Growing, Growing, Grown

Spare parts

- Problem
  - It is often difficult to obtain a viable transplant.
- Solution
  - Generate organs in the laboratory
  - Using patient's cells lowers the likelihood of rejection
  - Not reliant on chance
  - Want to mimic natural organs

Don’t have a cow!

- Problem
  - Solutions to food shortages focus on plant crops. Why can’t we find a way to produce portions of meat for consumption?
- Solution
  - If we can make cells grow in a Petri dish, we should be able to make larger tissues grow.
  - Meat without the farm.

Crop Modification

- Problem: Growing better and more resilient crops.
- Solutions:
  - Identifying salt and drought tolerance genes and pathways found in xerophytes, resurrection plants, and halophytes.
  - Producing crops with greater nutritional content (golden rice).
  - Addressing environmental concerns of introducing new plants to a region.

More Effective Pesticides

- Crops can be engineered to defend themselves against pests
- Problem: Evolution of both plant and pest can lead to complications

Solution:

- To counter evolutionary changes…
- Create way to track changes in pest population, alter crop/pesticide accordingly
- Study interaction between plant and pest, alter plant to resist
- Harvest genes from most resistant plant and generate a new field's worth of seeds
  - Process is time-consuming, speed up process?