

PLANT MOLECULAR BIOLOGY AND BIOCHEMISTRY

WITH DR SORINA POPESCU

Talking points

KNOWLEDGE

1. Which enzyme that produces luminescence in fireflies is Sorina using in her experiments?

COMPREHENSION

2. What is the difference between a local and a systemic immune response? How does each respond when a plant is infected by a pathogen?
3. What is a redox reaction? What is the difference between reduction and oxidation?

APPLICATION

4. Sorina's research suggests that certain genes play an important role in plants' systemic immune responses. How could this knowledge be applied to help protect plants from disease?

ANALYSIS

5. What evidence proves that the gene promoter GRXS13 is involved in systemic acquired resistance?

SYNTHESIS

6. One challenge of plant molecular biology is that studying individual molecules in isolation can lead to misleading conclusions. How could plant scientists find a solution to this problem?

EVALUATION

7. Sorina mentions that plant scientists often collaborate and draw on different disciplines to help with their research. How important do you think this is? Why is teamwork 'paramount' for plant scientists?

CREATIVITY

8. Sorina's research could be used to protect plants from pathogens. What other dangers do plants face due to climate change? What measures could be put in place to protect them from these dangers?

Activity

Stop the spread!

Plant pathogens do not only impact crop species that we rely on for food. Introduced pathogens and pests also impact natural ecosystems as they kill native plants with no immunity to them. Research online to discover what pathogens and pests are harming native plants in your region. For example, ash dieback in Europe, Kauri dieback in New Zealand and Dutch elm disease in Europe and North America.

Choose one of the diseases threatening plants in your region and create a poster to educate the public about how they can protect plants from it. Your poster should include the following information:

- What disease is threatening plants in your region?
- What pathogen or pest causes this disease?
- What plant species are susceptible to the disease?
- How does the disease affect plants?
- What are scientists and conservationists doing to control the spread of the disease?
- Most importantly of all, what can the reader, as an individual member of society, do to prevent the spread of the disease?
- Any interesting facts, figures and statistics about the disease.
- Where interested readers can find more information.

Ensure your poster is eye-catching and engaging. It should encourage the public to take action against the disease.

More resources

These YouTube channels are dedicated to the latest research in plant science:

 www.youtube.com/user/ScienceAndPlants

 www.youtube.com/c/GatsbyPlantScienceEducationProgramme