

# What are GMOS?



Miami University iGEM Team

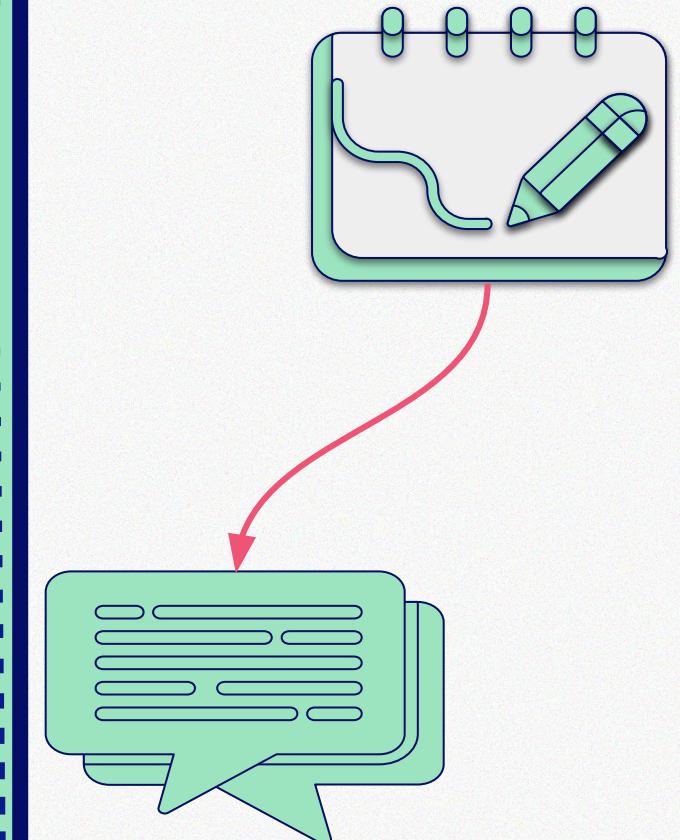


# Before we start:



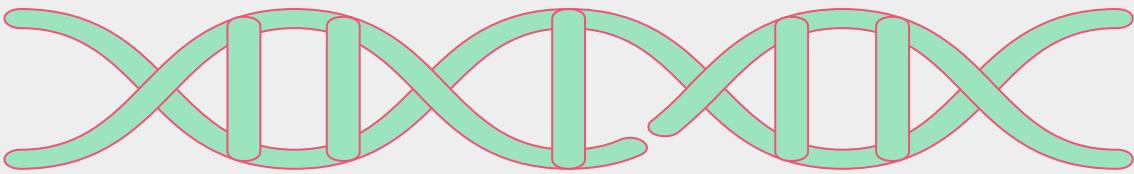
Write down your questions!

- Concerns about GMOs?
- Questions on how they work?
- Safety, uses, things you've heard, things you wonder if they're true!

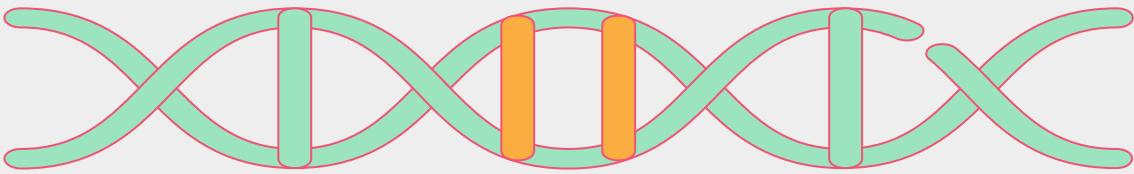


# GMO

“Genetically modified organism”



