ACS Webinars™

We will start momentarily at 2pm ET

Download slides after webinar:
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Have Questions?

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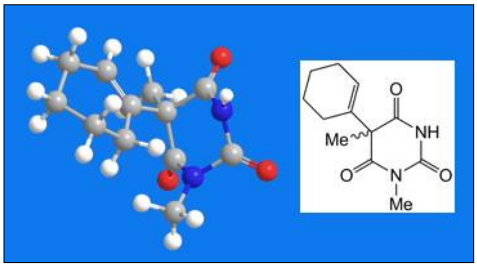
Molecule of the Week



I'm a long-discontinued anesthetic.

What molecule am I?

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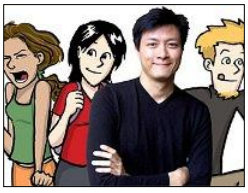
Monday March 26, 2012
Job Searching with Social Media
Joshua Waldman, author and speaker



Tuesday March 27, 2012
Surviving Chemistry with Humor
Jorge Cham, Piled Higher and Deeper

ACS Chemistry for Life®

Mad or Misunderstood?

Madness of King George
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Stay tuned, you could win!

ACS Chemistry for Life®

Please tell us if you want to be considered for the drawing.

Avogadro the Mole baby romper for *your* designer baby!

Size: 6 months

ACS WEBINARS™
March 22, 2012

ACS Chemistry for Life®

Designer Babies

Jeni Smith
FBI

Darren Griffin
University of Kent

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7

What is a “designer baby”?

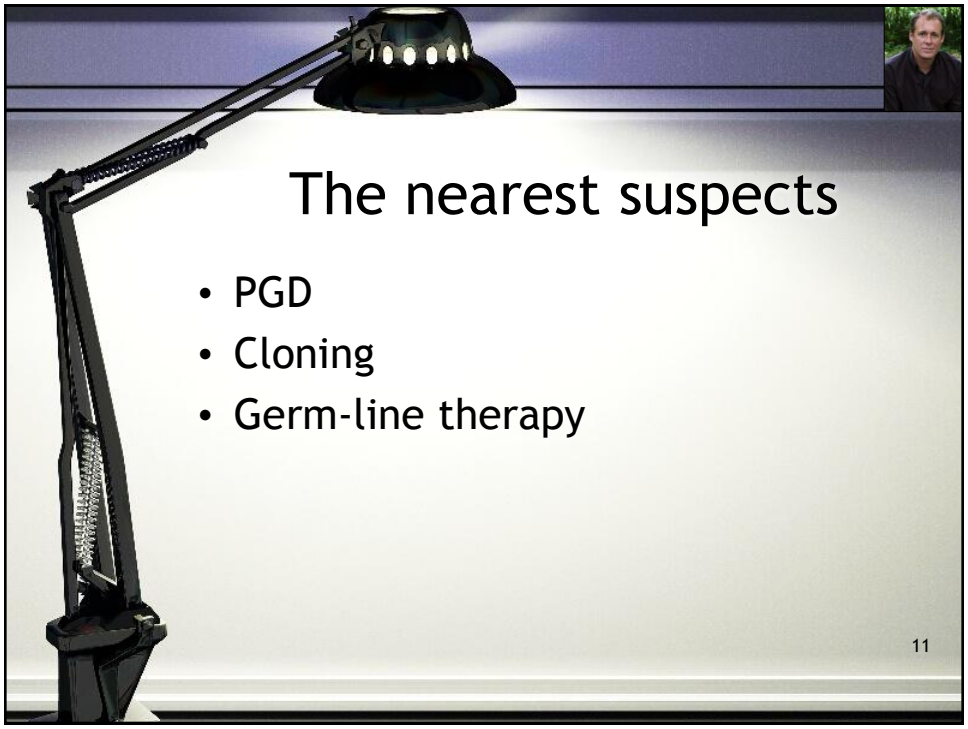
…. a baby which has been designed by its future parents to have all the desirable genetic traits that the parents would wish for presumably to give the resulting child the best possible start and advantages in life …..

