

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

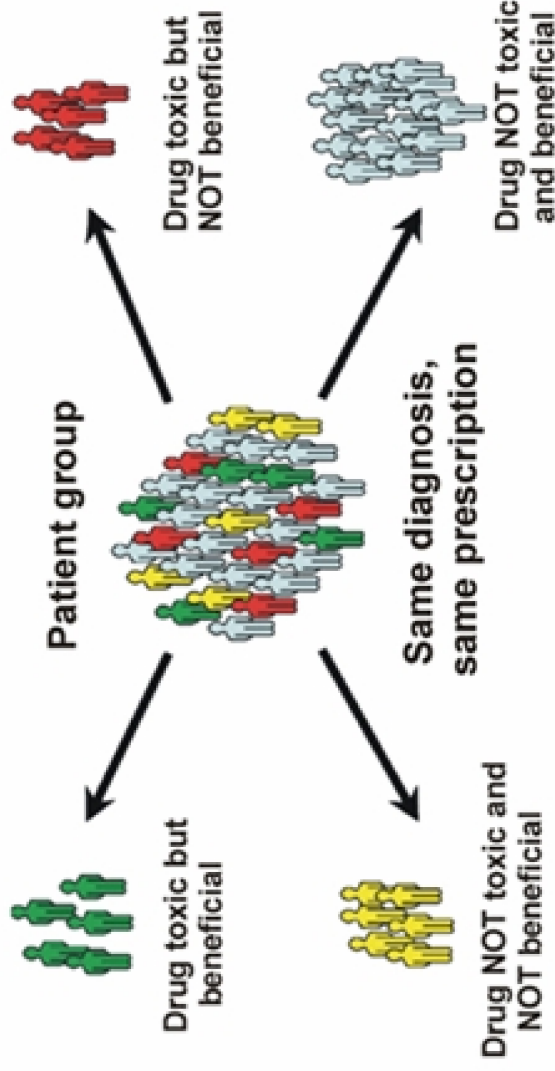
- A genetically modified organism (GMO) is an organism that has foreign DNA inserted into its genome using genetic engineering
- Genetically modified plants were first introduced in US in 1996
- **Are there any ethical concerns with producing and consuming a GMO?**



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?**



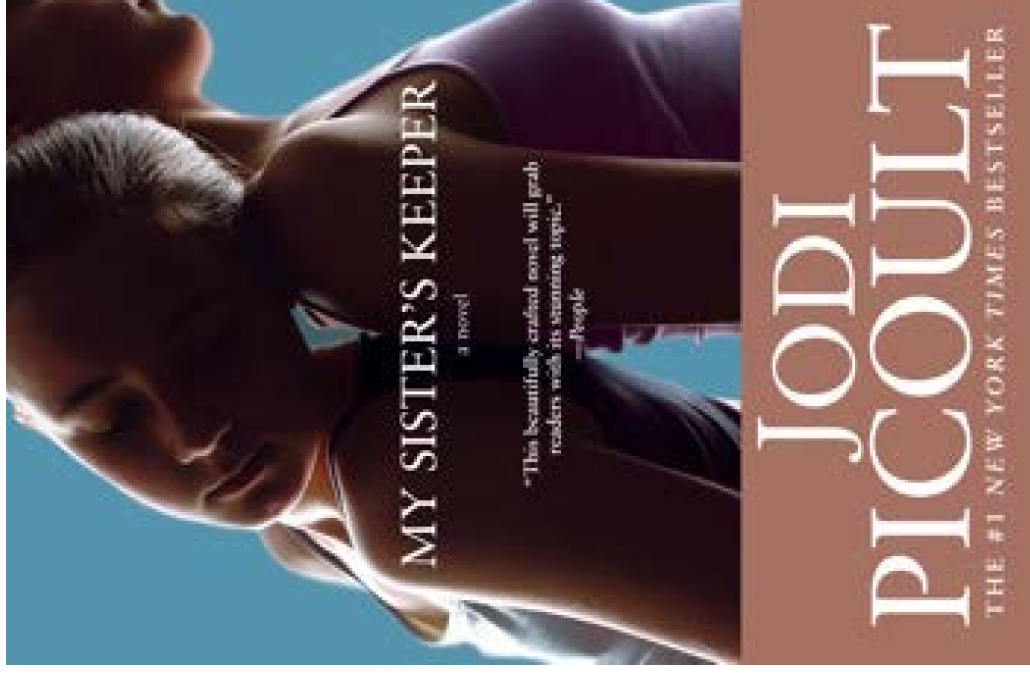
Picture courtesy of University of Michigan



