

Chapter 7 - Manually controlling genes

End of chapter review questions

Hands-on Exercise

1. What does IPTG stand for and what does it do?
2. List two examples of how microorganisms use light to manage their lives.
3. How are “optimal growth conditions” and “stressful growth conditions” different?

Fundamentals

1. When turning on the Exercise 1 genetic system with chemicals, what happens that makes RNA polymerase able to begin transcription?
2. Why is IPTG used in the Induce-it Kit experiment rather than lactose?
3. What is the non-coding region called that lac repressor binds to?

4. During the heat induction experiment, explain how increasing the heat makes it possible for your gene to be expressed.

5. What is the difference between constitutive expression and inducible expression?

6. What is T7 polymerase? Where is it from? How is it used in the light induction system?

7. How is phosphate used during the light induction system?

8. List three different molecules/systems that phosphate is used in within E. coli cells.