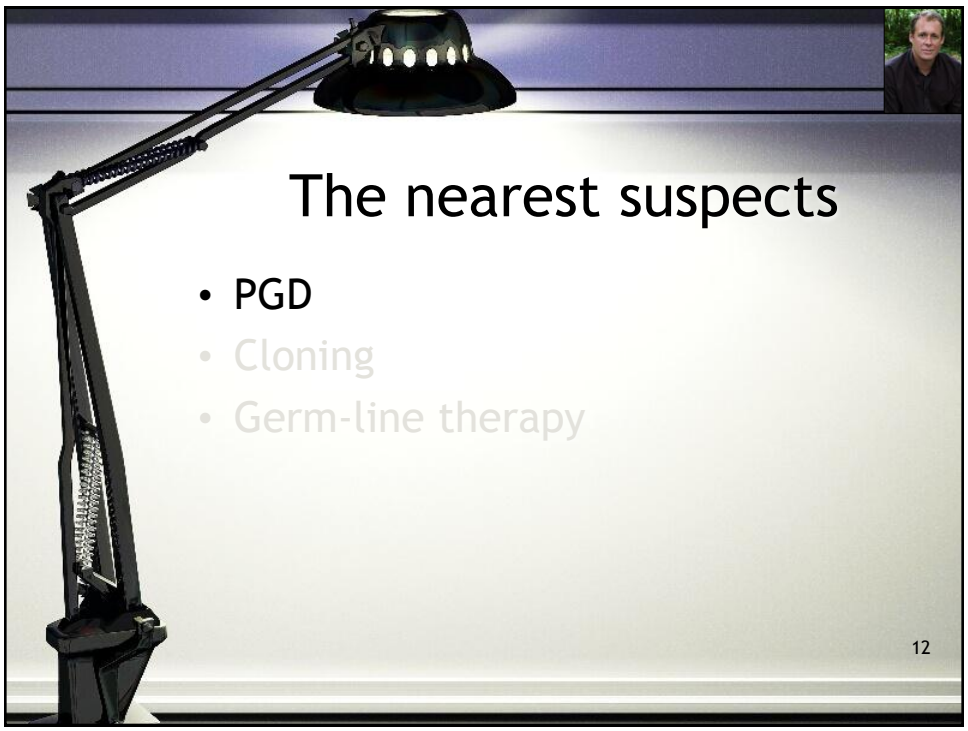
9

Myth number 1

- Designer babies exist

10


The nearest suspects
• PGD
• Cloning
• Germ-line therapy
11


The nearest suspects
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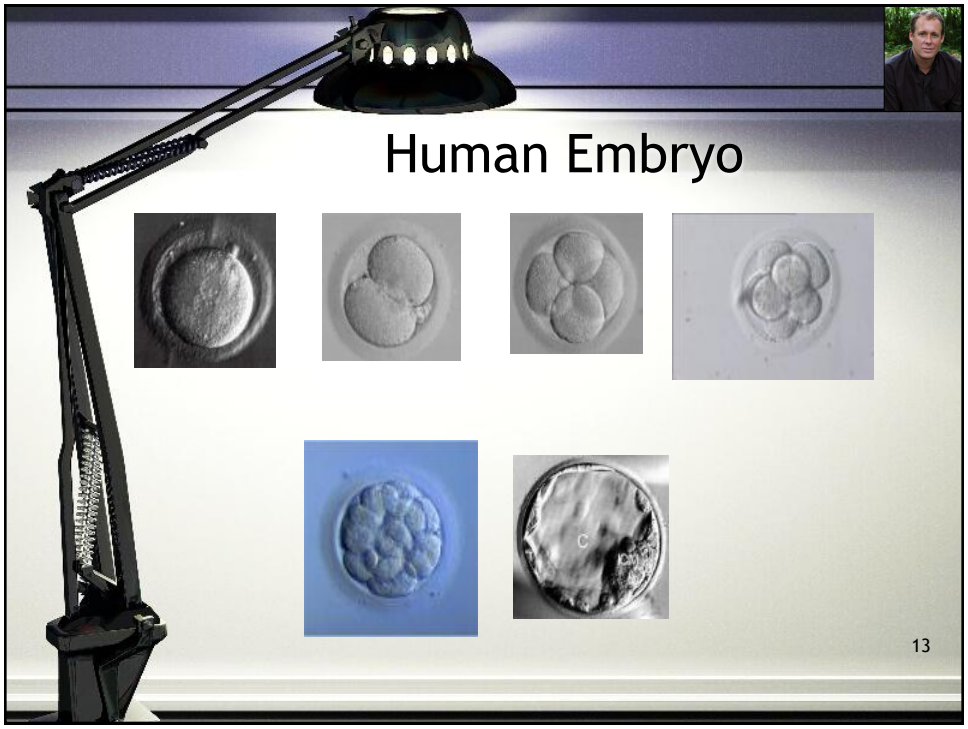
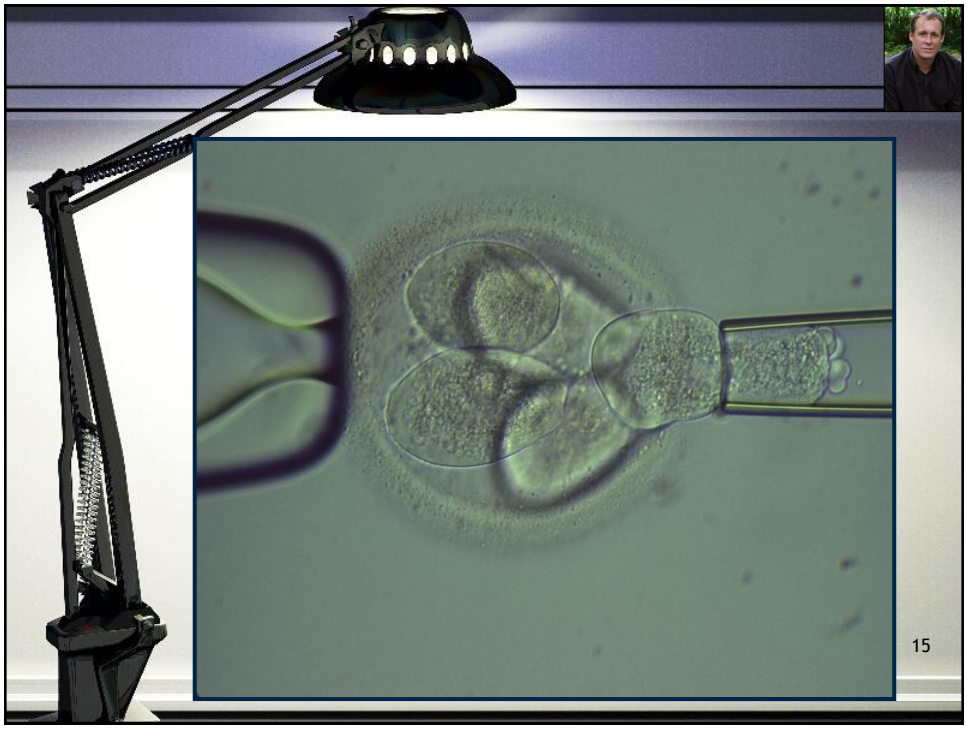
12


