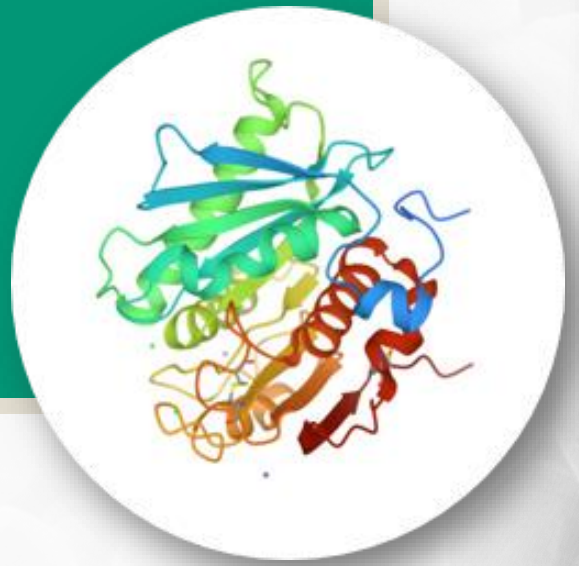
Developing Enzymes to Biodegrade Plastic

Marine Microbial Ecology Group

18-12-2024 - Dr. Matthew Tarnowski

EPW Plastics in the Environment Conference



BMRex

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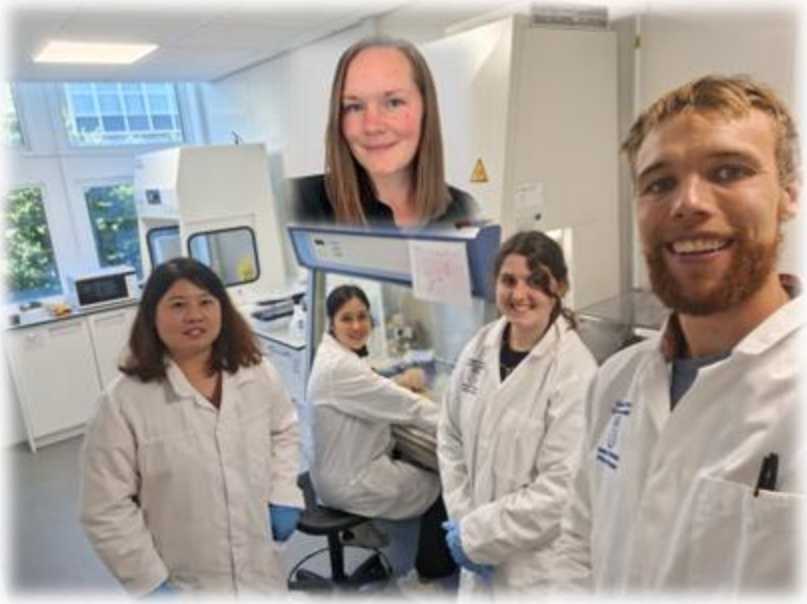
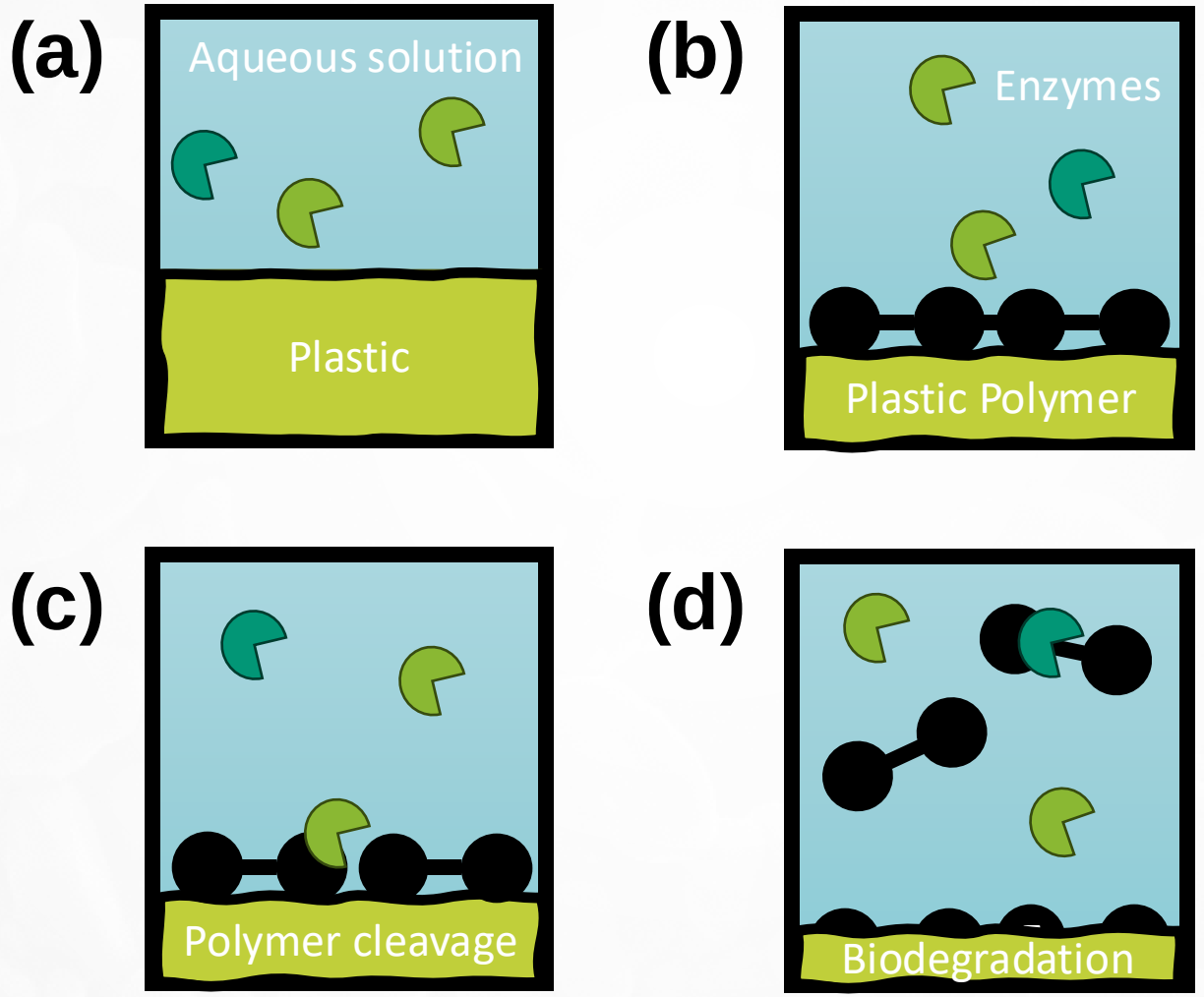
Team

