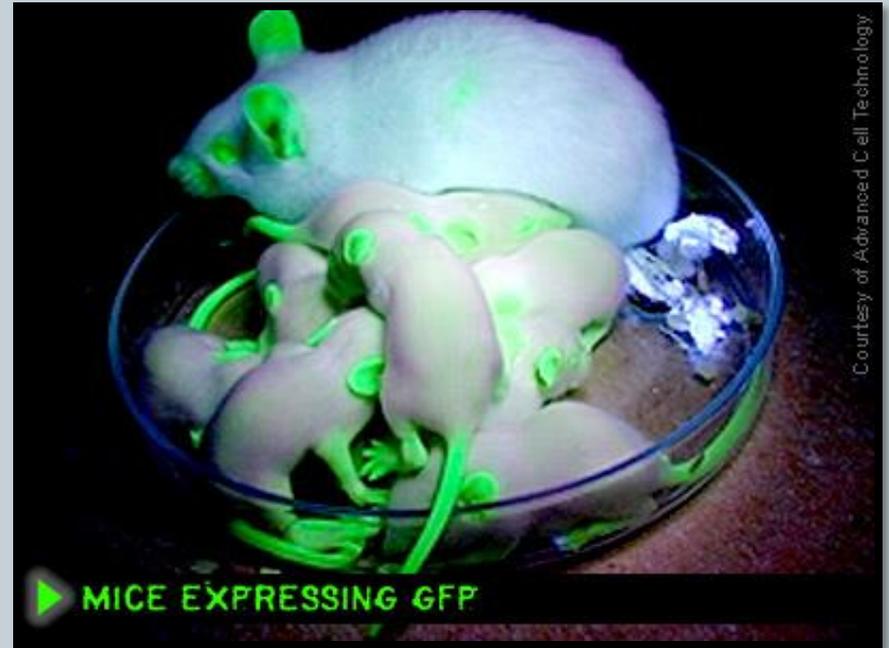


Introduction to Transgenics



What Are Transgenic Organisms?

- A **genetically modified organism** (GMO), also known as a **transgenic organism**, is any **organism** whose genetic material has been altered using genetic engineering techniques



How Are Transgenic Organisms Made?

- Genes of one species can be modified, or genes can be transplanted from one species to another
- Recombinant DNA technology is used

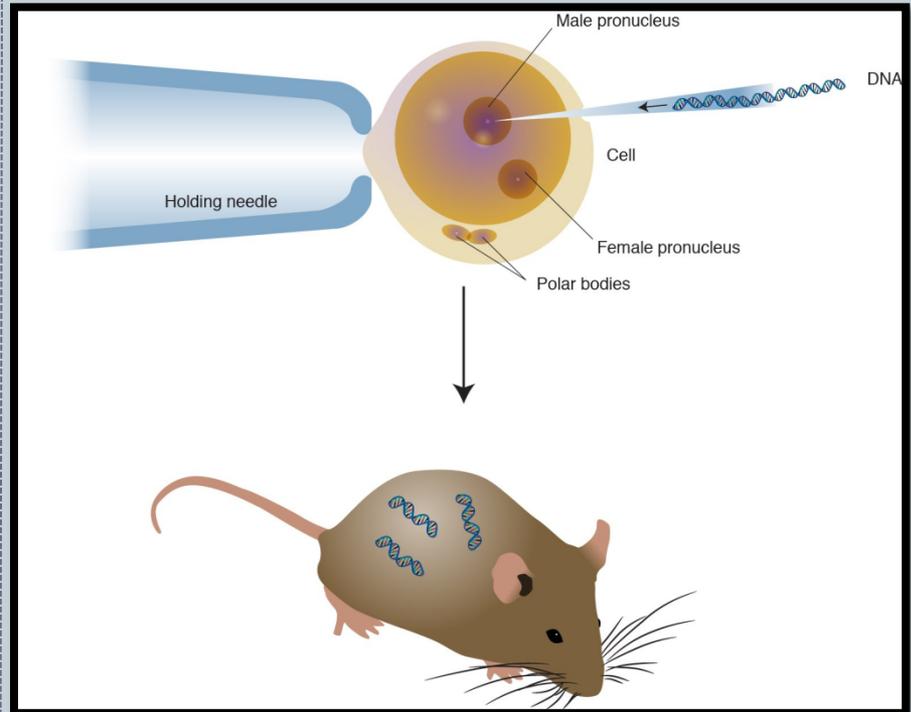


Image courtesy of the National Human Genome Research Institute

Uses for Transgenic Organisms

- Agriculture
- Herbicides
- Medicine
- Material production
- Vaccines
- Other
 - Pets (Glofish)
 - Colorful Flowers



