



Cerebral Palsy (CP)

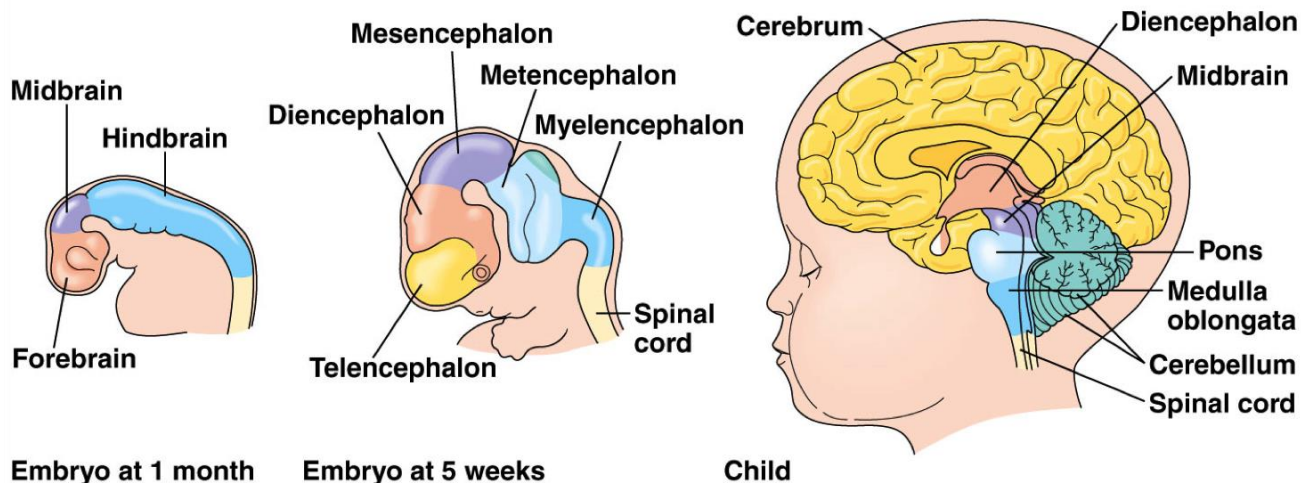
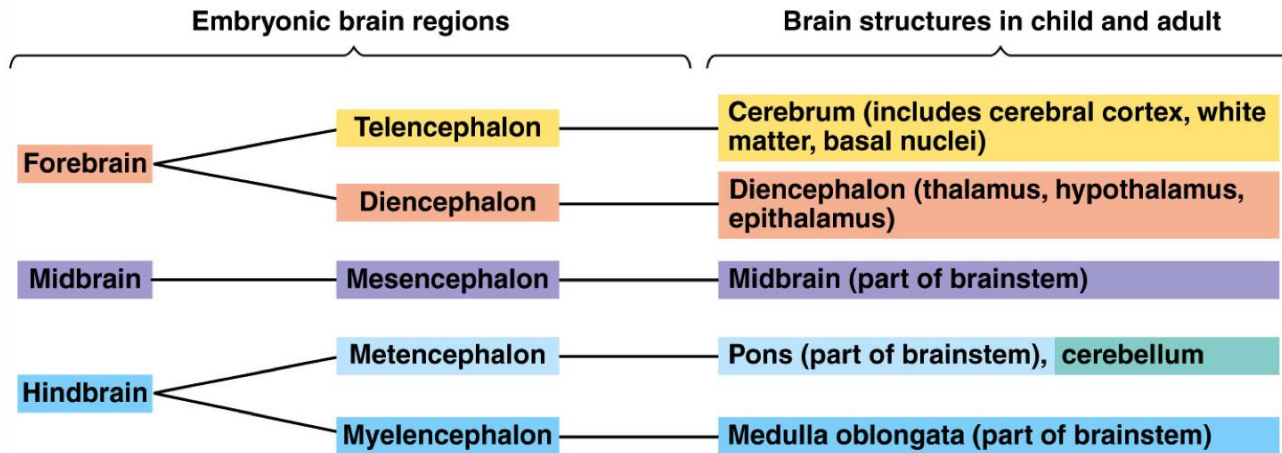
Disorder of movement, muscle tone or posture that is caused by an insult to the immature, developing brain, most often before birth.

