

**Control of Plant Growth & Development - Section 24-2, p. 521-527**

How do plant roots "know" to grow down and stems "know" to grow up toward the light?

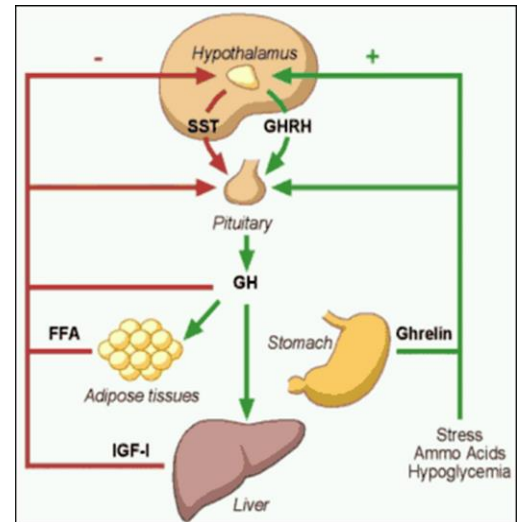
Control of Plant Growth & Development

**HORMONES**

**Hormone** - chemical substance that is \_\_\_\_\_ of an organism that \_\_\_\_\_ of the organism (target organ)

**Hormones Control:**

- Cell division
- Cell growth
- Cell maturation
- Cell differentiation



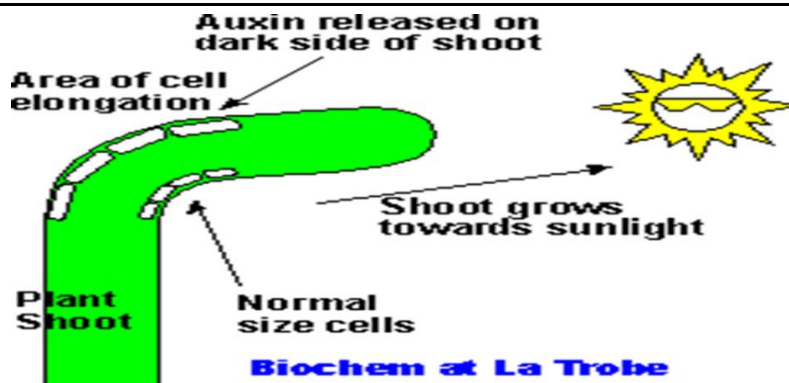
**Hormone Production**

Hormones are primarily made in:

- Apical meristems
- Young leaves
- Growing seeds
- Developing fruit

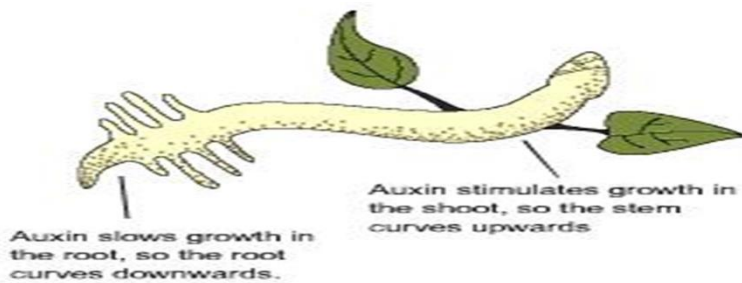
**Hormones - The Role of Auxin in Stems**

Site of Production	
Target Organ	
Effect on Plant Stem Growth (be very specific)	<ul style="list-style-type: none"> <li>• _____ from light (to shaded side of stem)</li> <li>• High [auxin] stimulates cell elongation so _____ toward the _____</li> </ul>



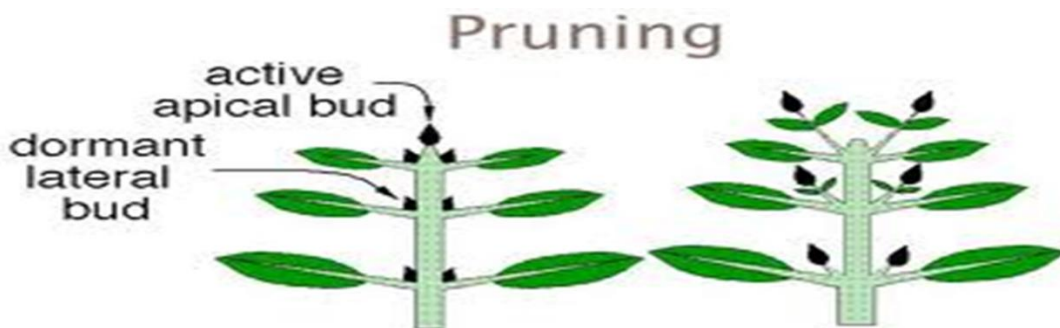
## Hormones - The Role of Auxin in Roots

Site of Production	
Target Organ	
Effect on Plant Stem Growth (be very specific)	<ul style="list-style-type: none"> <li>• _____ from light (to shaded side of stem)</li> <li>• High [auxin] inhibits cell elongation so _____ away the _____ (towards gravity)</li> </ul>



## Hormones - The Role of Auxin in Branching

Site of Production	
Target Organ	
Effect on Plant Stem Growth (be very specific)	<ul style="list-style-type: none"> <li>• High [auxin] prevents growth of lateral buds cell so buds grow in lower regions of plant</li> </ul>



## Hormones - The Role of Cytokinins

Site of Production	
Target Organ	Moves _____ in plant (various tissues)
Effect on Plant Stem Growth (be very specific)	<ul style="list-style-type: none"><li>• Stimulate _____ so it causes dormant seeds to sprout</li><li>• Causes cells to grow _____</li><li>• Stimulates lateral bud growth</li></ul>

### Tropisms

Tropisms - Responses of organisms to environmental stimuli

Positive Tropism - An organism's movement

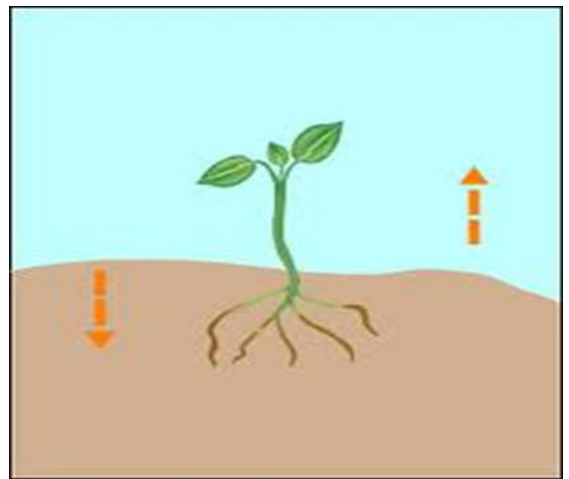
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Negative Tropism - An organism's movement

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A plant's stem is ...

- \_\_\_\_\_ phototropic because it grows TOWARD the light
- \_\_\_\_\_ gravitropic because it grows AWAY FROM the pull of gravity



### Try This...

1. What does auxin control in plant roots? Explain how
2. What does auxin control in plant stems? Explain how
3. What hormone controls branching? Explain how.
4. Is a plant's root positively gravitropic or negatively gravitropic?
  - + or - phototropic?