GloFish are a genetically modified pet
Image courtesy of <http://www.glofish.com/images/>

The Fish-Tomato



- Arctic fish genes inserted into tomato
 - *Why?*

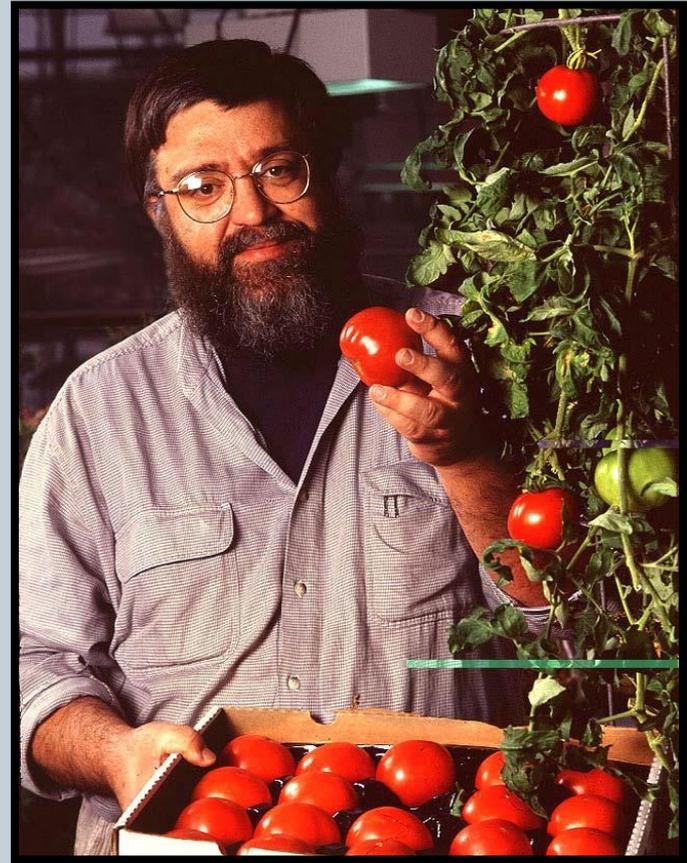


Image courtesy of Wikimedia Commons

The Fish-Tomato



- Arctic fish genes inserted into tomato
 - Added for freeze resistance and longer shelf life
 - Flavr Savr
 - Only available for short while

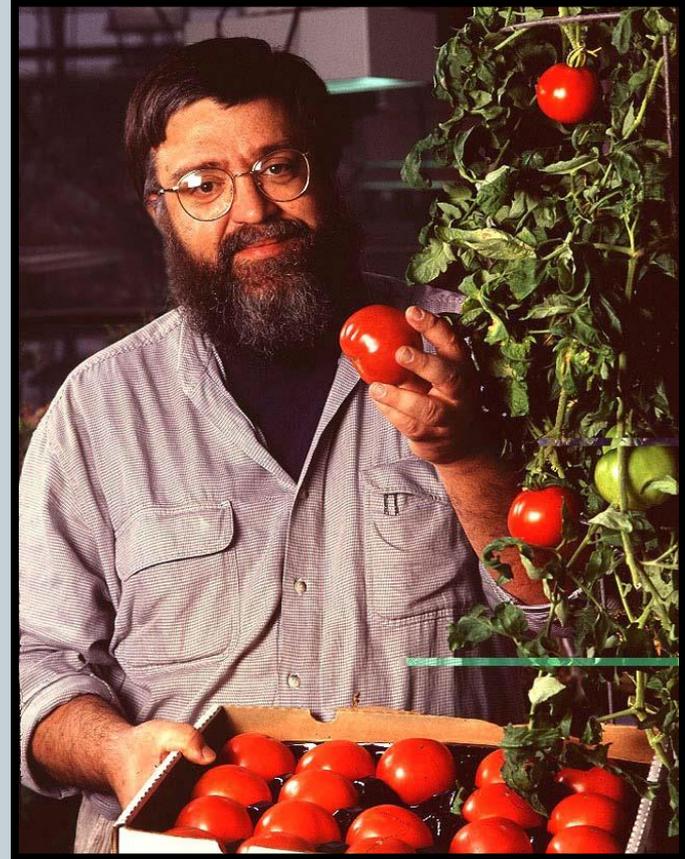


Image courtesy of Wikimedia Commons

Other Examples of Transgenics



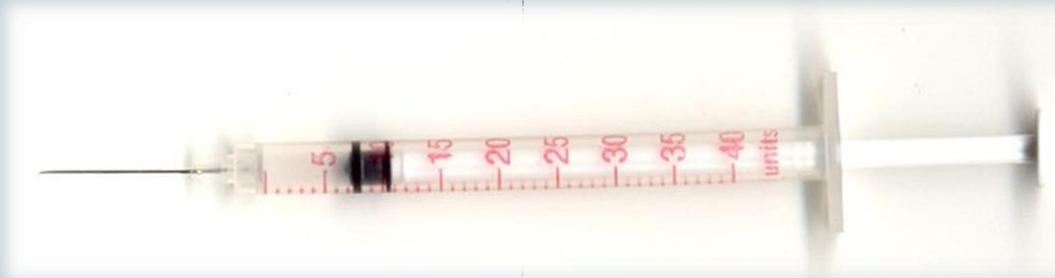
By: [Mgmoscatello](#)