Original DNA

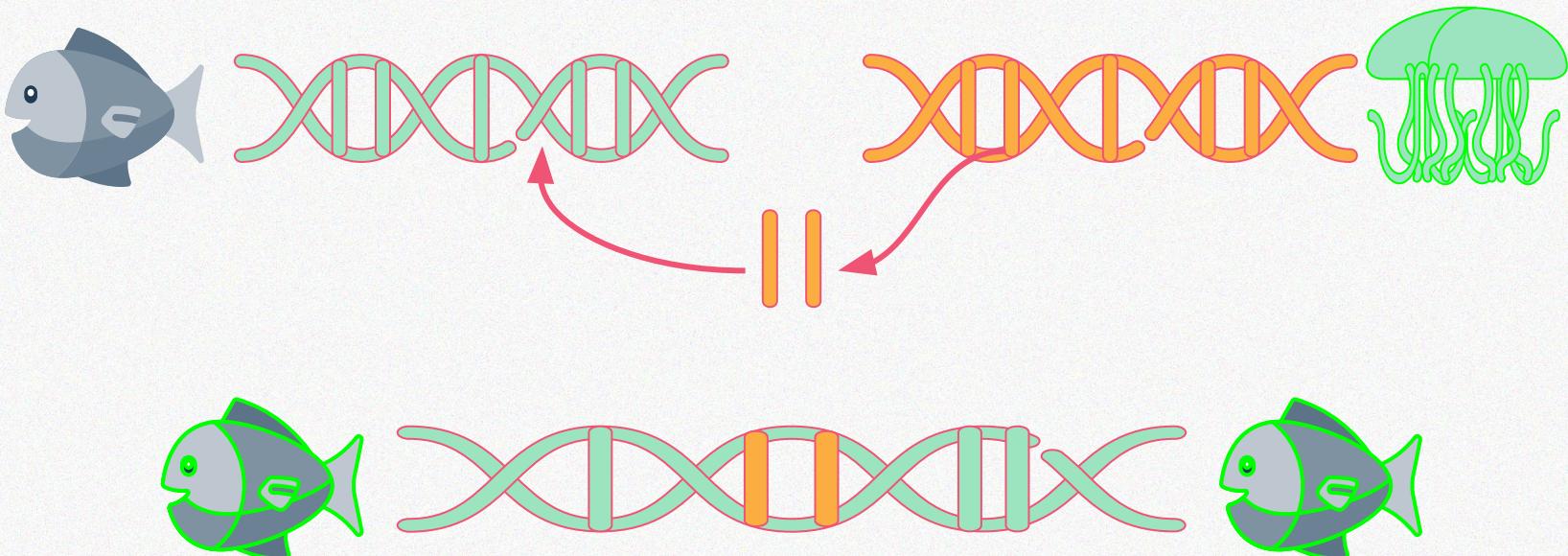


Modified DNA

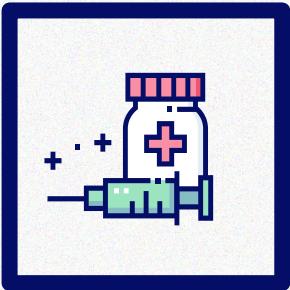


So what is a GMO?

# Modern GMOs

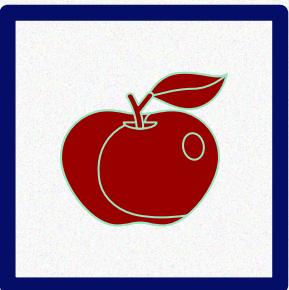


# Applications



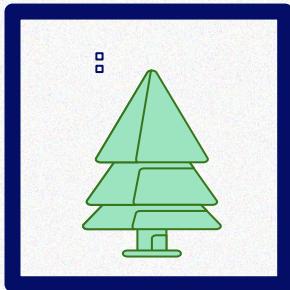
## Medicine

- ❑ Producing insulin, blood clot medication, antibiotics, antivenom
- ❑ Making crops that boost immune system



## Food

- ❑ Higher yielding crops with more vitamins
- ❑ Non-crying onions
- ❑ Crops that can defend themselves from pests



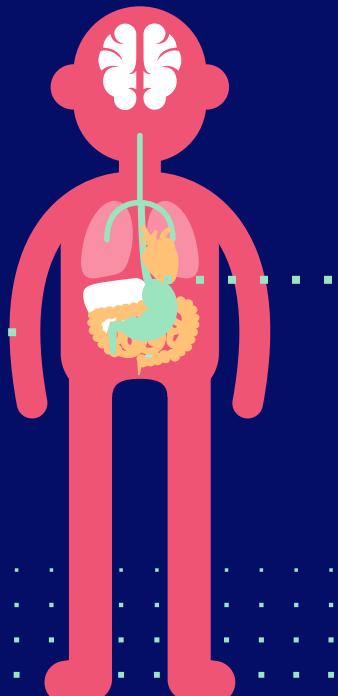
## Environment

- ❑ Plants that clean pollution
- ❑ Pigs that better digest their food
- ❑ Bacteria that eat oil spills

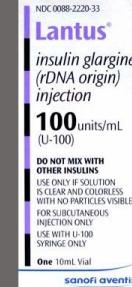
# Medical Use

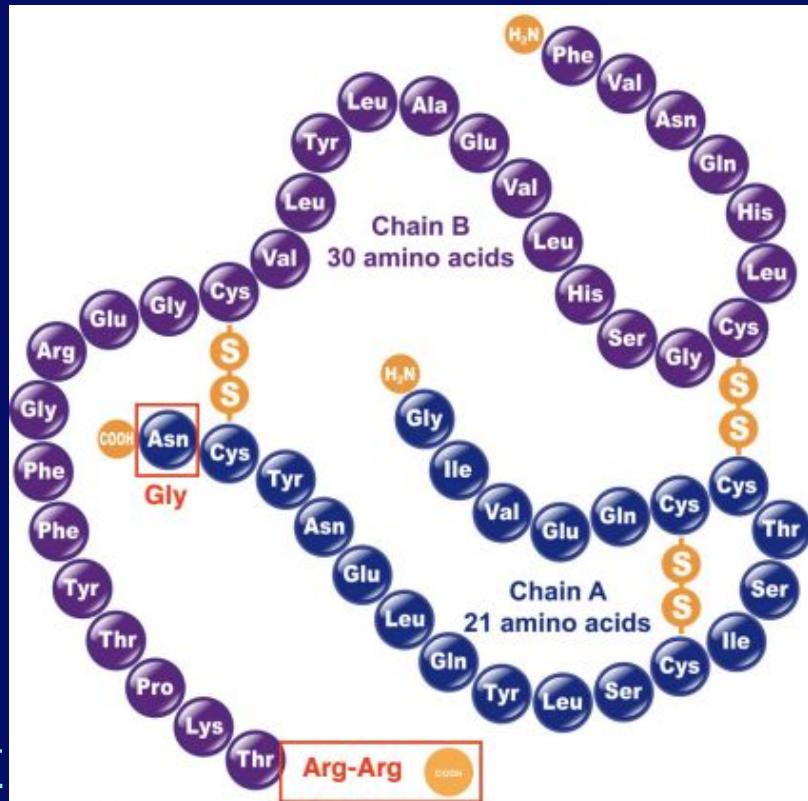
We can make specific proteins and medication

