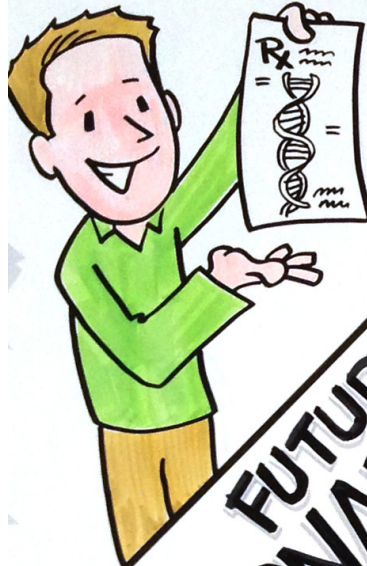


The Ethics of Cosmetic Genomics

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FUTURE OF PERSONALIZED MEDICINE



BETTER EVIDENCE
FOR DIAGNOSTICS
AND THERAPIES



NEED MORE
AGILE
REGULATORY SYSTEM

GENETIC COUNSEL
+
DECISION SUPPORT
+
GENETIC LITERACY

TRANSLATE RESEARCH...

...EMPOWER PATIENTS!

TAKE CARE OF
YOUR OWN HEALTH!



TEST BEFORE YOU
TREAT



GET TO THE
RIGHT DRUG

~~1~~ ~~2~~ 3
THE FIRST TIME!

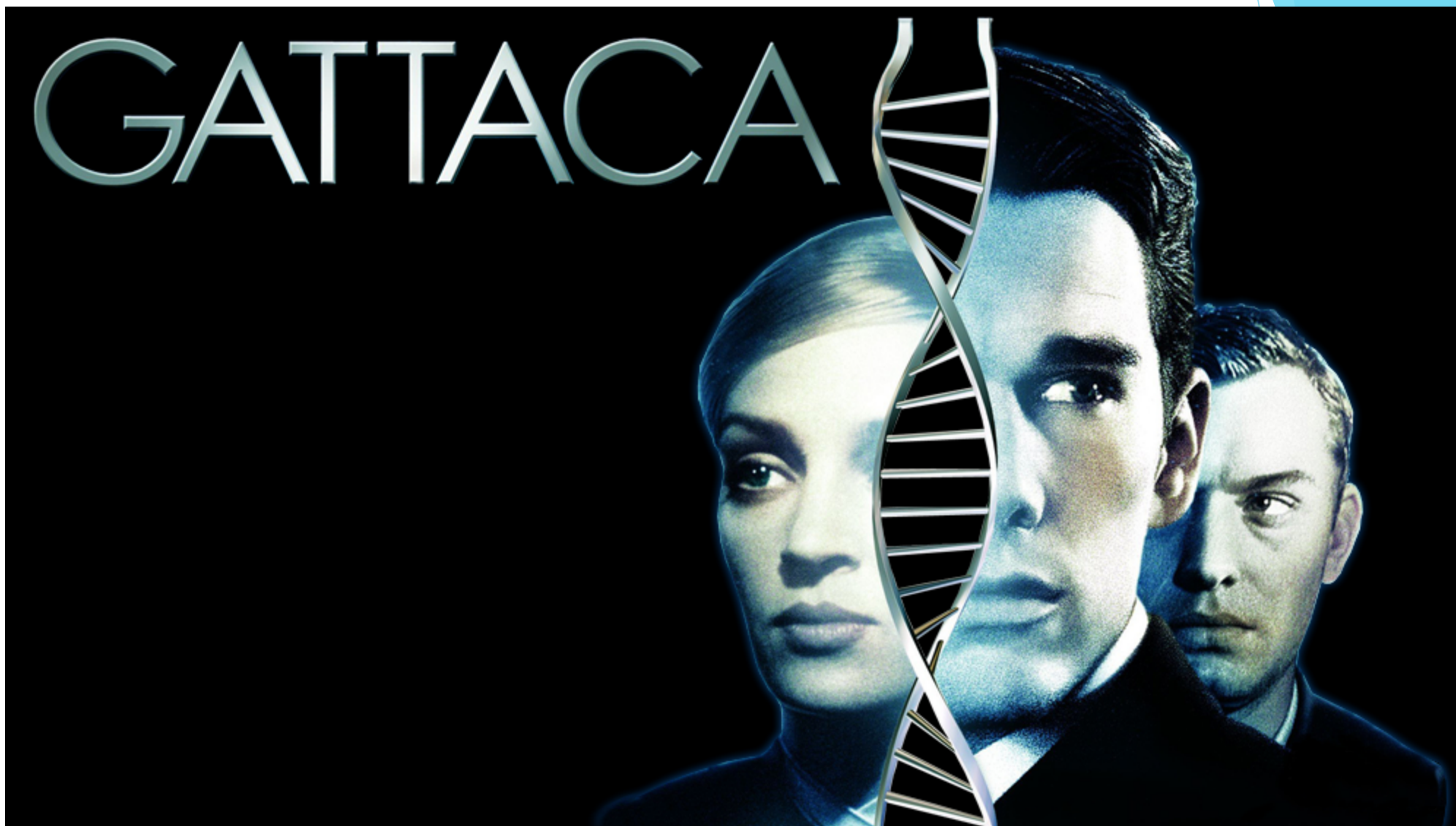
GIANT LEAPS IN
MEDICINE
ARE JUST AROUND
THE CORNER!

