

Honor 3215: Genetics & Society  
Fall 2008

Discussion Notes  
10.02.08

**Gene Modification**

- IVF/PGD
- Gene Therapy techniques
  - Integrating viruses (retro), insertional mutagenesis & immune response
  - Homologous Recombination (Cappecchi), targeted gene insertion
  - Chimeras
- Cloning
  - Reproductive cloning
  - Transgenics

**Treatment, Enhancement, Somatic, Germline**

- Green's Ethical Punnett Square
- What is permissible?
- What are the risk/benefits of each?

**Chapter 4: Challenges and Risks**

- The possibility of using genetic information/technology to choose and modify one's children promises treatments for disease and other ailments, but it also poses risks to both our physical/medical health and challenges deeply held views about human interactions, including reproduction, parenting, family structure, health and justice, food, economics, and so on. In short, there is the opportunity to radically alter human futures and the very structure of human society. The risks/benefits exist for individuals, groups, the present and the future generations.
- Physical/Medical Risks
  - Risks of modification (at each step)
    - Genetic diversity
    - Heterozygote advantage?
  - Complexity of genomics
    - Polygenetic traits (vs. monogenetic)
    - Genotype does not equal phenotype
    - Alternative splicing
    - Pleiotropy
    - Epigenetics and development
- Social/Cultural Risks
  - Shaded by "status quo bias" and spectre of eugenics
  - Various human institutions:
    - Parenting and family: autonomy vs. social sanctions
    - Social Divisions-Genobility: free market & justice issues
    - Religion: place in nature, under a spiritual lens
    - Health & normality
- Some Ideas
  - "Risk" = probability of occurrence + consequences of that occurrence
  - Dual-use dilemma and unintended consequences
  - Status quo bias?