

Chemical Defenses

- I. Scenario:
 - a. Sick Child in Nigeria
 - b. How can the poisonous antidote save the child's life?
 - c. What is calabar bean and what is its history?
 - d. How does physostigmine work?

- II. How does a normal neuromuscular junction work?
 - a. The players and an overview
 - b. What is the nature of the electrical signal?
 - c. How does a cell secrete signals?
 - d. So what about the child who has eaten the calabar bean? How could something change normal signaling and muscle contraction?

- III. Antidote
 - a. How might the antidote work to counteract what goes on in the synapse after exposure?
 - b. Why and how does atropine, the antidote, work?

- IV. How do plants and animals use chemical defenses?
 - a. Calabar bean
 - b. *Chondrodendron tomentosum*
 - c. Poison arrow frogs
 - d. Puffer fish
 - e. How do arrow poisons work?
 - f. Why are chemical agents like these an advantage for plants and animals?
 - g. What uses do we have for chemical agents such as these?