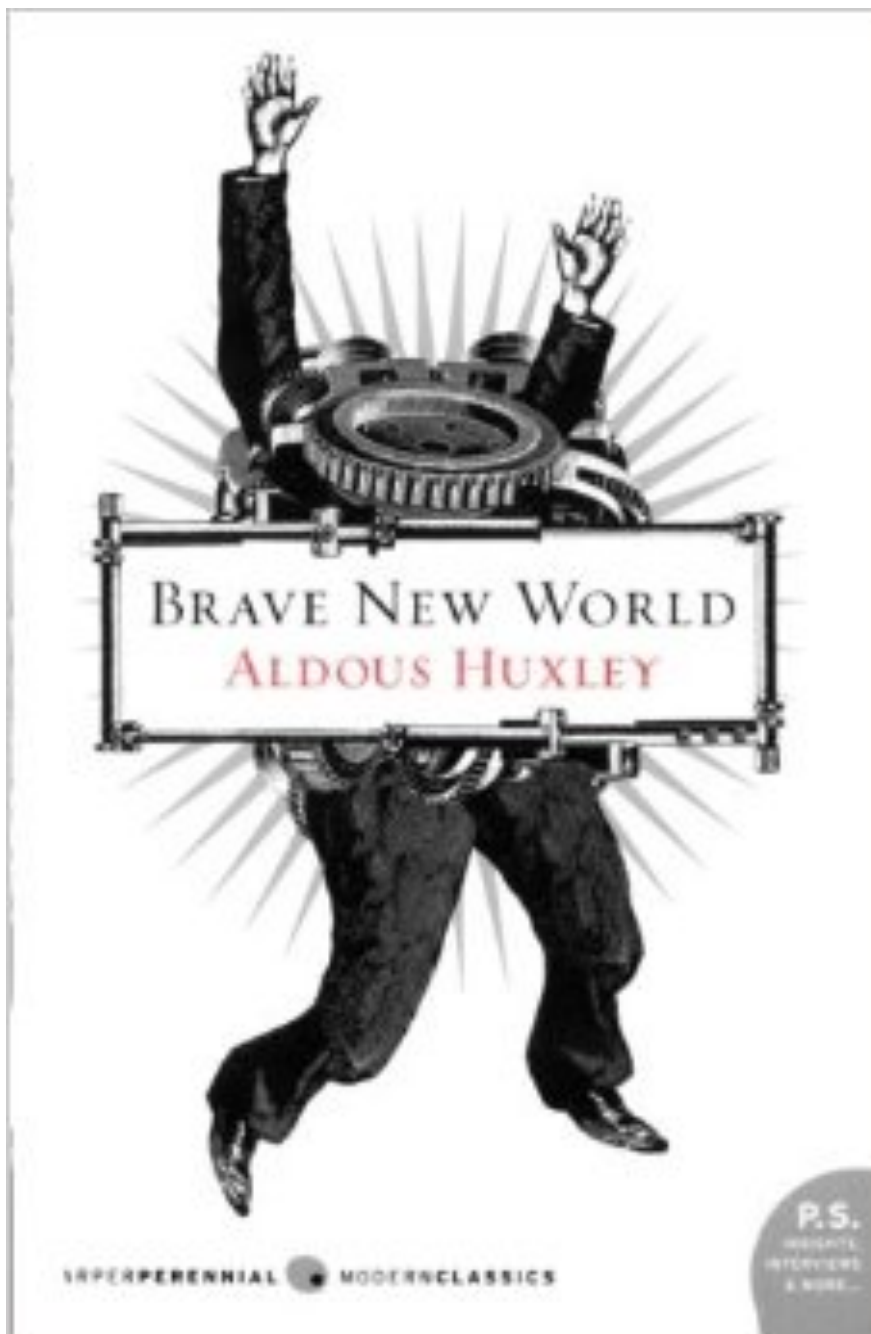
ALL
OF THE DATA
FROM THE INTERNET
CAN BE STORED IN DNA
IN A SMALL TEST TUBE.