Human Embryo
13

14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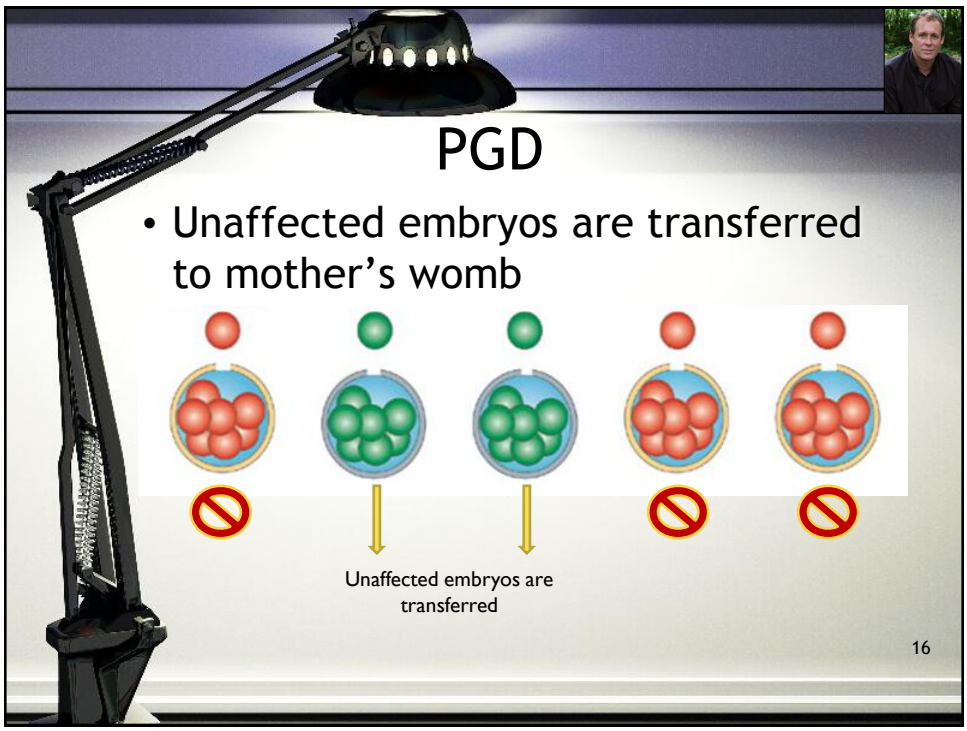
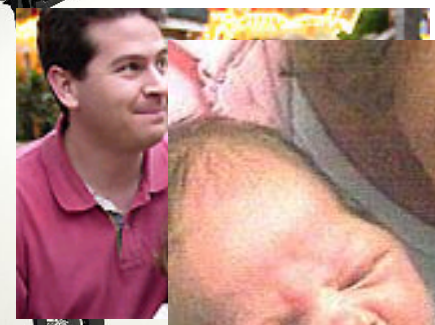

PGD
• Unaffected embryos are transferred to mother's womb
Unaffected embryos are transferred
16

What is PGD used for?

- Life threatening diseases caused by single genes
  - E.g. Cystic fibrosis
  - Duchenne Muscular Dystrophy
- Life threatening diseases caused by extra chromosomes
  - Down syndrome
  - Older mothers
- Recent legislation
  - Saviour siblings

17

"Saviour Siblings"



Jack, Lisa and Molly

s

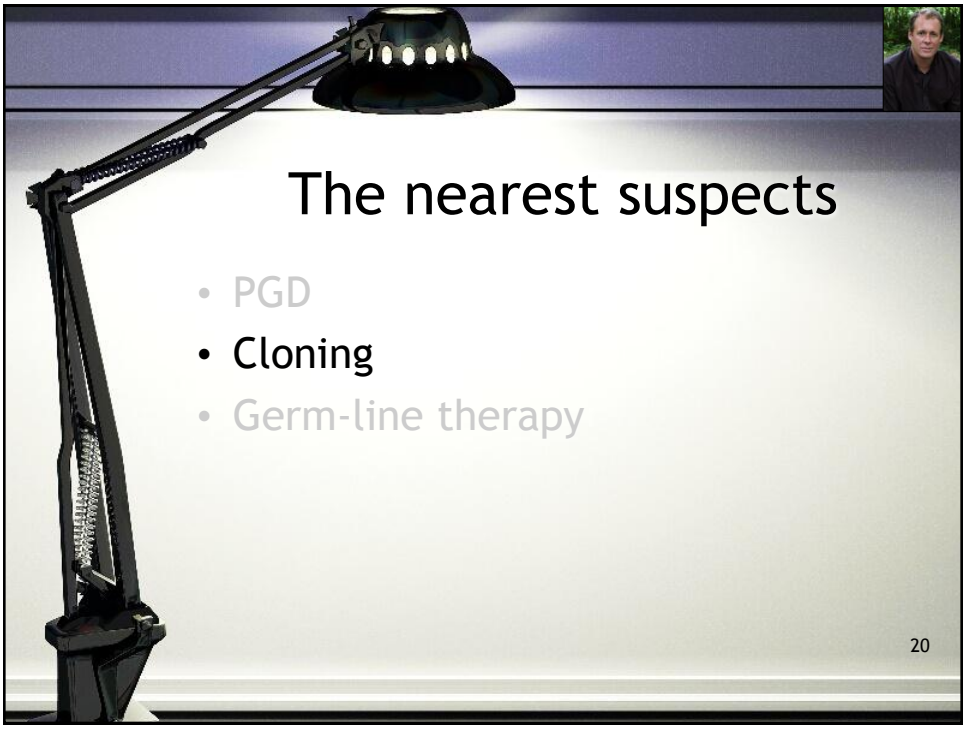
y IVF &
was
s, but
lly.

"
save Molly no matter how."

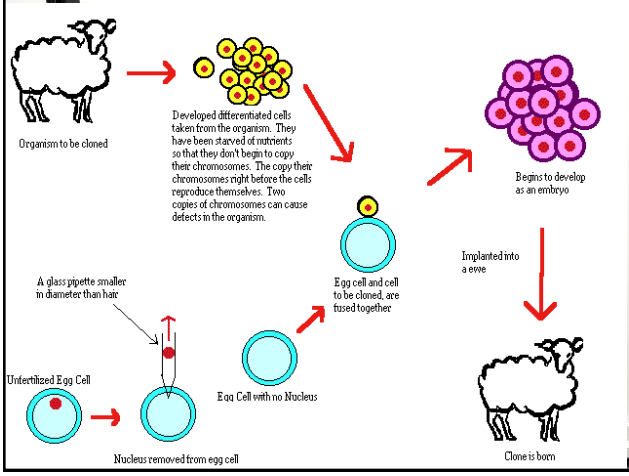
thout
Fanconi's, but who were not matches, were discarded.

