

Genetic engineering

Genetic engineering

- 1953: J. Watson de-codified the structure of DNA.
- It had positive and negative results.
- the access to genetic information of a person can have negative consequences (even discrimination);
- main question: should everything that technically possible be allowed?

GENETIC ENGINEERING

STEPS:

- **Mapping the Human genome** (there are about 20,000 human genes and “we have only 300 unique genes in the human (genome) that are not in the mouse”)
- **Determine the role of various elements** (“the human genome, a string of 3 billion chemical letters that spell out every inherited trait, is almost identical in all humans: 99.99%) in order to find so called ‘**genetics misspellings**’ or Single Nucleotide Polymorphisms (SNPs) that lead to genetic diseases or simply differences.
- Pharmacogenomics (creating personalized medicines)

BIOETHICS: GENETIC ENGINEERING

- **How do we conduct experiments?**

In every medical experiment the subject should sign an informed consensus before being treated.

- **Is it ethical to conduct research in such a field?**
- **Is it ethical to keep secret the findings** in such a field when a large number of persons would benefit from the information? Or even for private companies to patent a gene?
- **Is it ethical to modify genes** in order to prevent people from developing diseases? And for parents to decide the sex, or the color of the eyes of their children? Or to add genetically modified capabilities?

BIOETHICS: GENETIC ENGINEERING

Justifications for Genetic Engineering on Humans:

Utilitarian: we produce an overall better group of people (**Eugenics**)

Libertarian: it is a matter of my individual liberty to decide how I want to be

BIOETHICS: GENETIC ENGINEERING

Problems

- **A Small Problem of Precedents: Nazism** □ what are we going to do with persons that will not be fit enough for our new genetically-modified standards?
- **Playing God or Going Against Nature** (but imagine this scenario: you (or your wife) are pregnant, and the doctor tells you that your future kid is going to develop dwarfism. But he also says that through genetic-manipulation it would be possible to generate a 'normal' baby. What would you do?)

BIOETHICS: GENETIC SCREENING

The right to privacy as 'being free from certain intrusions'

- 1) **Negative feelings** (think about how would you feel if someone could observe you while you are in the bathroom...)
- 2) We want to keep certain things to ourselves and to control the information about us in order to affirm our **autonomy**
- 3) Privacy helps in the formation and continuation of **personal relations**
- 4) The **risk** that information may be used against us or to cause us harm

What about genetic screening? Should it be allowed?