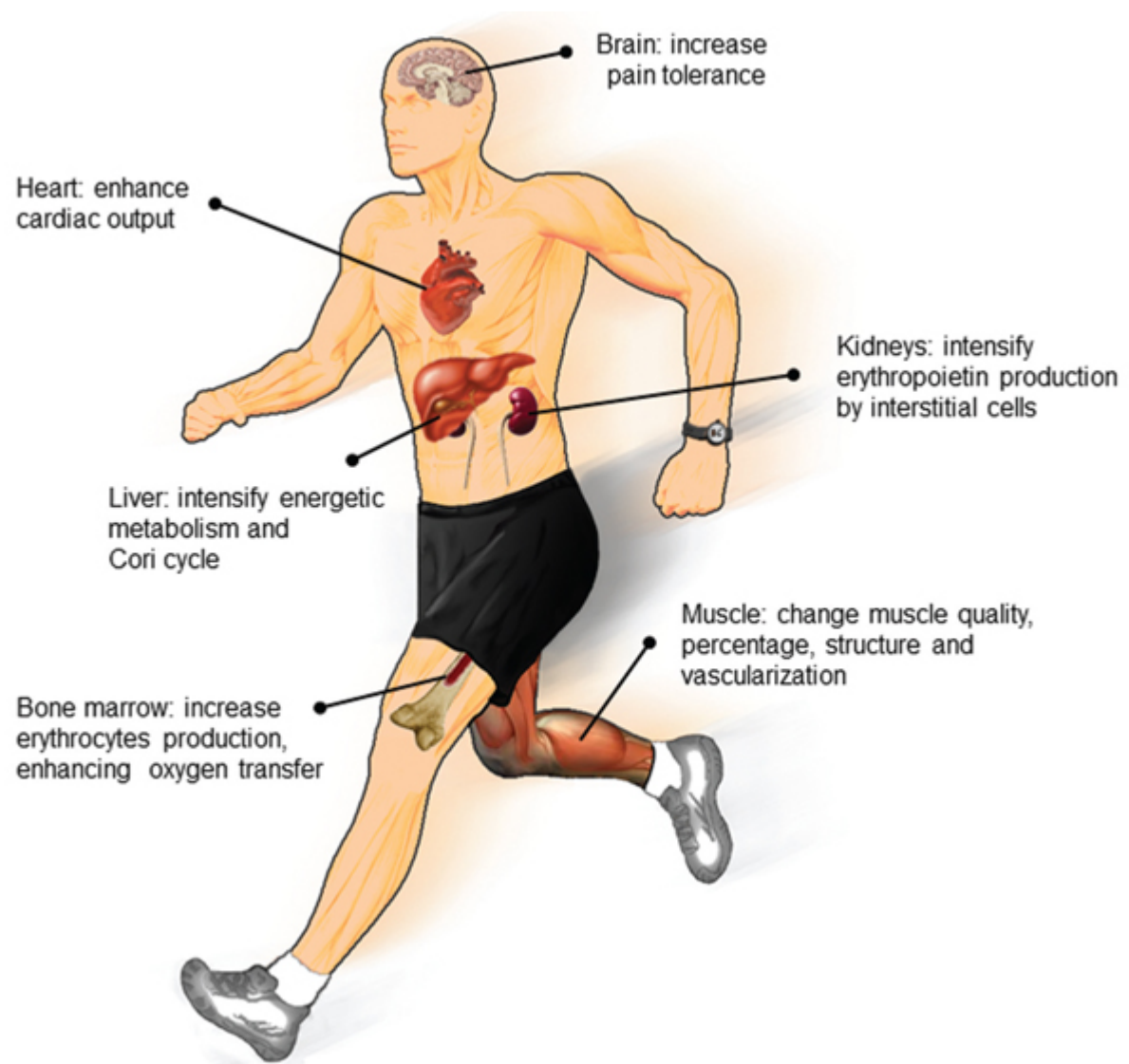
“The moral quandary arises when people use such therapy not to cure a disease but to reach beyond health, to enhance their physical or cognitive capacities, to lift themselves above the norm.”

