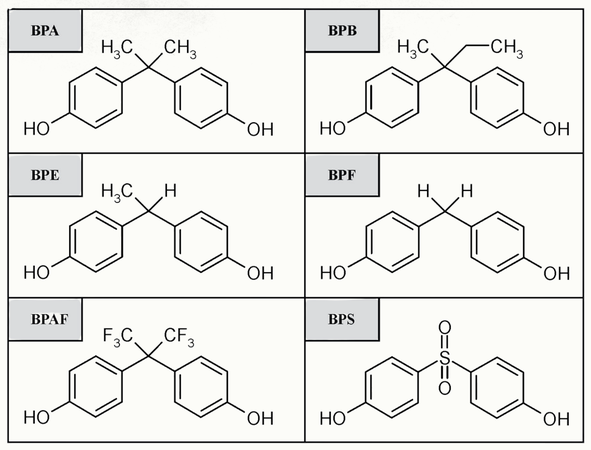
(+) transparency, durability, various shapes, increased shelf-life of goods

(−) **Health concerns of bisphenols**

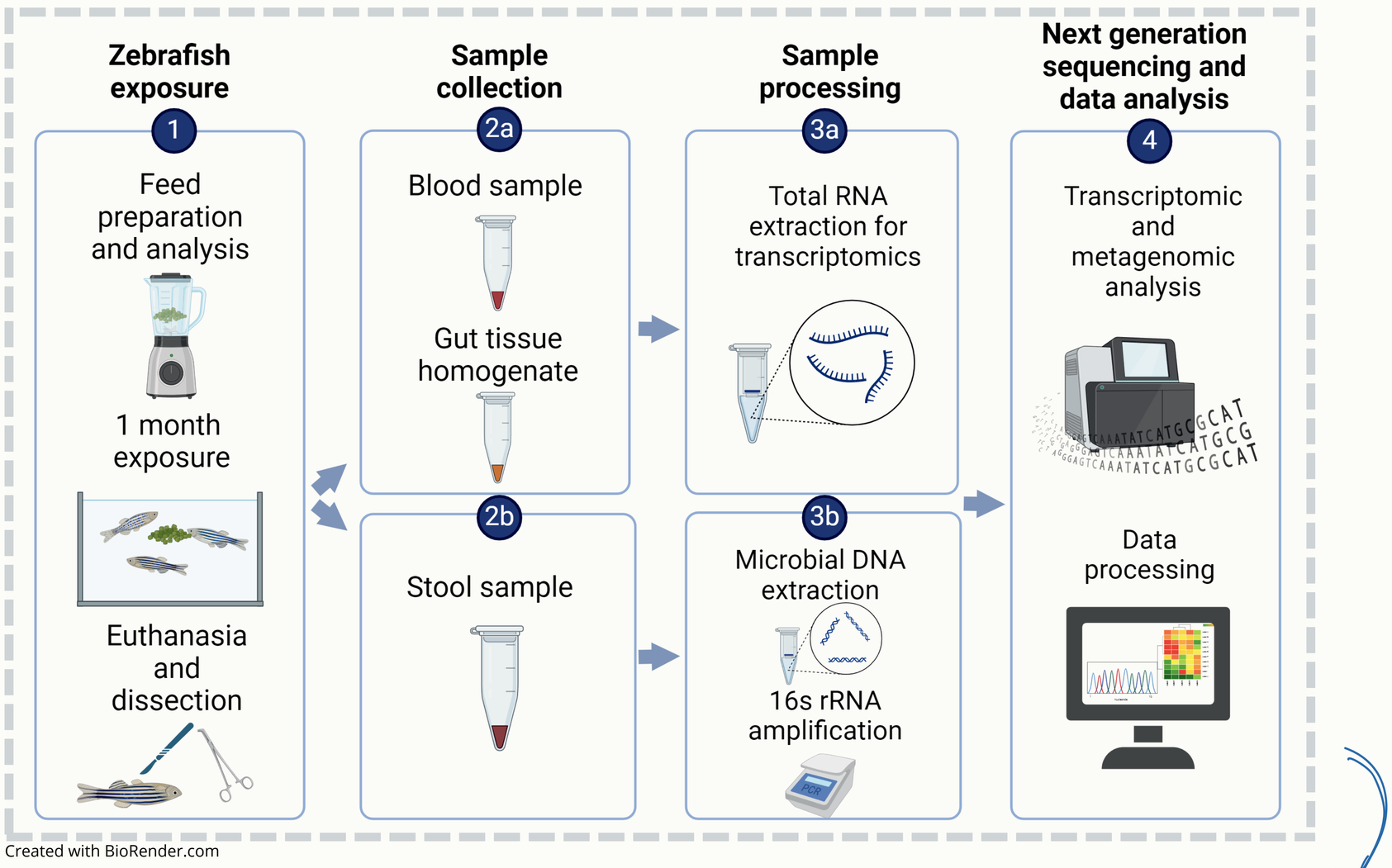
- bisphenol A (BPA): proven **endocrine disruptor** with estrogenic activity - reproductive disorders, developmental issues, metabolic changes -> BPA restrictions and prohibitions
- recently proven **immune system disruptor** -> 10 000x lower tolerable daily intake in 2023 (EFSA)

Health effects and restrictions lead to development of **BPA-alternatives**
-potentially less harmful with similar function**-**
BUT: structural similarity, endocrine-disruptive effects
lack of information to guarantee the safety
MAIN GOAL To assess the bioactivity of BPA-alternatives, with focus on gut microbiome-immunity axis

BPA alternatives



EXPERIMENTAL DESIGN



EXPECTED OUTCOMES

Identification of **immune related genes** and **molecular pathways** that respond to chemical exposure
Prediction of **functional changes in bioactive microbial metabolites** related to exposure
Understanding the mechanisms that **link intestinal microbiome and markers of deregulated immunity** in intestinal and blood tissue

MUNI | RECETOX PARC Partnership for the Assessment of Risks from Chemicals

Acknowledgment: This work was carried out in the framework of the European Partnership for the Assessment of Risks from Chemicals (PARC) and has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No 101057014.