

# Finding novel antibiotics from Antarctic marine invertebrates

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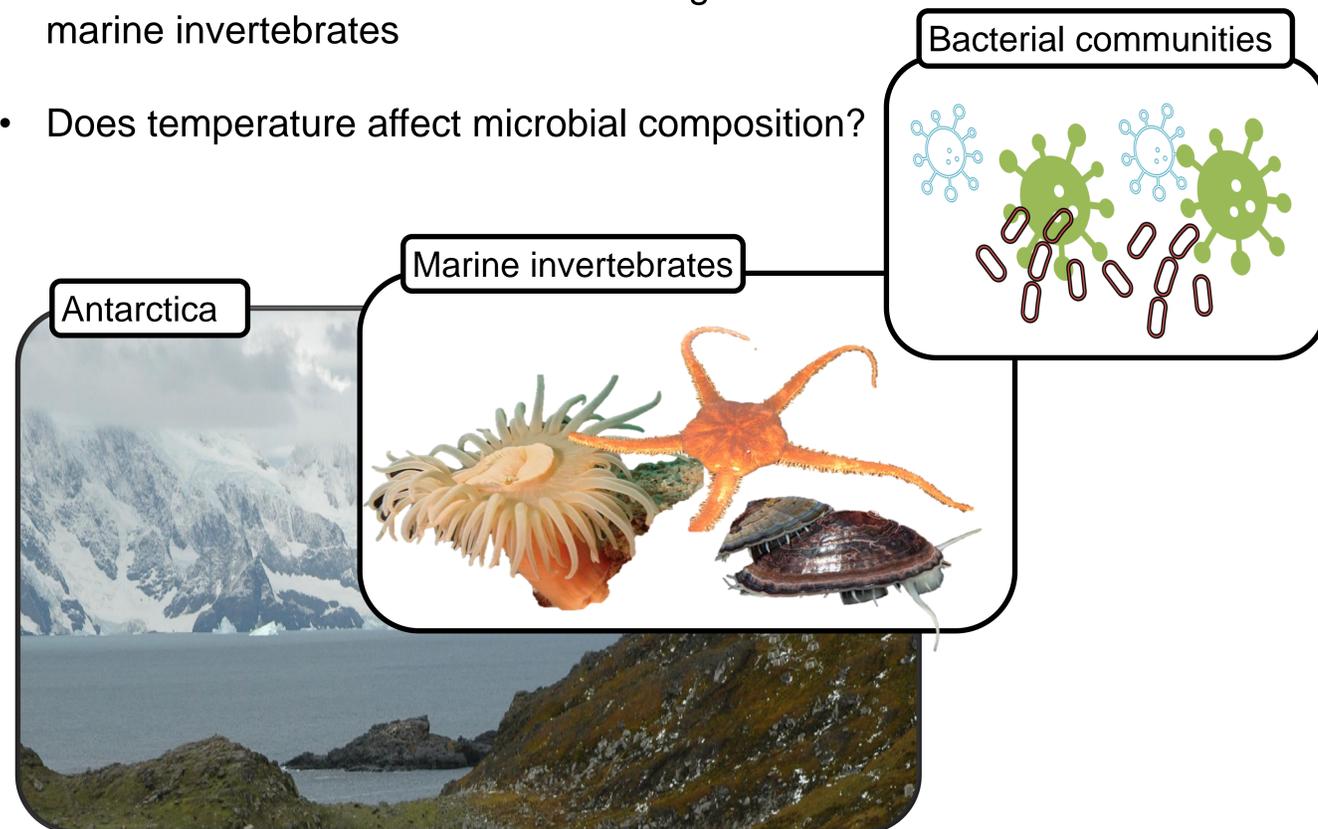
## Background

Antimicrobial resistance (AMR) is one of the most serious threats to global human health, resulting in 700,000 deaths per year and rapidly increasing with a huge consequential loss in economic output. Natural environments are a common source of novel drugs. However, new discoveries of bioactive compounds from well-known bacteria have fallen dramatically in recent years. Therefore extreme environments, such as the Antarctic, are increasingly seen as important sources of novel bioactive molecules.

## AIM 1

Explore the microbiome of Antarctic marine invertebrates

- What microbes colonise the skin and gut of Antarctic marine invertebrates
- Does temperature affect microbial composition?



## AIM 2

Screen for novel antimicrobials



- Do polar microorganisms harbour:
  - Diverse antimicrobial small molecule metabolites?
  - BGCs (Biosynthetic Gene Clusters)?

## Outcomes

This project will inform on:

- Targeted screening of environmental samples from extreme environments for novel biomolecules
- Potential impact for the medical and biotechnology fields.

## References

- Cragg & Newman (2012) Natural products as sources of new drugs over the 30 years from 1981 to 2010. *Journal of Natural Products* 75, 311.
- Fonseca et al (2017) Revealing higher than expected meiofaunal diversity in Antarctic sediments: a metabarcoding approach. *Scientific Reports* 7, 6094