18

Ethical Minefield?
When does life begin?
Do embryos have rights?
What is a genetic disease?
Where do we draw the line?
Diseases that develop later in life
Susceptibility to cancer
Selection for deafness/dwarfism
Sex
Saviour siblings
19


The nearest suspects
PGD
Cloning
Germ-line therapy
20

Cloning



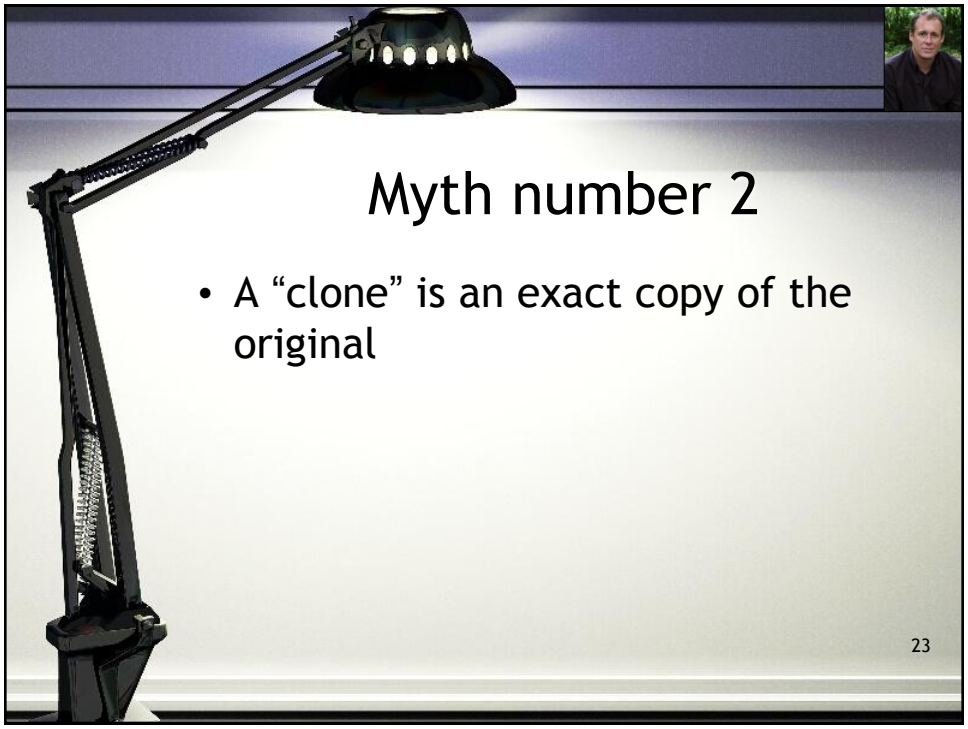
21

Cloning

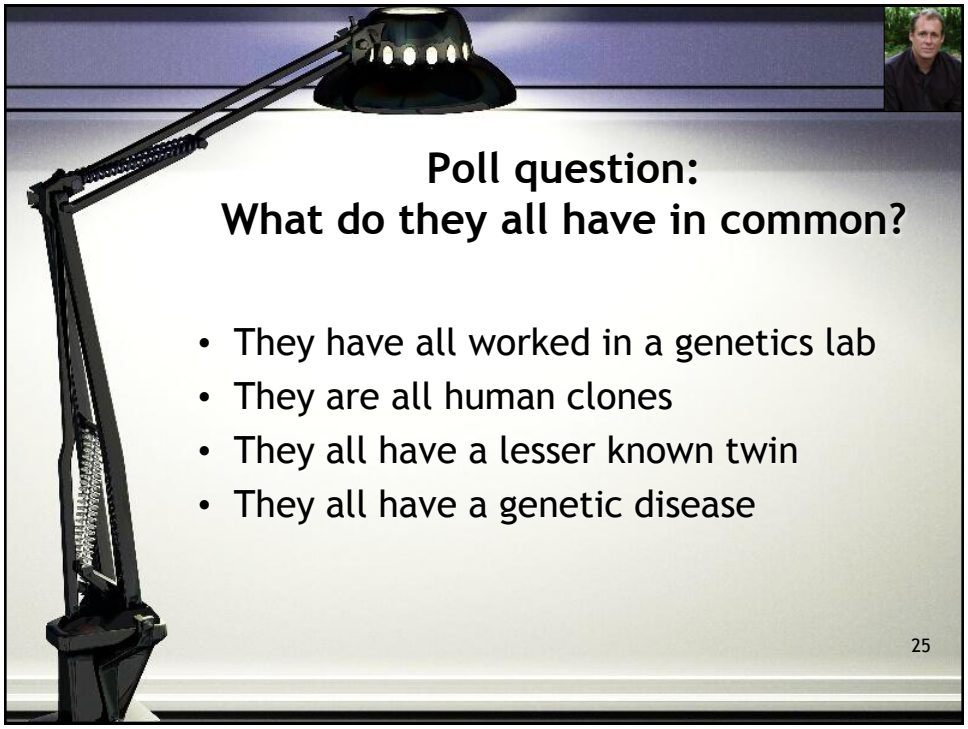
- Why?
  - To “bring back” loved ones?
  - To “bring back” loved pets?
  - To be physically “born again”
  - To “re-create “great” people?”