Picture courtesy of BioPolitical Times

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](#)

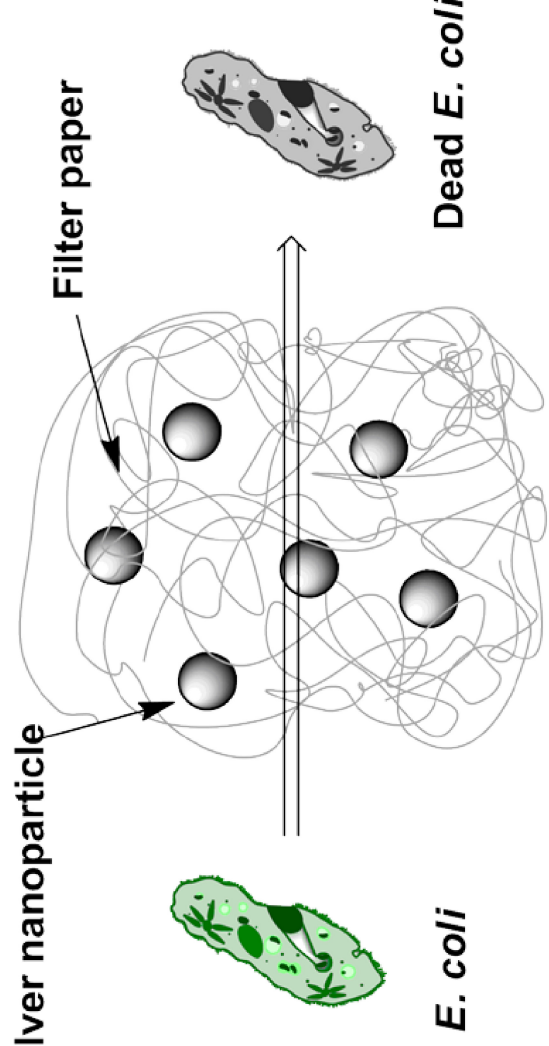
Public Awareness

- 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.

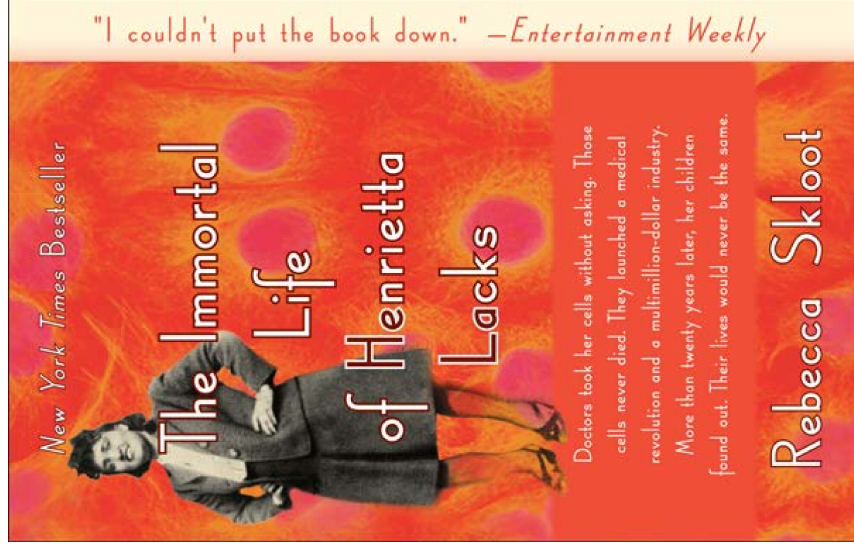


Picture courtesy of Environmental Health News

- **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.