

Radiation oncology

with Dr Erina Vlashi,
Dr Michael Xiang,
Dr Danilo Maziero and
Dr Fang-I Chu

Talking points

Knowledge

1. What is a glioblastoma?
2. How many cancer patients will receive radiation therapy at some point during their treatment?

Comprehension

3. In what ways are cancer cells different from normal cells?
4. How does radiation therapy destroy cancer cells?
5. How do some cancer cells adapt their metabolism to resist radiation therapy?

Application

6. If you were a researcher working in Erina's lab, what techniques would you use to study the effect of new treatments on cancer cells?
7. If you were a medical physicist, how would your skills help you to succeed in both a research laboratory and a clinic?

Analysis

8. Why is collaboration so important in radiation oncology? How do the different expertise discussed in the article complement each other?
9. Why do you think removing serine from the diet of mice with glioblastomas makes radiation therapy more effective at slowing down tumours? How could this finding be used to treat humans?

Evaluation

10. Fang-I says that she cherishes the opportunity to let her curiosity run free. What are you curious about? How could you use your curiosity to lead a successful career in science?
11. Michael mentions the challenging aspects of working as a clinical radiation oncologist. How would you take care of yourself during these difficult moments? How would you keep yourself motivated?

Activity

The article focuses on four career tracks within the field of radiation oncology: scientific research, clinical work, medical physics and biostatistics. Re-read the article and think about your own personal strengths, interests and career ambitions. Which career track do you think is the best fit for you?

Imagine that you are applying for an internship in the Department of Radiation Oncology at University of California, Los Angeles. Write a cover letter to either Erina, Michael, Danilo or Fang-I depending on which career track most appeals to you. Within your letter, you should:

- Explain why you want to gain experience in their specific field. Mention something from the article that caught your attention and inspired you to find out more, or something from your own life that makes you interested in their field.
- Pitch your own personal strengths. Explain how your traits and skills are suited to your chosen career track and how you would contribute to the department's goals.
- Describe the steps you have taken (or are planning to take) to develop the skills and experiences that they recommended.

Once you have written your cover letter, pair up with a classmate who wrote their letter to a different researcher. Exchange letters and interview each other, taking it in turns to act as the 'hiring committee' for the department. Give your partner feedback on their cover letter and their interview, explaining what they did well and what they could improve on.

More resources

- Explore more about the research taking place in Erina's lab: vlashilab.dgsom.ucla.edu
- These videos from The Institute of Cancer Research, London explain more about what cancer researchers do and how they create cancer treatments: [youtube.com/watch?v=VP7_yE5fTx0](https://www.youtube.com/watch?v=VP7_yE5fTx0) and [youtube.com/watch?v=8jQBV5V_NG8](https://www.youtube.com/watch?v=8jQBV5V_NG8)