Help or Hype: Exploring the Ethics of Bio-nanotechnology

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Why Study Ethics?

• All parts of science must consider ethics
• Ethics simply asks the question “Just because we can, should we?”
Genetically Modified Foods

• A **genetically modified organism** (GMO) is an organism that has foreign DNA inserted into its genome using genetic engineering

• Genetically modified plants were first introduced in US in 1996

• **Are there any ethical concerns with producing and consuming a GMO?**

Picture courtesy of Monsanto Corp. (used with permission)
Personalized Medicine

• Medicine that is prescribed based on your genetic information.
• Eliminates the one-size fits all view of medicine.
• What are some ethical concerns of personalized medicine?
Genetic Selectivity

• Parents can screen embryos to determine the genetic properties of their future children. Uses of the technology includes
  – Curing or treating existing genetic defects in children
  – Obtaining children that have specific desired characteristics

• Is it ok to select a child based on desired genetic traits?

Picture courtesy of Simon and Schuster
Public Awareness

• Some people do know the impact of many of the additives and chemicals that they come in contact with each day.

• What are some ethical concerns with food labeling?

• Are labels necessary and effective?
Nanotechnology

- Field that studies objects 1-100 nm in size (in one direction).
- Silver nanoparticles are naturally antimicrobial and are incorporated into many consumer products.
- What are some ethical concerns with using silver nanoparticles?
Are the those my tissues?

- After a surgical procedure or biopsy do you own the removed tissue?
- What are some ethical concerns with the use of collected tissues?

Courtesy of the Lacks Family and Rebecca Skloot.
Wrap Up

• Research a scientific topic and record three ethical concerns related to it.
• Create a poster or a Powerpoint on your research.