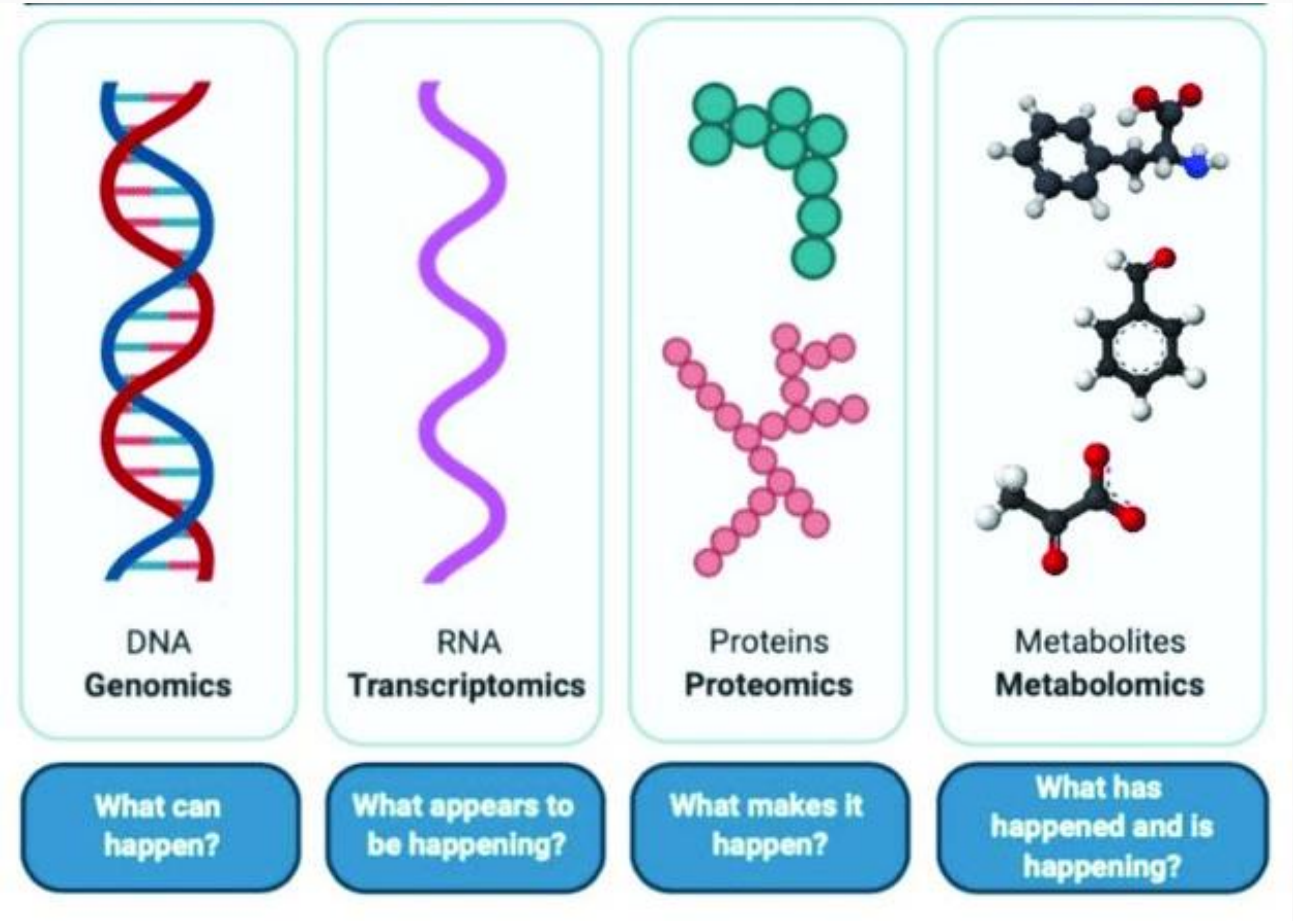
Dr. Matt Tarnowski, Andy Stawowy, Eloise Gray, Daria Hayaselea, Michael Fiegl and Associate Prof. Eva Sonnenschein