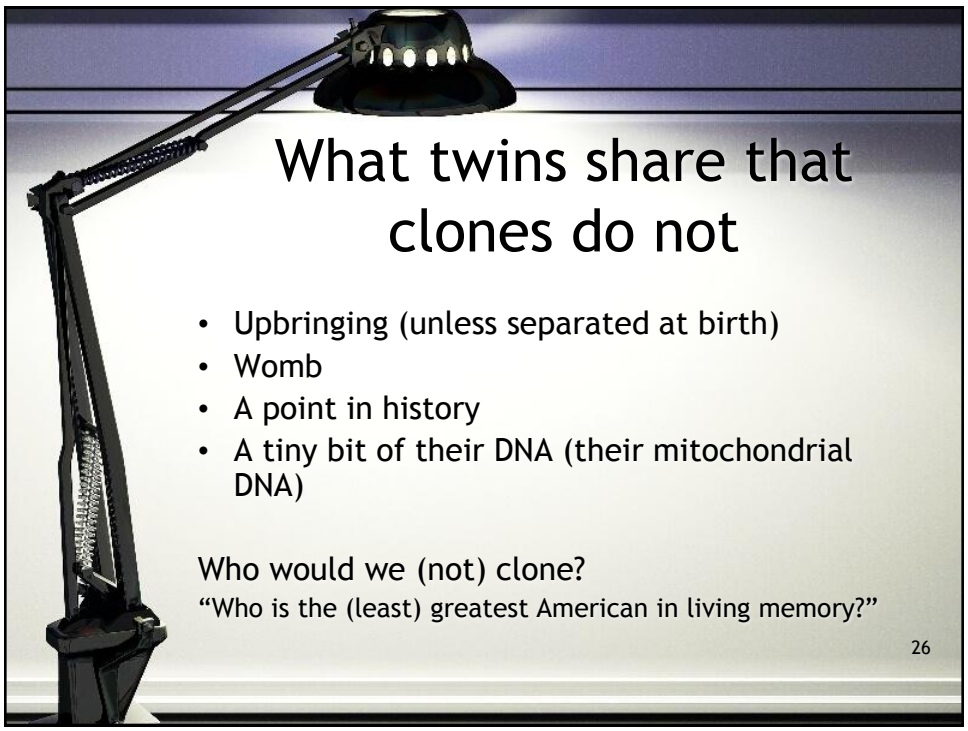
“If we cloned Hitler he might turn out to be quite a nice bloke”

22


Myth number 2
• A “clone” is an exact copy of the original
23

Who’s who?
What do they all have in common?
24

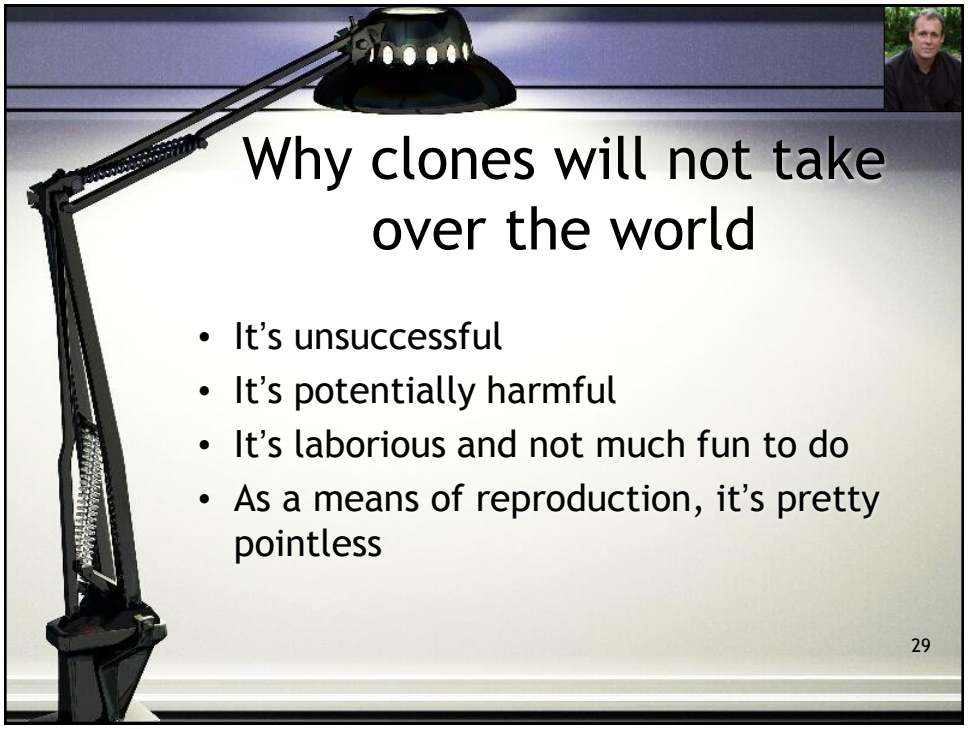

Poll question:
What do they all have in common?
• They have all worked in a genetics lab
• They are all human clones
• They all have a lesser known twin
• They all have a genetic disease
25


What twins share that clones do not
• Upbringing (unless separated at birth)
• Womb
• A point in history
• A tiny bit of their DNA (their mitochondrial DNA)
Who would we (not) clone?
"Who is the (least) greatest American in living memory?"
26

Myth number 3

- Your genetic code defines your destiny
- SMILE!

