Name _____

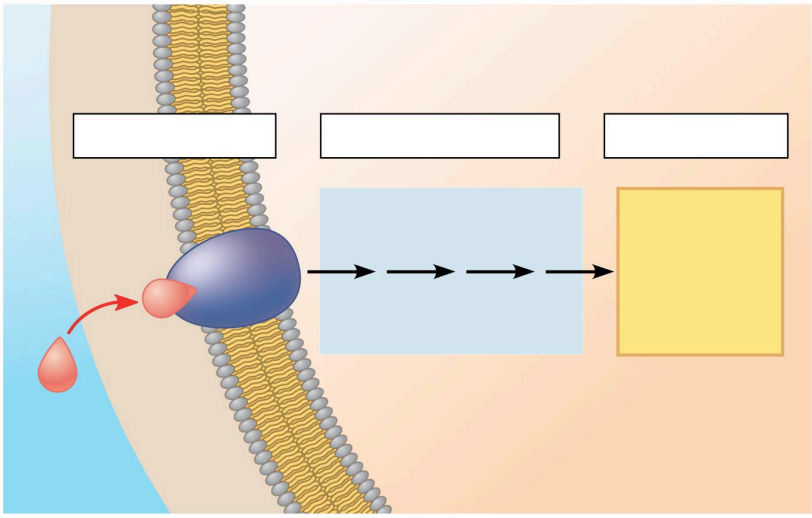
AP Biology
Chapter 39 - Plant Responses to Internal and External Signals

Guided Reading Assignment Campbell's 10th Edition

Essential Knowledge
2.E.2 Timing and coordination of physiological events are regulated by multiple mechanisms
2.E.3 Timing and coordination of behavior are regulated by various mechanisms and are important in natural selection
2.D.4 Plants and animals have a variety of chemical defenses against infections that affect dynamic homeostasis

LO 2.30 The student can create representations or models to describe nonspecific immune defenses in plants and animals.

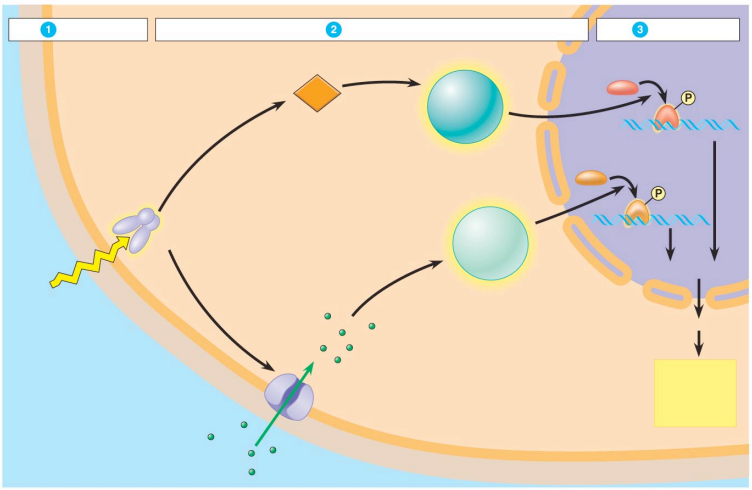
1. Label the three steps in signal transduction



2. Define the following terms:
   a. etiolation
   b. de-etiolation
   c. second messengers

3. Explain the two ways that signaling pathways activate enzymes.

4. Complete the diagram, and explain what it shows.

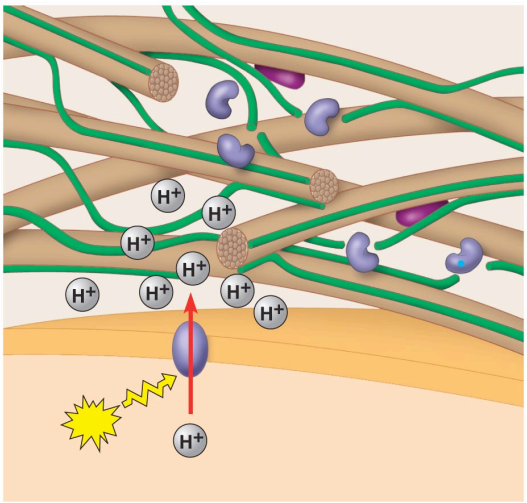


5. Define the following terms:
   a. tropism

   b. phototropism

6. Explain the importance of auxin in plants

7. Complete the following figure, and explain what it shows.



8. Include a brief description of the following:
   a. ethylene

   b. triple response

   c. apoptosis

9. Explain the meaning of each word root in the word “photomorphogenesis”.

10. What is the action spectrum and how do photoreceptors determine it?
    a. blue-light photoreceptors
    b. phytochromes

11. Explain what circadian rhythms are and how each plant determines them:

12. Define the following terms in a way that makes sense to you.
    a. statoliths
    b. thigmomorphogenesis
    c. thigmotropism
    d. action potentials
    e. heat-shock proteins
    f. Oligosaccharins
    g. PR proteins
    h. Hypersensitive response
    i. Salicylic acid

12. Other than light, what types of stimulus do plants respond to?

13. Define gravitotropism:

14. What are the 5 types of environmental stress?

15. Compare and contrast how plants defend themselves from herbivores and how they defend themselves from pathogens.

16. How do plants use gene-for-gene recognition?

17.Complete the following figure, and explain what it is showing.