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STS.003 The Rise of Modern Science
Spring 2008

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Keywords for Week 13

Lecture 22: The Race for the Human Genome

The Human Genome Project (1990-2003)
Francis Collins
The National Human Genome Research Institute
Craig Venter
Celera Genomics
Rough draft of the human genome, June 2000
Gene patenting

Lecture 23: Genetic Engineering

Language of Life
Recombinant DNA
Joshua Lederberg
Paul Berg
Asilomar Conference, March 1975
Cambridge Experimental Review Board, 1976 debate
Genetically Modified Organisms
Genetically Modified Crops
Oncomouse (created 1984, patented 1988)
Somatic cell nuclear transfer (SCNT)
Reproductive and therapeutic cloning
Cloned mammals:
Masha the Mouse, 1986
Dolly the Sheep, 1996
CopyCat, 2001
Snuppy the Dog, 2005
Human cloning
The BioBricks Foundation
Registry of Standard Biological Parts
The international Genetically Engineered Machine competition iGEM
Eau d'e coli
Codon Devices
Synthetic biology
Freeman Dyson

Quotes

And perhaps that was the final, foggy significance of Asilomar: a promise that the scientists who deal with the most fundamental stuff of life will not sequester themselves beneath Chicago stadiums or within blockhouses in the New Mexico desert - that their work, at least as significant as the most subtle of sub-nuclear manipulations, will be done with care and public scrutiny.

Michael Rogers, "The Pandora's Box Congress" (1975)

If domestication of biotechnology is the wave of the future, five important questions need to be answered.

(1) can it be stopped?

(2) ought it to be stopped?

(3) if stopping it is either impossible or undesirable, what are the appropriate limits that our society must impose on it?

(4) how should the limits be decided?

(5) how should the limits be enforced, nationally and internationally?

I do not attempt to answer these questions here. I leave it to our children and grandchildren to supply the answers.

Freeman Dyson, 2007