Recombinant tissue plasminogen activator (r-tPA) dissolves blood clots

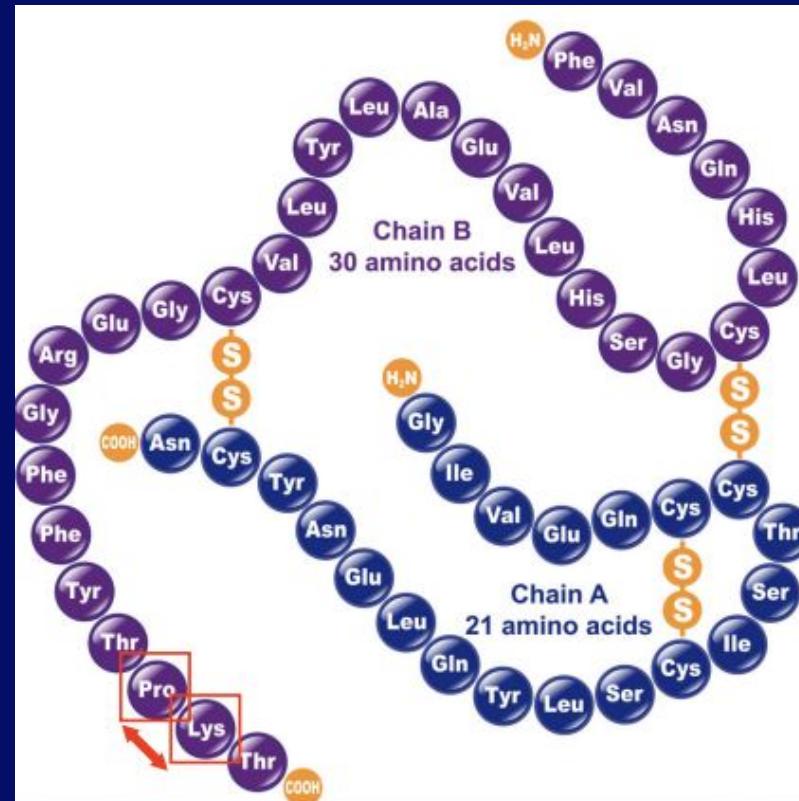


Slow acting vs. fast acting insulin





Slow Acting



Fast Acting

# Nutrition

## Golden Rice



**Regular Rice**

No vitamin A



**Golden Rice**

Vitamin A present

# Our Project

We're applying genetic modification to improve photosynthesis!

Implemented into plants, this could increase crop yields to increase global food security

The screenshot shows a web page for the Miami University iGEM team's project CROP. The header includes links for iGEM, wild tools, search, toc, team MiamiU, and login. The main content features a title "Meet CROP!" and a subtitle "A PROJECT BY MIAMI UNIVERSITY". Below this, a paragraph explains the project's goal: "We are Miami University's iGEM team and our project CROP aims to genetically redesign RuBP regeneration. A major inefficiency of photosynthesis is in the regeneration of Ribulose 1,5-bisphosphate (RuBP) during the Calvin cycle. This could vastly improve agricultural productivity by providing a mechanism to boost plant growth. Through genetic engineering, our team will disrupt the typical pathway allowing the cycle to be streamlined for a more continuous and robust regeneration of RuBP." A "LEARN MORE" button is located at the bottom of this section. To the right, there is a video player showing a thumbnail for a video titled "MiamiU\_OH: CROP - Creating RuBP Optimized Photosynth...". The thumbnail features the CROP logo with a play button icon.

# REFERENCES

1. Shearin A, Ostrander E. 2010. Canine Morphology: Hunting for Genes and Tracking Mutations. PLoS Biology 8:e1000310.
  - a. Image: Mary Bloom, American Kennel Club
2. The Golden Rice Project  
(<http://goldenrice.org/index.php>)
3. FDA  
(<https://www.fda.gov/food/agricultural-biotechnology/gmo-crops-animal-food-and-beyond>)



# THANKS!



Check out our website

[https://2021.igem.org/Team:MiamiU\\_OH](https://2021.igem.org/Team:MiamiU_OH)

CREDITS: This presentation template was created by **Slidesgo**, including icons by **Flaticon**, and infographics & images by **Freepik**.