

Seed Germination Assignment

1. Number the following events that occur during the germination of a grass seed such as barley. The first one is done for you.

- _____ Activation of heterotrimeric G protein
- _____ aleurone layer releases amylase
- _____ amylase hydrolyzes starch to simple sugars
- _____ amylase mRNA transcribed on RER
- _____ GA binds to receptor in membrane
- _____ GA released from embryo
- _____ GA-MYB protein induces transcription of amylase gene
- _____ GA-MYB translated on free ribosomes
- 1 imbibition (seed absorbs water)
- _____ Production of GA-MYB mRNA
- _____ Signal molecule from G protein inactivates repressor
- _____ sugars absorbed by embryo
- _____ sugars provide energy for respiration & growth

2. Explain why the mRNA for GA-MYB protein is translated on free ribosomes whereas the mRNA for amylase is translated on ribosomes associated with the ER.

3. Recall the operon system from last semester. Is the GA-MYB gene an inducible or repressible gene? Explain.

4. Lettuce and many other small seeds require light for germination. For this sensory response, identify/describe each of the following:

- a. Stimulus
- b. Receptor
- c. Transducing mechanism
- d. Response

5. Describe what occurs during each of the four major stages of beer-making.

6. Explain why brewers sometimes spray barley with GA.