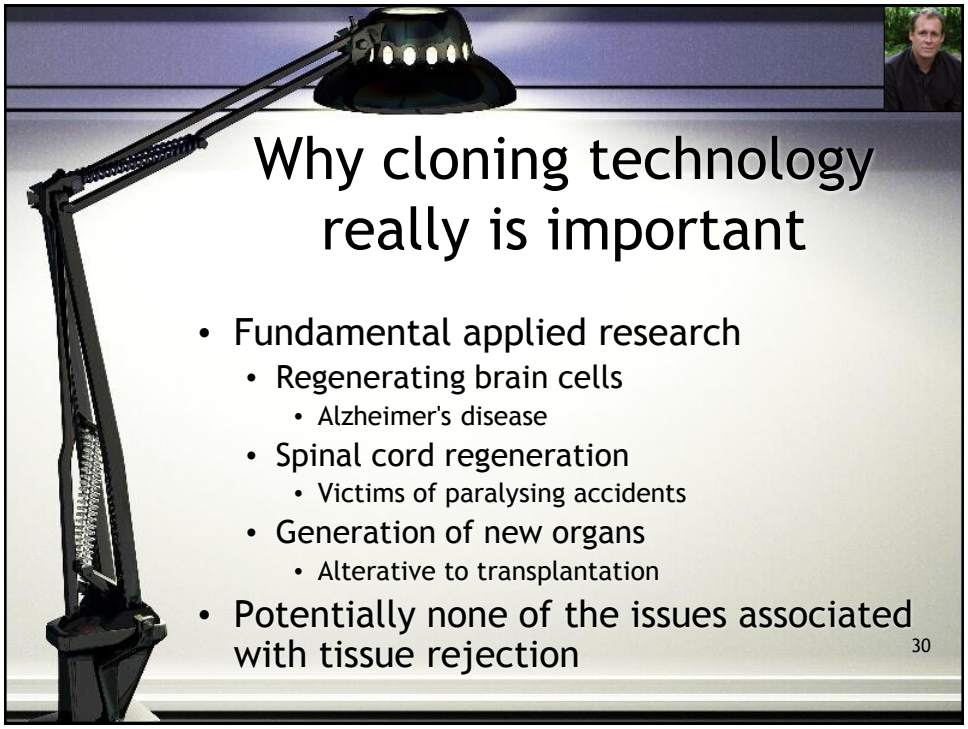
28



Why clones will not take over the world

- It's unsuccessful
- It's potentially harmful
- It's laborious and not much fun to do
- As a means of reproduction, it's pretty pointless

