Dr Alana Arnone, a postdoctoral fellow in the Cook lab, shows data to Katherine.
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Translational cancer research

with Dr Katherine Cook

Talking *points*

Knowledge & Comprehension

1. What is the gut microbiome, and what impact does it have on overall health?
2. What is the difference between hormone receptor-positive (HR+) breast cancer and triple-negative breast cancer (TNBC)?
3. Why does Katherine use faecal samples to study the gut microbiome?

Application

4. What questions would you ask Katherine to learn more about her research and career journey?

Analysis

5. What are the different research questions Katherine is hoping to answer? How is she using the 'bench-to-bedside-to-bench approach' to answer them, and what are the benefits of this approach?
6. How do you think Katherine's research findings will influence future breast cancer treatments?

Evaluation

7. Katherine's job involves conducting lab-based research, coordinating clinical trials, analysing data, public speaking to share results and mentoring students. What skills do you already have that would help you be successful in a similar role? How could you develop the skills you do not yet have?
8. Why is translational research so important for improving health outcomes? To what extent do you agree that all biomedical research should be translational? What benefits and drawbacks does translational research have compared to other research approaches?

Let us know what you think of this educational and career resource. To provide input, simply scan the QR code or use this link: **redcap.link/dh5j1nes**

Activities

Breast cancer translational research

Breast cancer affects women of all ages, ethnicities and family histories (whether or not they have family members who have had breast cancer). In small groups, design a translational research project to answer one of Katherine's research questions while also exploring the role of age, ethnicity and/or cancer family history.

Discuss and decide:

- What is your research question, and what are your hypotheses?
- What lab-based research and clinical trials could Katherine conduct to investigate your hypotheses?
- What participants would Katherine need for a clinical trial to ensure they allowed you to meet your research aims?
- What samples and data should Katherine collect, and how could she analyse them?
- How might the results from the clinical trial influence Katherine's lab research, and vice versa?
- Why do you think this research would be helpful?

Gut microbiome science communication

Research online to learn more about the gut microbiome, then devise an engaging way to share this knowledge with a class of 11-to-14-year-olds. For example, you could create a comic strip, podcast episode, mini-documentary or game.

You should teach them:

- What the gut microbiome is and does (include any interesting 'fun facts')
- How the gut microbiome can impact our health (physical and mental)
- How and why researchers study the gut microbiome
- How your audience can keep their gut microbiome healthy (e.g., the role of diet in gut microbiome health).

Remember to consider your target audience and present the information in a way that will be understandable and engaging.

More *resources*

- Visit Katherine's Futurum webpage to read her article in Spanish and to find an animation, podcast and PowerPoint about her work: **futurumcareers.com/translational-cancer-research-with-dr-katherine-cook**
- Learn more about current breast cancer research from the Breast Cancer Research Foundation: **bcrf.org**