**Auxins and Plant Growth**

How do plants respond to light if they don't have eyes nor a brain? The mechanism is quite complex but it is a good illustration of the role of membrane proteins and the fluid nature of the plasma membrane.

1. Name the plant hormone which is responsible for phototropic responses in plants.
2. Where is this hormone produced?
3. What effect does this hormone have on cells in the shoot?
4. What is the effect of light on the location of this hormone?
5. How do protein pumps in the cell membranes of cells of the shoot control the movement of the hormone?

Many auxin effects occur by changes in the transcription of genes.

This happens in a series of steps:

* Auxin enters the nucleus of a cell and
* binds to a receptor protein.
* This causes an inhibitor to stop inhibiting the promoter region of the gene
* The promoter region of a gene is turned on by auxin.
* Gene transcription begins

Watch this short video [**Gene activation by the hormone auxin**](http://youtu.be/WJ6t00UgWqE) and then answer the questions below.

1. What are the two parts found in an auxin-regulated gene?
2. When auxin is present in the cell nucleus what does this do to the transcription factor?
3. Why is this described as a double negative mechanism?