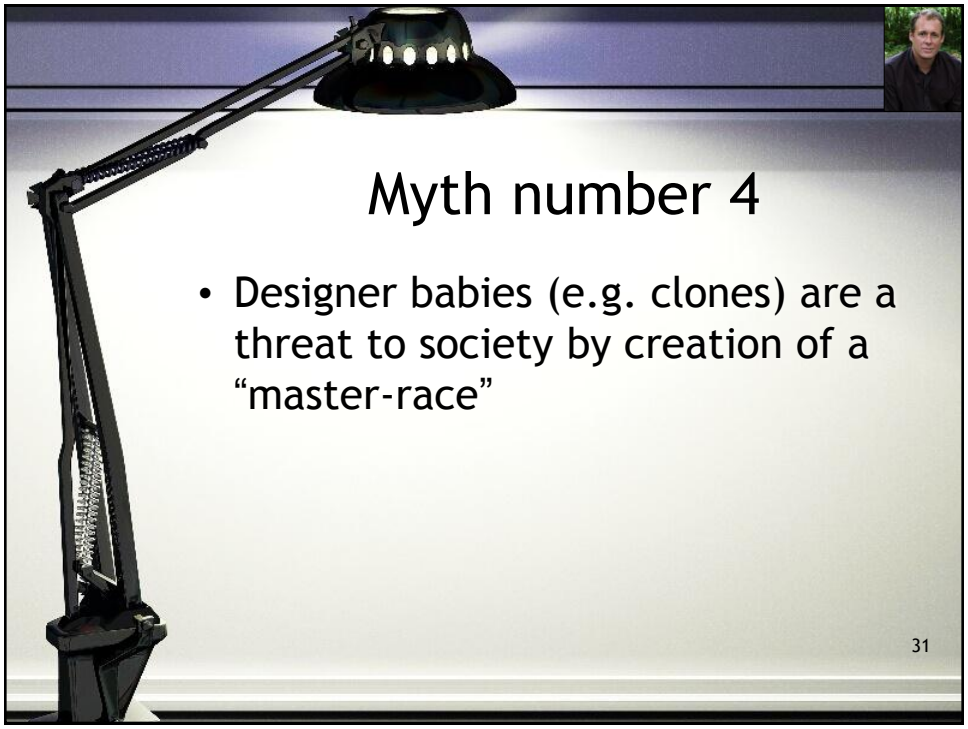
29

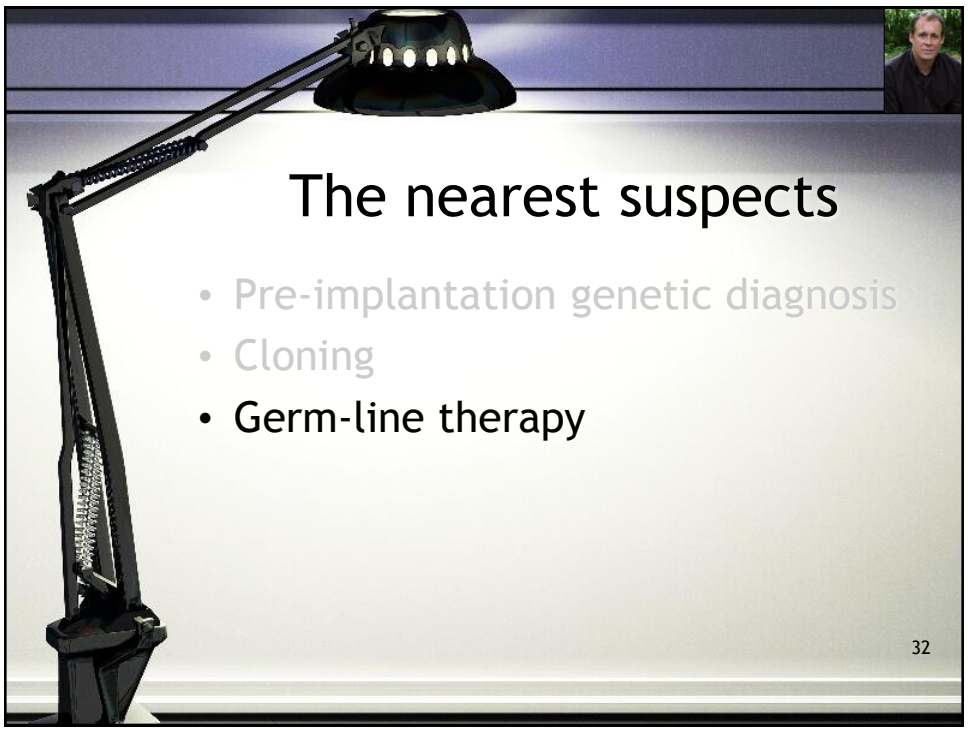


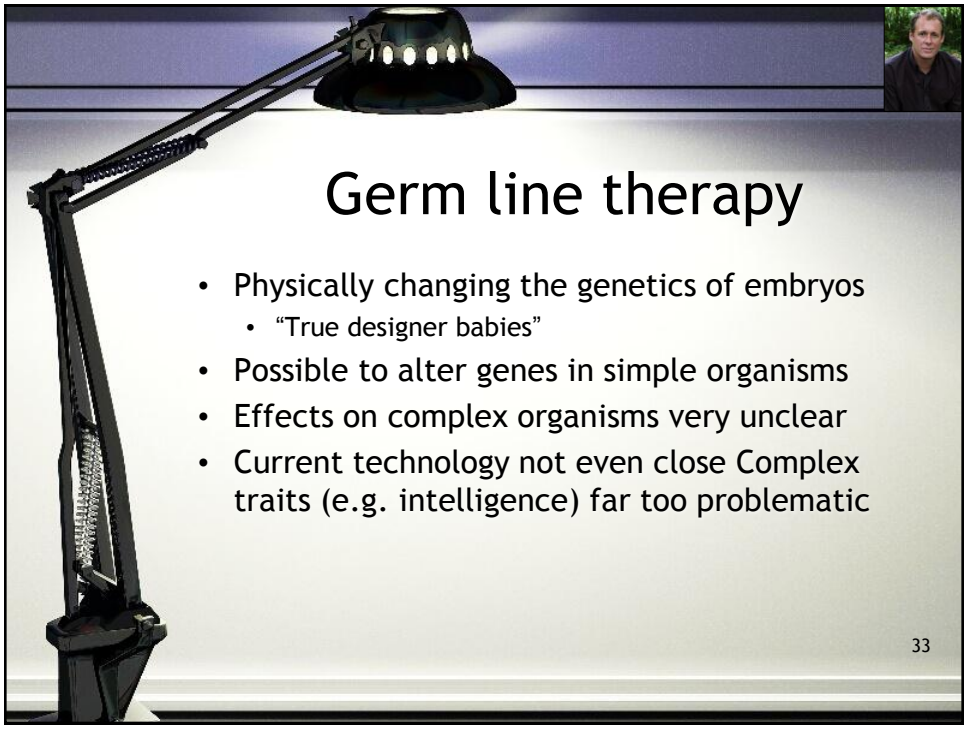
Why cloning technology really is important

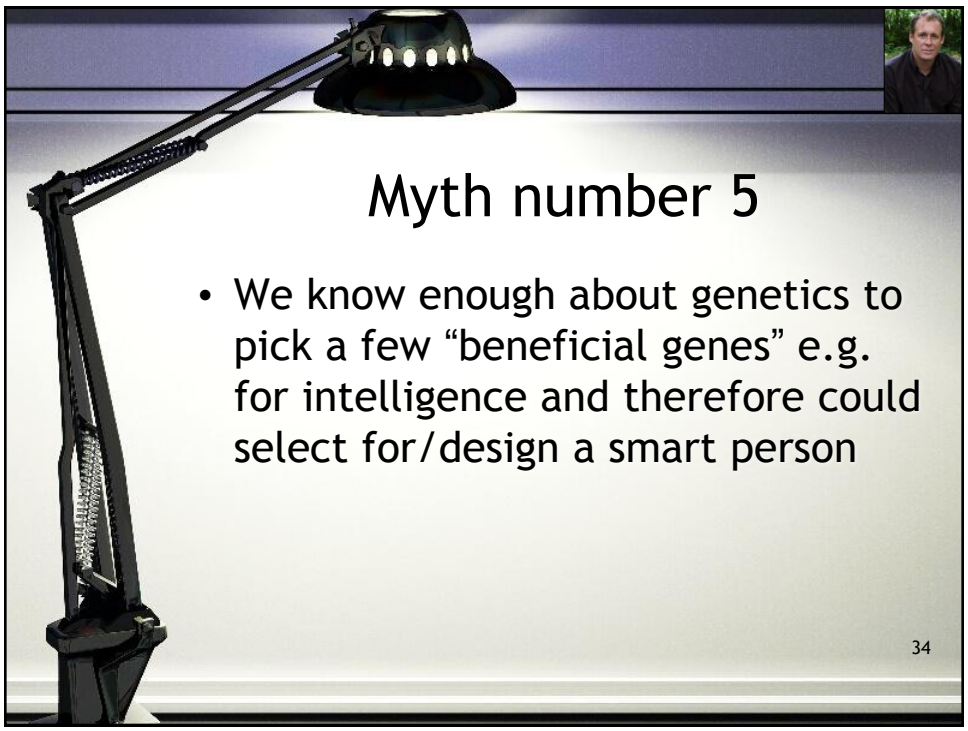
- Fundamental applied research
  - Regenerating brain cells
    - Alzheimer's disease
  - Spinal cord regeneration
    - Victims of paralysing accidents
  - Generation of new organs
    - Alterative to transplantation
- Potentially none of the issues associated with tissue rejection