Bt Corn is resistant to caterpillars



By: International Rice
Research Institute
(IRRI)

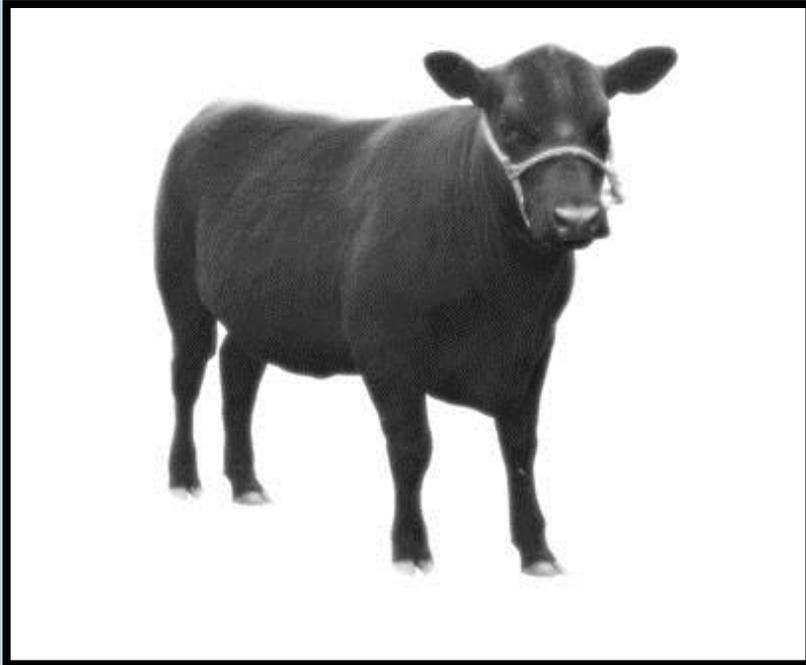
Golden rice has enhanced nutrition



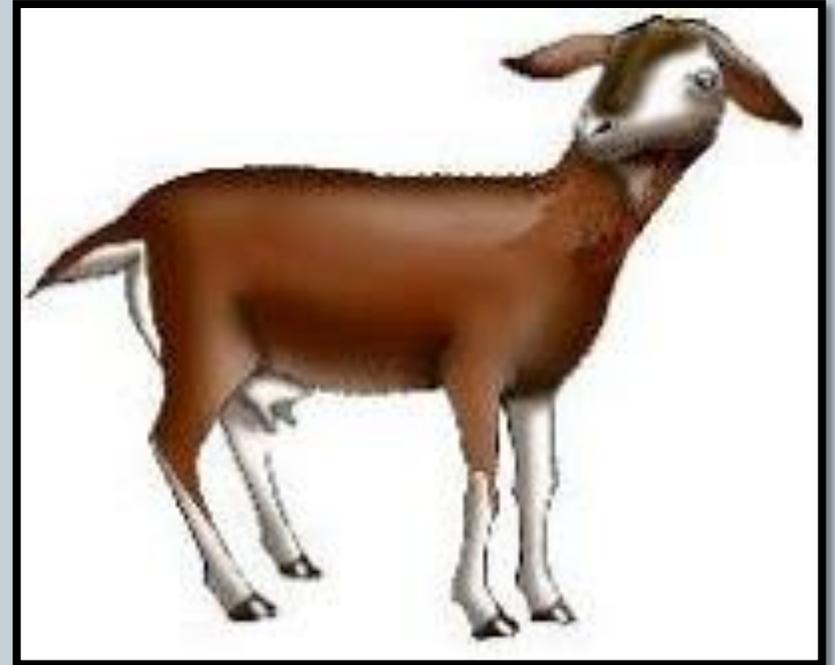
By: [Radomil talk](#)

Human insulin made with recombinant DNA

Other Examples of Transgenics



Less flatulent cows to reduce methane emissions!



Spider silk-manufacturing goats!
For eventual commercial production of spider silk.

Discussion Questions

- Should the creation of transgenic organisms be allowed?
 - Why or Why Not?
- Should there be limits on experimenting?
Creating? Intellectual liabilities?
- Other questions?