Michael J. Sandel







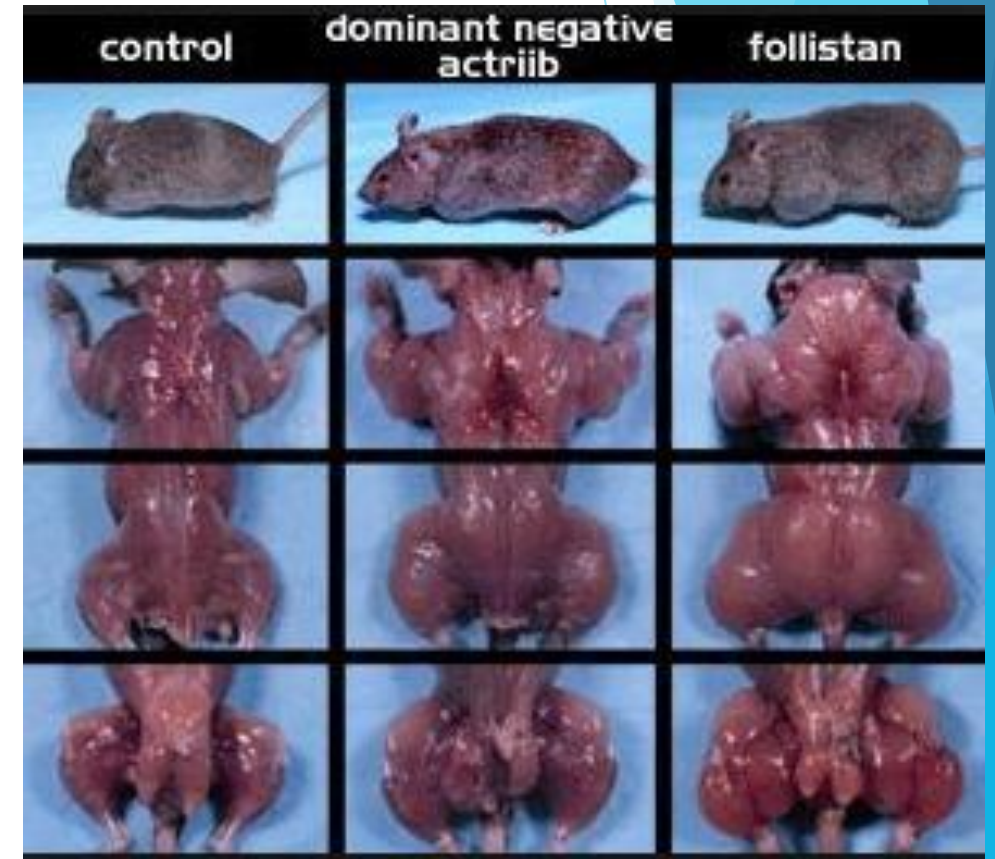


Major Concerns

- ▶ The undermining of the principle of social equality
 - ▶ The problem of creating an unfair advantage that would be enjoyed by enhanced individuals
 - ▶ Economic inequality
- ▶ Hubris
 - ▶ Unintended consequences
- ▶ Eugenics