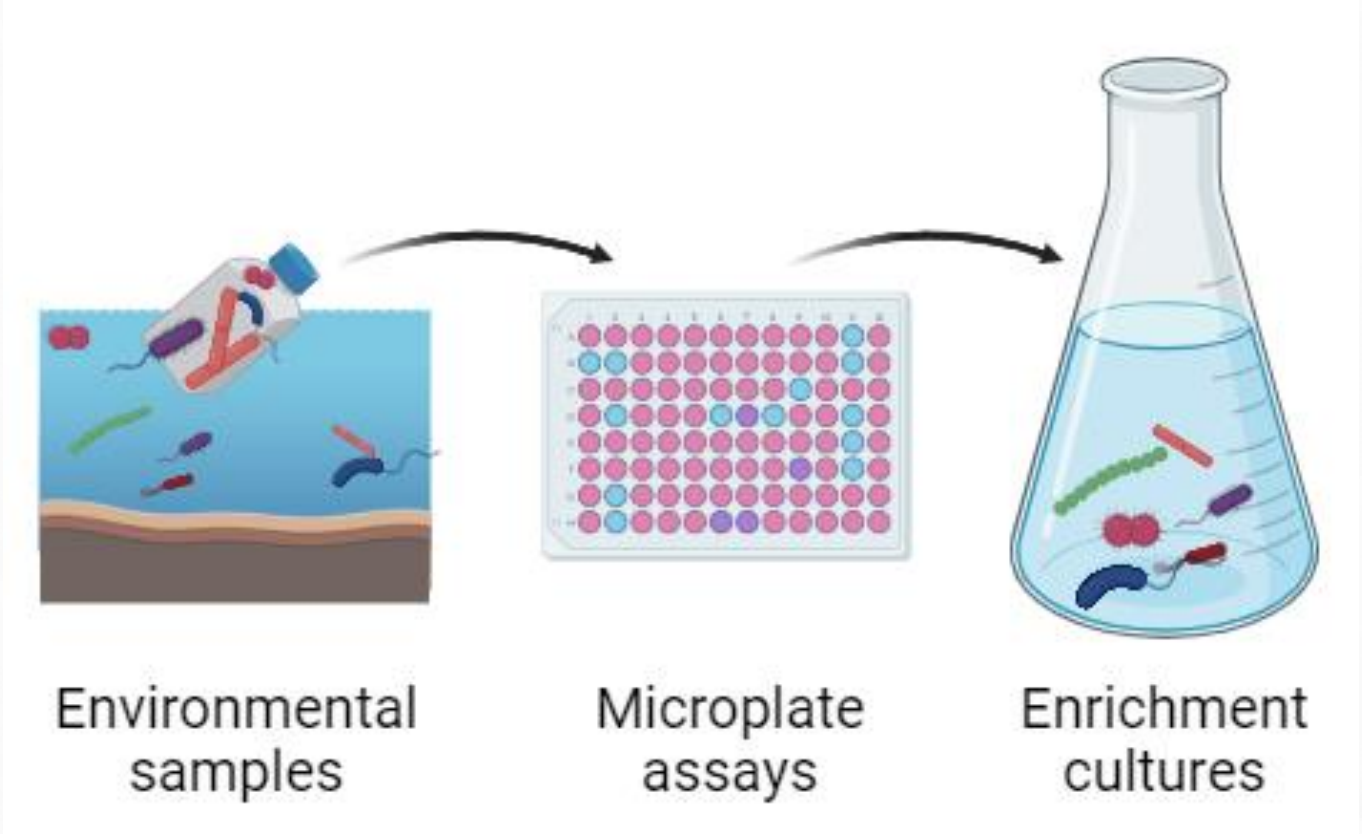
Bacterial plastic biodegradation



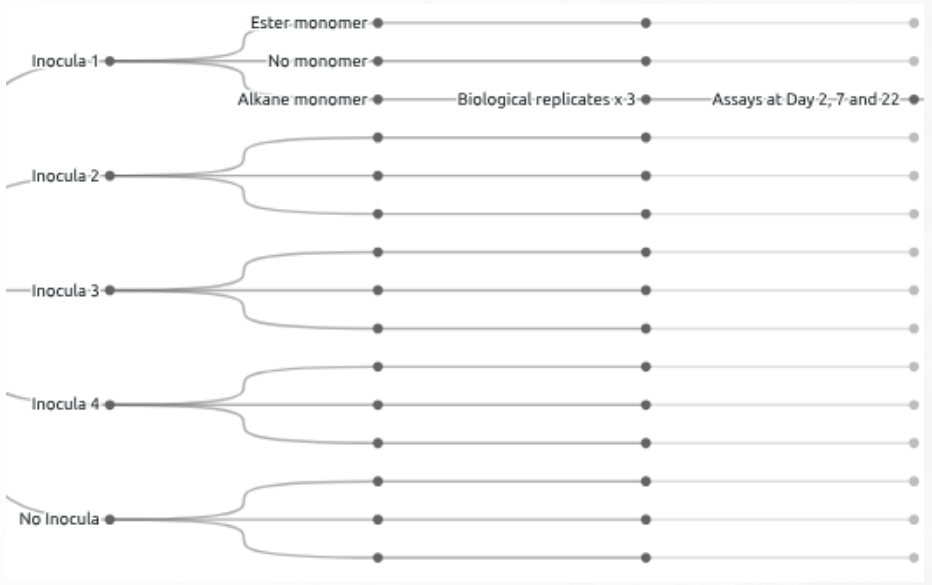
Observing bacterial plastic degradation



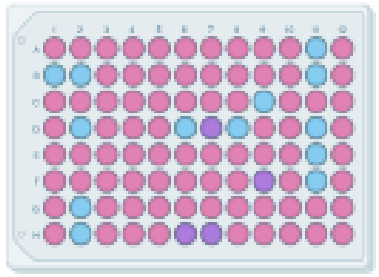
