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Wrapping Up Genetics

What is genetic engineering?

- Altering an organisms genome using recombinant DNA

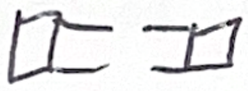
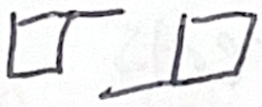
What is recombinant DNA?

- Joining DNA from 2 different sources
- cloning

What are restriction enzymes?

- cleaves DNA to Produce fragments to amplify

What is a palindrome? What is the difference between cohesive and blunt ends?

- a sequence that can be read the same front to back
- Blunt ends 
- cohesive ends 

What is a vector? What role do plasmids play?

- Can carry and transmit DNA
- Plasmids help with DNA transfer

What is a bacteriophage?

A virus capable of infecting a bacteria.

What two techniques are used to transform DNA?

Heat shock

Electroporation

Brain dump: biofuels

- bioethanol is unsustainable
- generated using LC sugars
- May also use yeast or xylose

Describe PCR. What does it require? What are the steps?

- It amplifies DNA segments
- needs primers, dNTPs, and a complementary DNA strand and DNA poly
- denaturation, annealing, and extension

What is qPCR? Describe the example she gave in class of Taq Man.

- used to quantify PCR
- Taq man
  - uses the presence of light to quantify PCR

What is gene knockout? What are the two types?

- Disrupt the DNA to "see what happens"

Ablation = removal

Replacement = changel removal

What is a Lentivirus?

Viruses that integrate host cell DNA

Define biotechnology and biopharming.

- using living organisms to create a Product or process to help people

- making Proteins in GMO plants/Animals

How does insulin production fit into this idea?

- we can use bacteria to produce insulin for our gain

What are some disadvantages of using bacteria?

- They can't Process/modify eukaryotic Proteins

What are the two types of vaccines?

inactivated

Attenuated

Define GMOs.

genetically modified organisms

Why do we generate these crops?

- increase nutrition
- crop resistance
- increase yeild

Why do we create transgenic animals? Describe the example given with cows

To research gene function

- changed DNA so they can produce bacteria to battle mastitis

What is xenotransplantation?

transplanting Animal organs into people

Brain dump the Slick mutation in cattle. Where did it start? What is it?

- in ~~Peurto~~ Puerto Rico, adapted to environment there

- mutated to have short, sleek coat due to heat

Brain dump the ZIKA mosquito.

- GMO to reproduce

- offspring will all die before biting age

What is ELSI? What do they do?

Ethical, legal, and social implications

- makes sure research and science is ethical

What is a DTC? How does IP rights play a role in this topic?

Direct to consumer

- genetic testing sent straight to consumer

- IP protects these peoples DNA rights