Current Issues: Muscles

- ▶ synthetic gene that, when injected into the muscle cells of mice, prevents and even reverses natural muscle deterioration
 - ▶ H. Lee Sweeney, University of Pennsylvania
 - ▶ Muscular dystrophy, muscle loss with aging
- ▶ Genetically enhanced athletes
 - ▶ Ethical?
 - ▶ Some athletes have *always* had genetic advantages



Current Issues: Memory

- ▶ “cognition enhancers”
- ▶ Alzheimer’s vs. natural aging vs. students cramming for finals*
- ▶ Creates two classes: those with access to enhancers and those who have to make do



*Don't lie you would do this

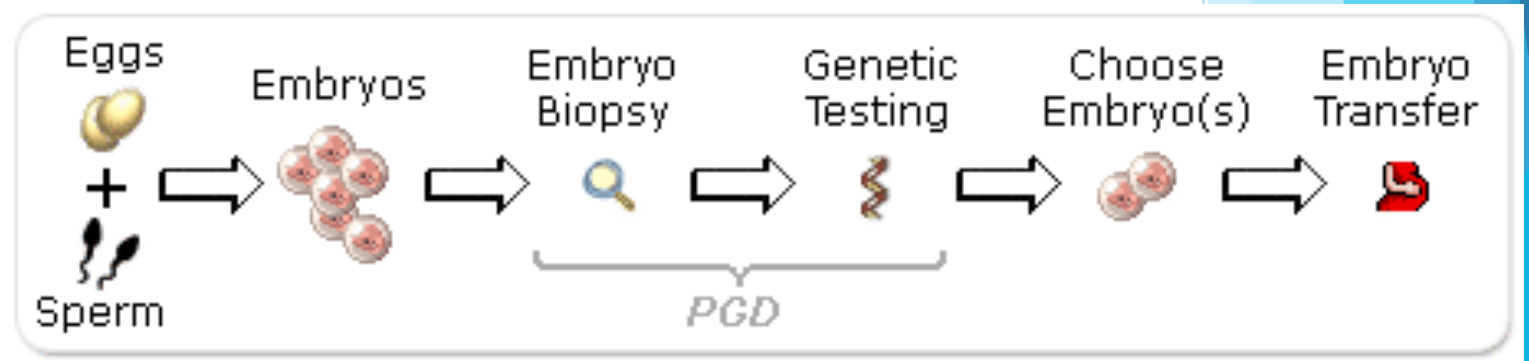
Current Issues: Height

- ▶ Human growth hormone
 - ▶ Used to treat hormone deficiency
 - ▶ Now approved for children in the bottom percentile
- ▶ Where do you draw the line?



Current Issues: Sex Selection

- ▶ Prenatal tests developed to test for abnormalities
 - ▶ X-linked disorders
- ▶ Pre-implantation
 - ▶ Sperm sorting
 - ▶ Microsort
 - ▶ IVF w/PGD



The Ultimate Issue: Designer Babies

- ▶ Problems:
 - ▶ Playing God
 - ▶ Destruction of embryos
 - ▶ Commodifies children
 - ▶ Autonomy
- ▶ Parents' right to choose
 - ▶ Where do you draw the line?

Designing Babies



"Congratulations, it's a Versace!"

Poll: Let parents choose a child's traits?



Eugenics

- ▶ If it doesn't involve coercion is it still wrong?
 - ▶ The Repository for Germinal Choice
 - ▶ Robert Graham
 - ▶ California Cryobank





Questions?

References

- ▶ http://www.theatlantic.com/magazine/archive/2004/04/the-case-against-perfection/302927/?single_page=true
- ▶ http://biochem118.stanford.edu/Genome%20Papers/Genomics%20&%20Society%207_11_00.pdf
- ▶ <http://www.genome.gov/10004767>
- ▶ <http://chooseagender.com/methods-of-gender-selection.aspx>
- ▶ <http://biochem118.stanford.edu/Genome%20Papers/When%20Discrimination%20is%20Good.pdf?PID=1051-250&CID=1051-080602A>
- ▶ <http://biochem118.stanford.edu/Ethics/Bioethics%20Agenda.pdf>
- ▶ <http://biochem118.stanford.edu/Ethics/Leon%20Kass.pdf>
- ▶ <http://www.kqed.org/a/forum/R705070900?itemMD5=117f31ebff17a89c514c2057c136ae48>