Capturing plastic-degrading microbiomes



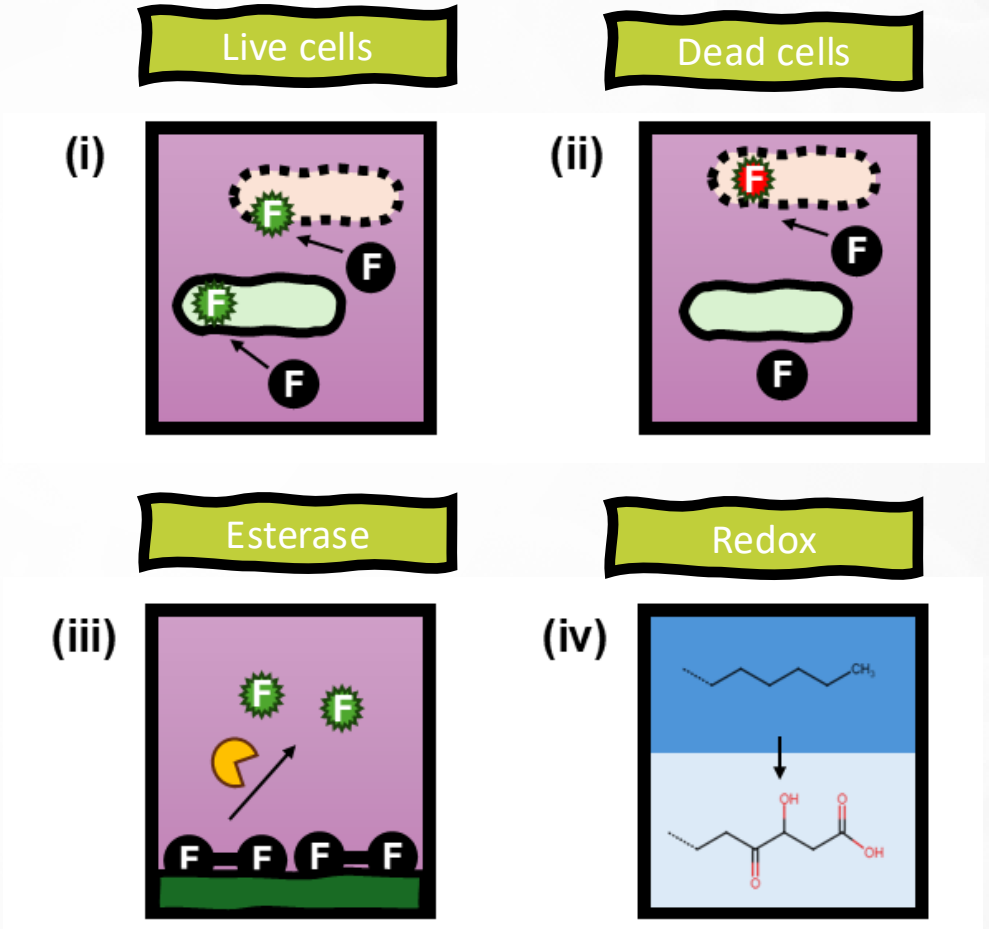
Experimental design



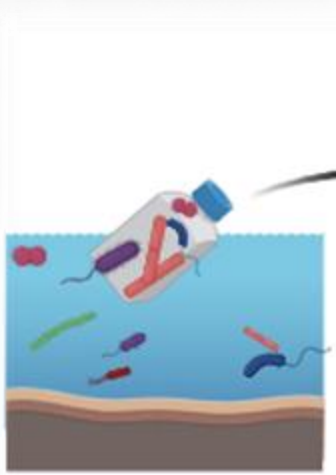
Assessing plastic-biodegradation with microplate assays