- Most common motor disability in childhood.
- Population-based studies from around the world report prevalence estimates of CP ranging from 1.5 to more than 4 per 1,000 live births or children of a defined age range.
- No real cure only treatments for symptoms such as spasticity caused by loss of inhibitory motor neurons

A small toolbar at the top left of the slide contains several icons: a close button (X), a play button (green triangle), a dropdown menu with 'A-E', a list icon (three vertical bars), and a settings icon (gear).

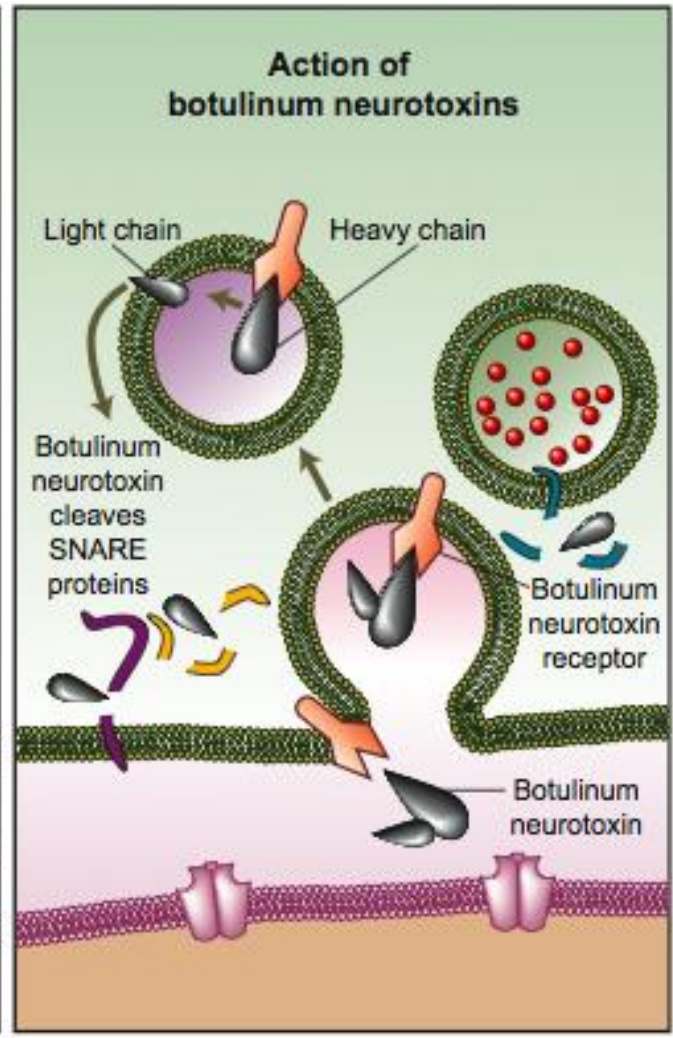
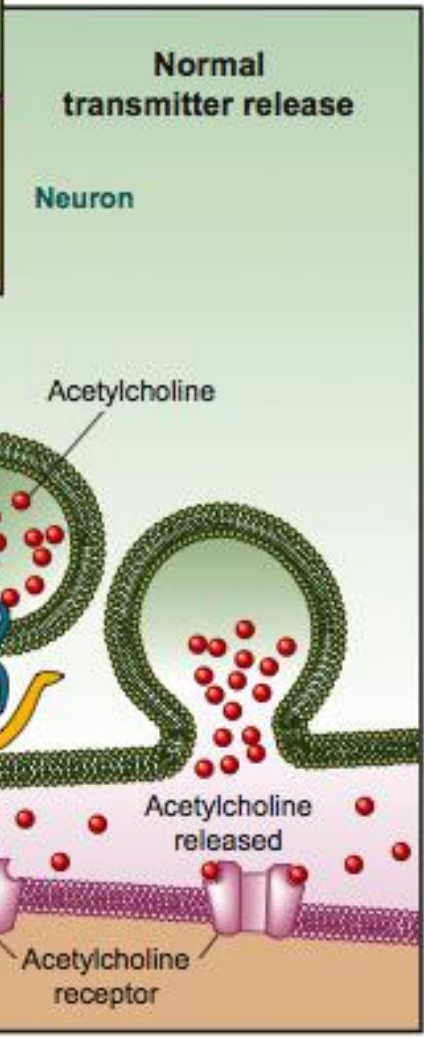
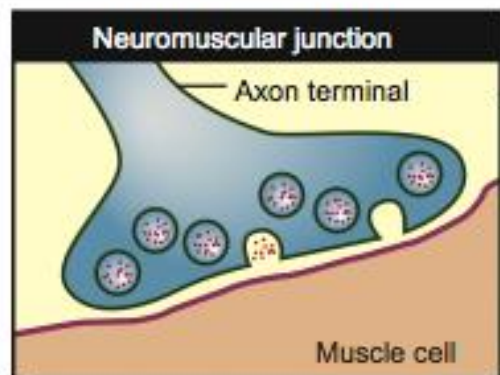
Cerebral Palsy Causes

