

# Can microplastics in mothers' seafood diet reach the fetus?

## Maternal seafood consumption and fetal exposure to microplastics

Damaris Benny Daniel

[Damaris.Daniel@uib.no](mailto:Damaris.Daniel@uib.no)

Department of Clinical Medicine

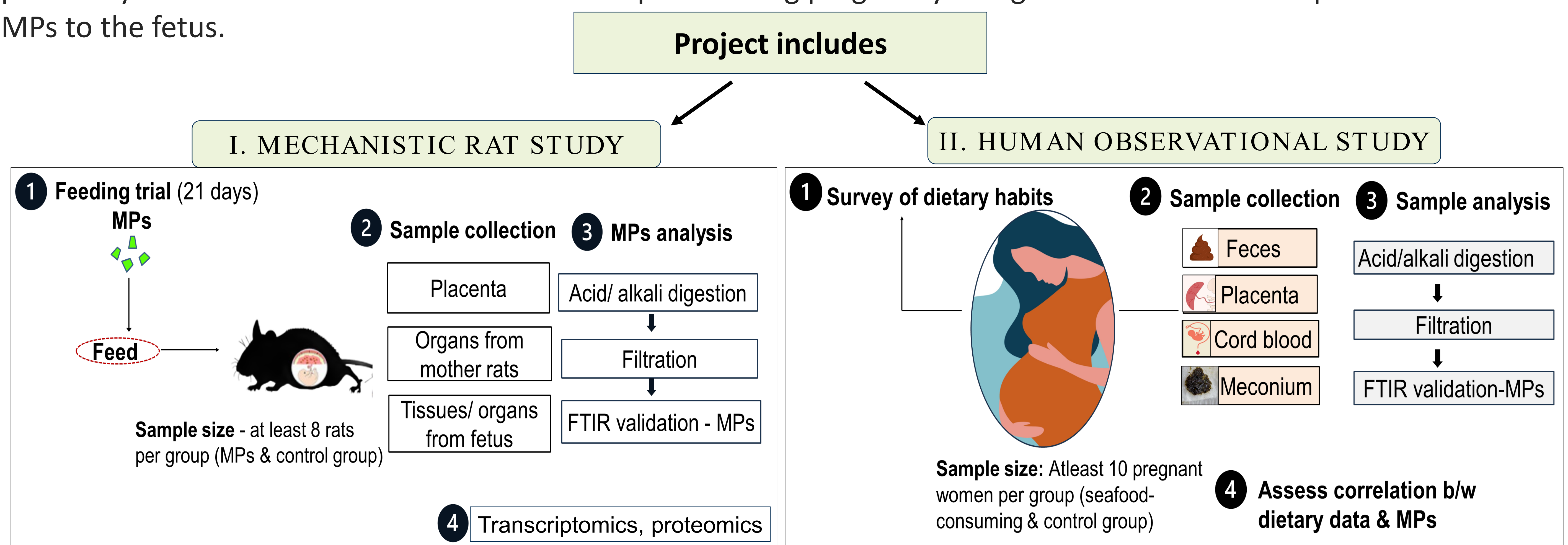


### Background and motivation

With an academic background in biology, I have been passionate about understanding the intricate relationships between marine ecosystems and anthropogenic influences. This led me to pursue a Ph.D. in marine science, focusing on marine plastic debris and microplastics (MPs). One of the most interesting findings that emerged from the research was the presence of MPs in the edible tissues of 2/3<sup>rd</sup> seafood species studied. This discovery was both enlightening and concerning, as it raised a series of questions from the public and experts alike. "What happens when we consume microplastic (MP)-contaminated seafood? Can the human body naturally eliminate these particles, or do they pose a health risk?", were some of the most common queries. However, currently we have insufficient scientific evidence to give any definite answer. This motivated me to delve deeper into the complex and multifaceted issue of "MPs' health effects" and has driven my pursuit of the SEAS postdoctoral program".

### Project description

Microplastics (MPs; **small plastic particles < 5mm**) are an emerging contaminant of global concern, present pervasively in the marine environment. Despite widespread reports of MP intake through seafood consumption, the human health risks of MPs from seafood are not fully understood. Hence this project aims to investigate the possibility of MP-contaminated seafood consumption during pregnancy being one of the earliest exposure routes of MPs to the fetus.



### Main questions

- What is the fate of ingested MPs in a mammalian system?
- What are the mechanisms of MP transfer from maternal food to the fetal environment?
- What are potential health risks associated with MPs consumption during pregnancy?

### Marine sustainability

This project aligns with UN Sustainability Goal 14.1, which seeks to prevent and significantly reduce marine pollution by 2025. The project findings will fill knowledge gaps regarding the health effects of MPs. This knowledge can serve as an impetus to develop sustainable strategies that can mitigate plastic pollution and ensure the well-being of both the marine ecosystem and public health.

### Aims (and/or milestones)

- Completion of animal research training (CAREin)
- Feeding experiments with rats
- Sample collection from euthanized rats
- Collaboration with Haukeland hospital- human sample collection
- Collaboration with Institute of Marine Research, Bergen- MPs characterization

### Supervisory team

**Supervisor:** Prof. Jutta Dierkes, Dept. of Clinical Medicine, UiB

**Co-supervisor:** Prof. Odd André Karlsen, Dept. of Biological Sciences, UiB



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