Microplate assays



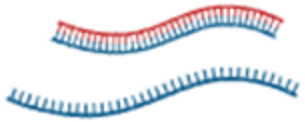
Next steps



Environmental samples

Microplate assays

Enrichment cultures

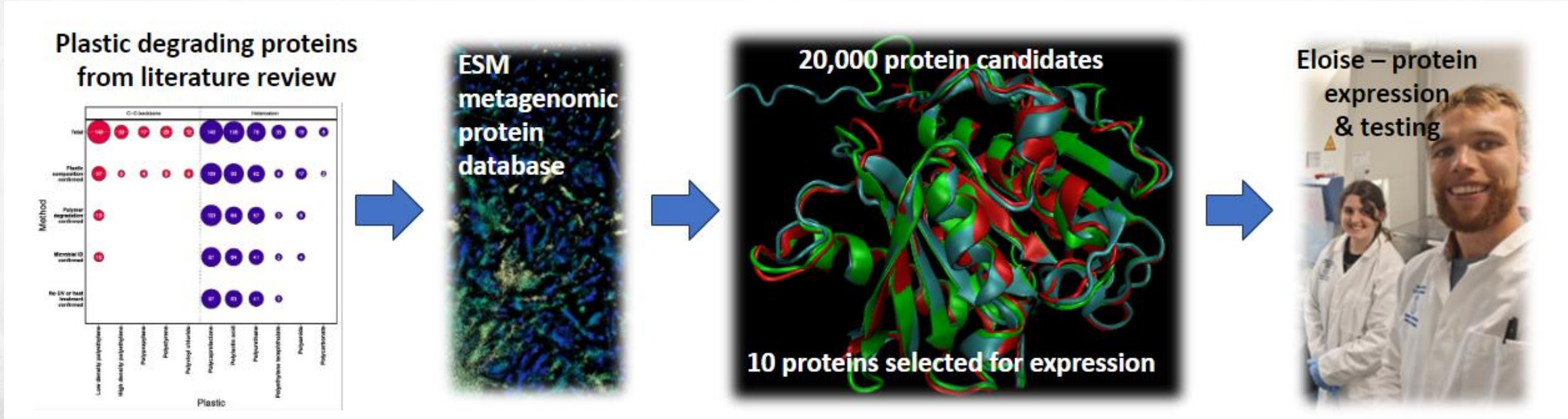


DNA & RNA sequencing

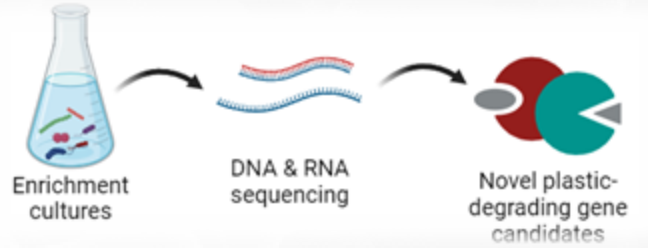
Novel plastic-degrading gene candidates

- ✓ **Species**
- ✓ **Genes**
- ✓ **Transcripts**
- ✓ **Enzymes**

Finding and testing novel plastic-degrading enzymes

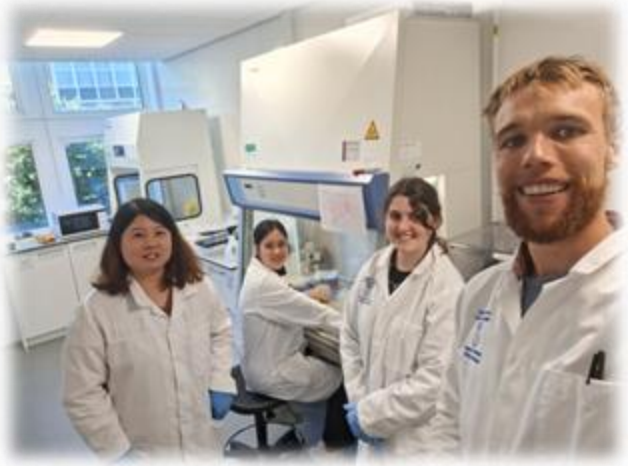


Summary and Acknowledgements



We have developed a suite of experiments to identify species & enzymes showing signs of plastic degradation

We are testing 10 novel plastic-degrading enzymes (out of 10,000s) and aim to test more

UK Research and Innovation

Team: Andy Stawowy, Eloise Gray, Daria Hayaselea, Michael Fiegl and Associate Professor Eva Sonnenschein

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BMRx

https://www.sonnenscheinlab.com/