- **Random mutations** in genes that control brain development.
- **Maternal infections** that affect the developing fetus.
- **Fetal stroke**, a disruption of blood supply to the developing brain.
- **Lack of oxygen** to the brain (asphyxia) related to difficult labor or delivery. Rare.
- **Infant infections** that cause inflammation in or around the brain.
- **Traumatic head injury** to an infant from a motor vehicle accident or fall.



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Team Workshop 1: Why is the cerebrum most affected by insult as an infant and why would this lead to motor neuron coordination problems?

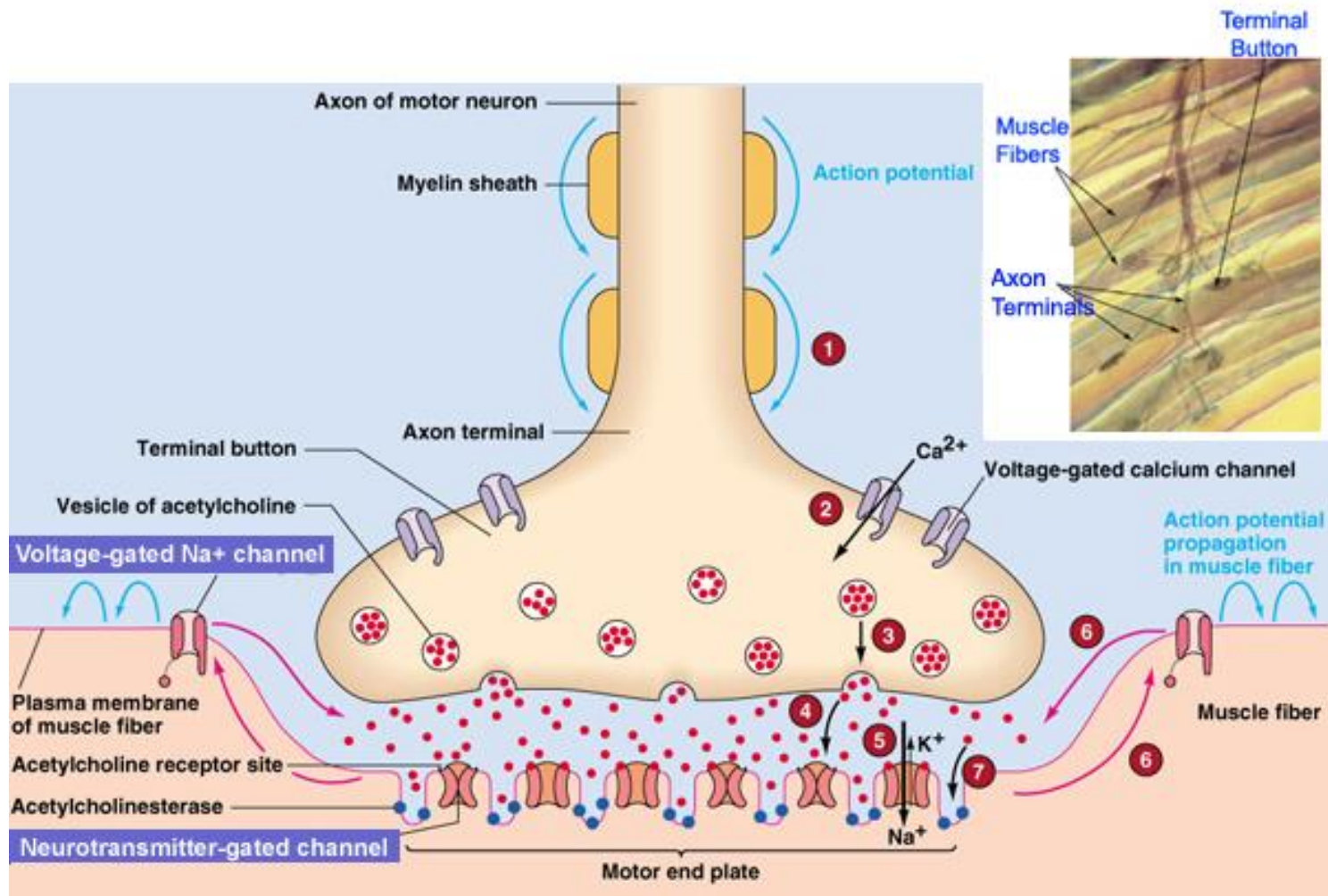




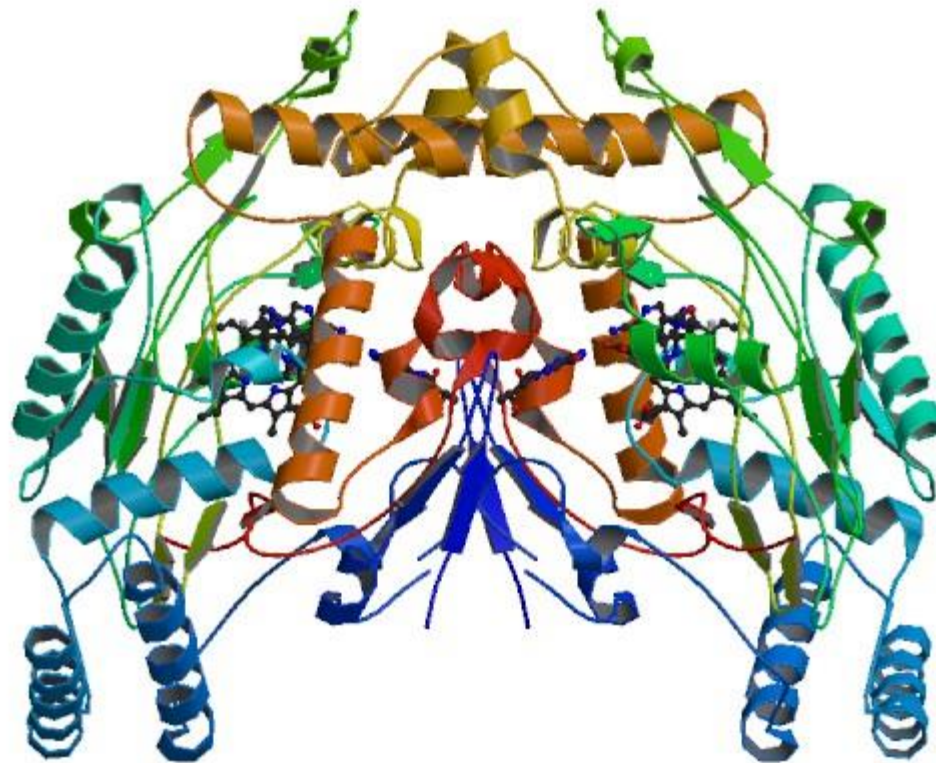
Botulinum toxins inhibit synaptic transmission by

