

# STRUCTURAL BIOLOGY WITH DR DONGYAN TAN

## TALKING POINTS

### KNOWLEDGE:

1. How long is a strand of DNA, and how large is the cell nucleus it must fit into?
2. What is the relationship between a DNA molecule, a histone protein, a nucleosome and chromatin?

### COMPREHENSION:

3. How does chromatin fulfil its function of DNA packaging?
4. How does chromatin fulfil its function of transcription regulation?
5. How are different structural biology techniques used in the Tan Lab to answer chromatin biology questions?

### APPLICATION:

6. Why is it important to understand more about the structure and functions of chromatin and histone variants? How could this knowledge be applied in the fields of health science and medicine?

### ANALYSIS:

7. What were the limitations of previous studies that investigated DNA damage repair? Why will the Tan Lab's research provide a more accurate understanding of repair reactions in cells?

### SYNTHESIS:

8. As an undergraduate student, how has Harry benefited from working in the Tan Lab?
9. How do you think learning in a laboratory differs from learning in a classroom?
10. What do you think you would gain from acquiring laboratory research experience?

### EVALUATION:

11. Dongyan and Harry are both motivated by the chance to make a difference in people's lives. Does this sentiment inspire you? How could you channel your passions and skills into a career that improves the lives of others?
12. Why do you think Dongyan emphasises the importance of having good mentors? Why do you think she is so keen to support early career scientists in the Tan Lab? How do you think you would benefit from having a mentor as you embark on a career path?

## ACTIVITIES YOU CAN DO AT HOME OR IN THE CLASSROOM

Imagine you are an undergraduate student (in any scientific field) and, like Harry, you have been working in a research laboratory alongside your studies. You are being interviewed to encourage other students to consider gaining lab experience.

Write a set of interview questions and answers to give the audience an idea of your work and your hopes for the future. Consider the following:

- What scientific field is your research contained within?
- What inspired you to enter this field?
- How have you benefited from working in the lab?
- What challenges have you faced?
- Would you encourage others to follow in your footsteps?
- What are your hopes for your future studies and career?

What other questions would you want to ask yourself?

You could do some research into the experiences of working in a laboratory to make the interview with yourself more realistic.

## MORE RESOURCES

- Visit the Tan Lab website to find out more about the research the team is conducting:  
[you.stonybrook.edu/tanlab](http://you.stonybrook.edu/tanlab)
- Routledge has an article aimed at helping teachers introduce students to structural biology:  
[www.routledge.com/blog/article/how-to-introduce-students-to-protein-structural-biology](http://www.routledge.com/blog/article/how-to-introduce-students-to-protein-structural-biology)