30

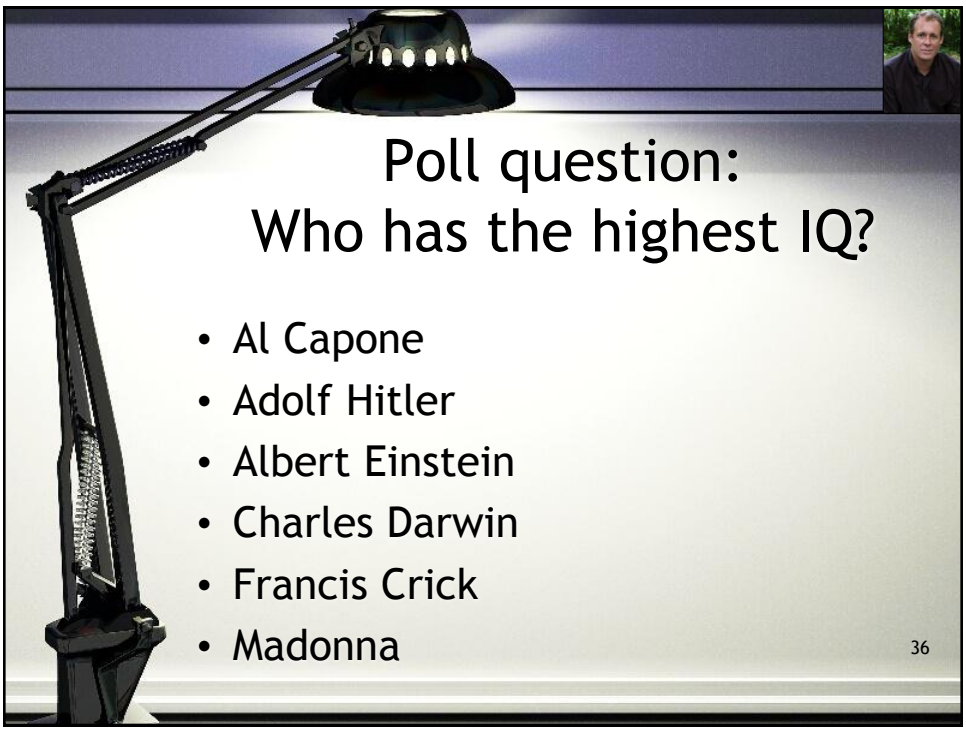

Myth number 4
• Designer babies (e.g. clones) are a threat to society by creation of a "master-race"
31

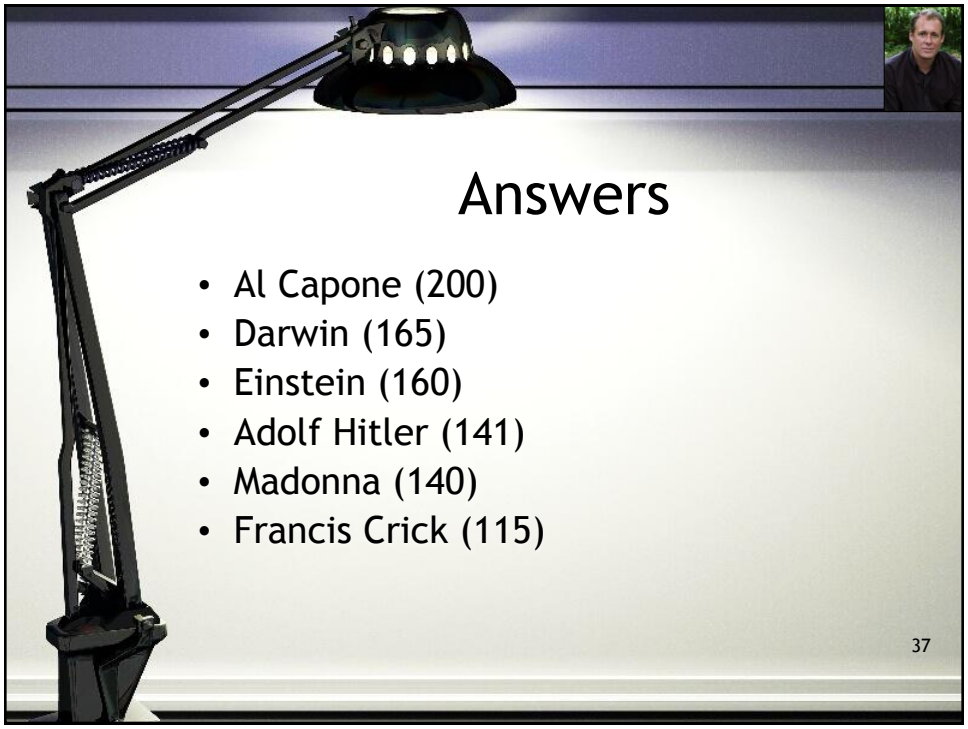

The nearest suspects
• Pre-implantation genetic diagnosis
• Cloning
• Germ-line therapy
32


Germ line therapy
• Physically changing the genetics of embryos
• "True designer babies"
• Possible to alter genes in simple organisms
• Effects on complex organisms very unclear
• Current technology not even close Complex traits (e.g. intelligence) far too problematic
33


Myth number 5
• We know enough about genetics to pick a few "beneficial genes" e.g. for intelligence and therefore could select for/design a smart person
34

Who's who?
Who has the highest IQ?


Poll question:
Who has the highest IQ?
• Al Capone
• Adolf Hitler
• Albert Einstein
• Charles Darwin
• Francis Crick
• Madonna
36


Answers
• Al Capone (200)
• Darwin (165)
• Einstein (160)
• Adolf Hitler (141)
• Madonna (140)
• Francis Crick (115)
37

The best way to design a baby
• Choose a compatible partner with whom you want to spend the rest of your life
• Have children the normal way
• Feed them healthily
• Breast feeding then fresh ingredients, avoid junk/processed food
• Provide ample love, attention, opportunity, education, exercise, laughter
• Hope for the best
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March 22, 2012

ACS Chemistry for Life®

Designer Babies

Jeni Smith
FBI

Darren Griffin
University of Kent

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Avogadro the Mole baby romper for *your* designer baby!

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Thursday April 26, 2012 | 2-3 pm EST

Madness of King George

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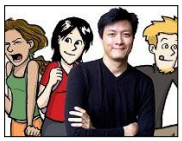
Job Searching with Social Media
Joshua Waldman, author and speaker



Tuesday March 27, 2012
Surviving Chemistry with Humor
Jorge Cham, Piled Higher and Deeper

Tuesday March 27, 2012
Eminent Scientist Lecture
Kimberly Prather, University of California, San Diego

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Winner!

Congratulations!

Rob Holcomb

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