- A. Blocking calcium channels
- B. Blocking sodium channels
- C. Cleaving tSNARES
- D. Cleaving vSNARES
- E. C and D

The Neuromuscular Junction



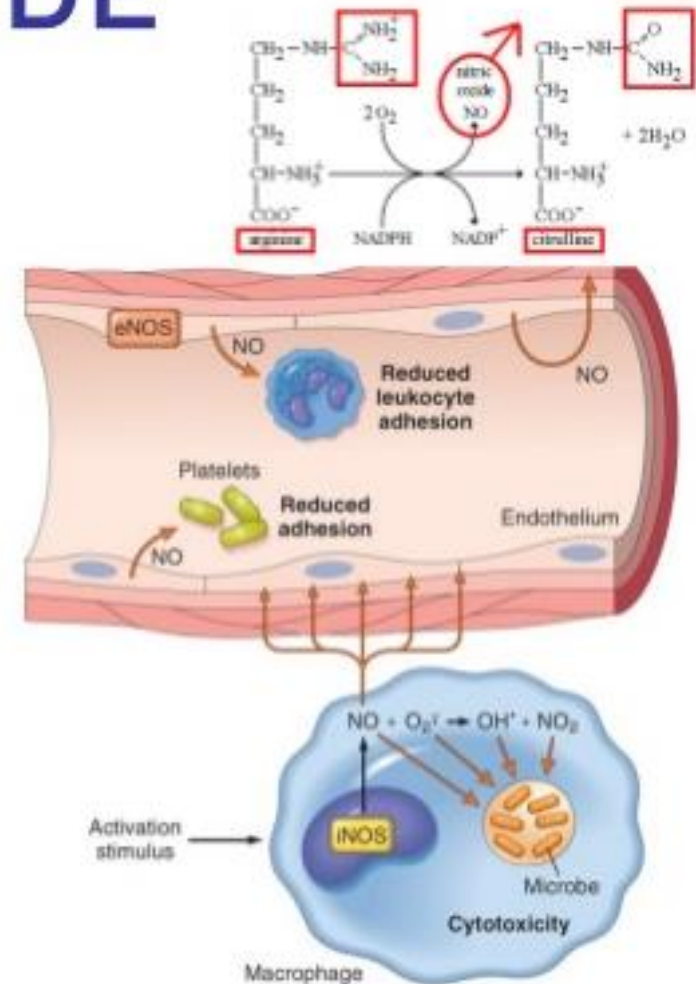
Team Workshop 2: What other drug treatment categories could you envision for treating spasticity in CP that would be mechanistically similar to Botox?



Team Workshop 3: Go to GeneCards, locate iNOS and determine what type of SNP rs1137933 is and what effect this polymorphism might have on iNOS. Next determine if there is any ethnic prevalence for this SNP.

NITRIC OXIDE

- Synthesized from arginine
 - by endothelial cells (type III nitric oxide synthase, eNOS)
 - by macrophages (type II NO synthase, iNOS)
- Effects
 - Vasodilation
 - reduces platelet and leukocyte adhesion
 - NO produced in phagocytes is cytotoxic to microbes.



Team Workshop 4: If iNOS activity is linked to CP propose new treatments that could potentially reduce the incidence of CP.



Remember

- Before 12 PM of the next class day:
 - go to b.socrative.com/student/login and complete the quiz