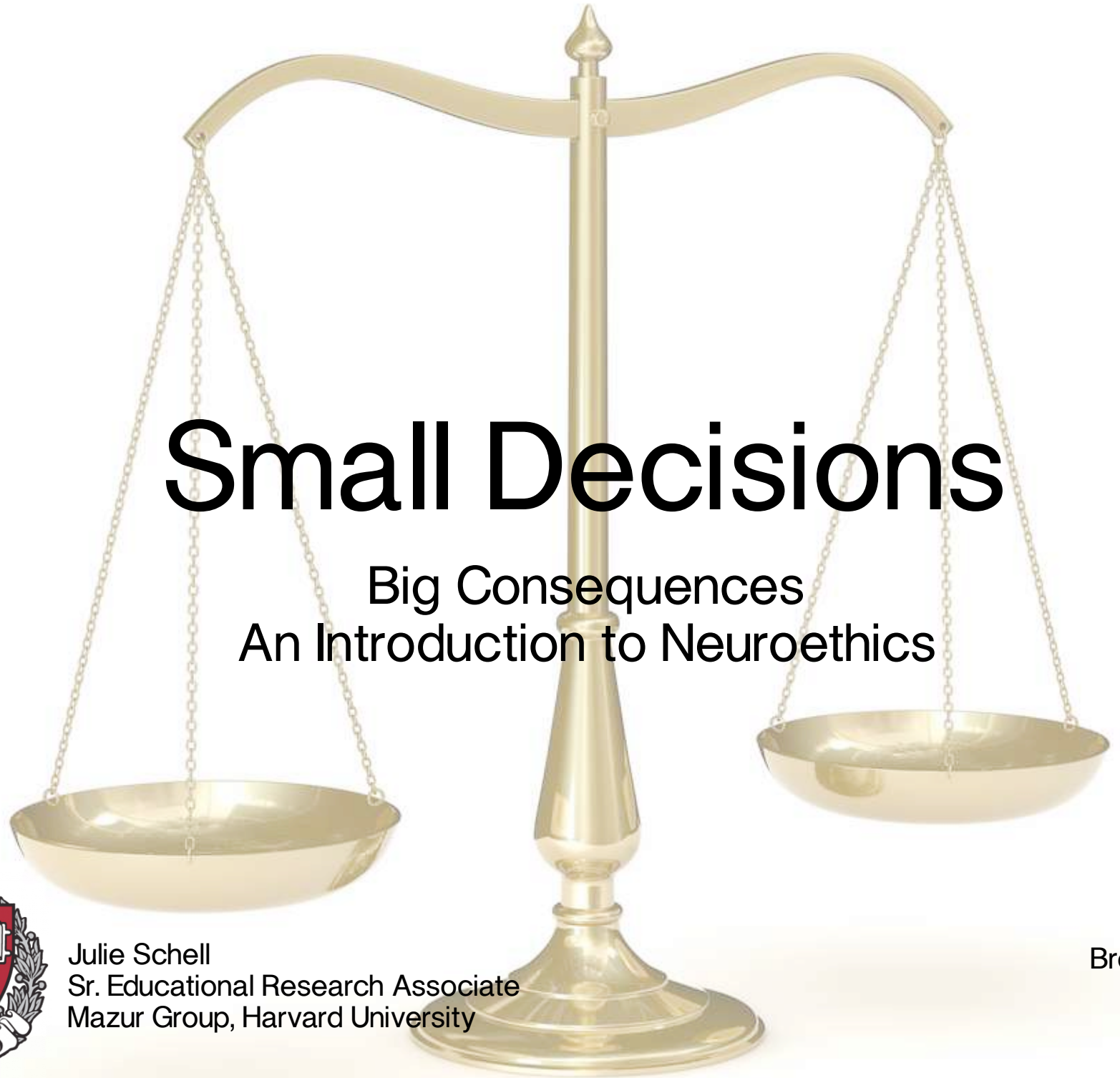
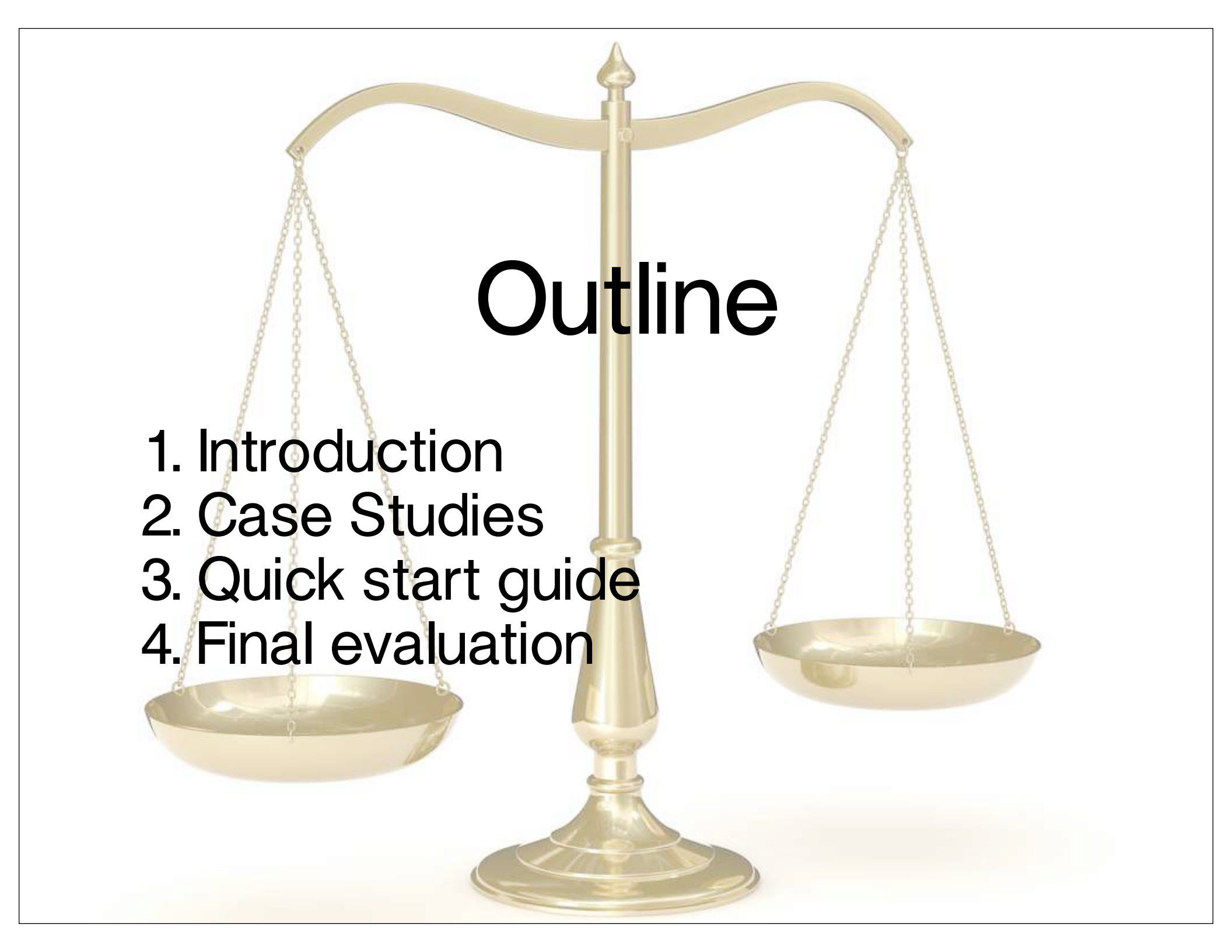


Small Decisions

Big Consequences
An Introduction to Neuroethics

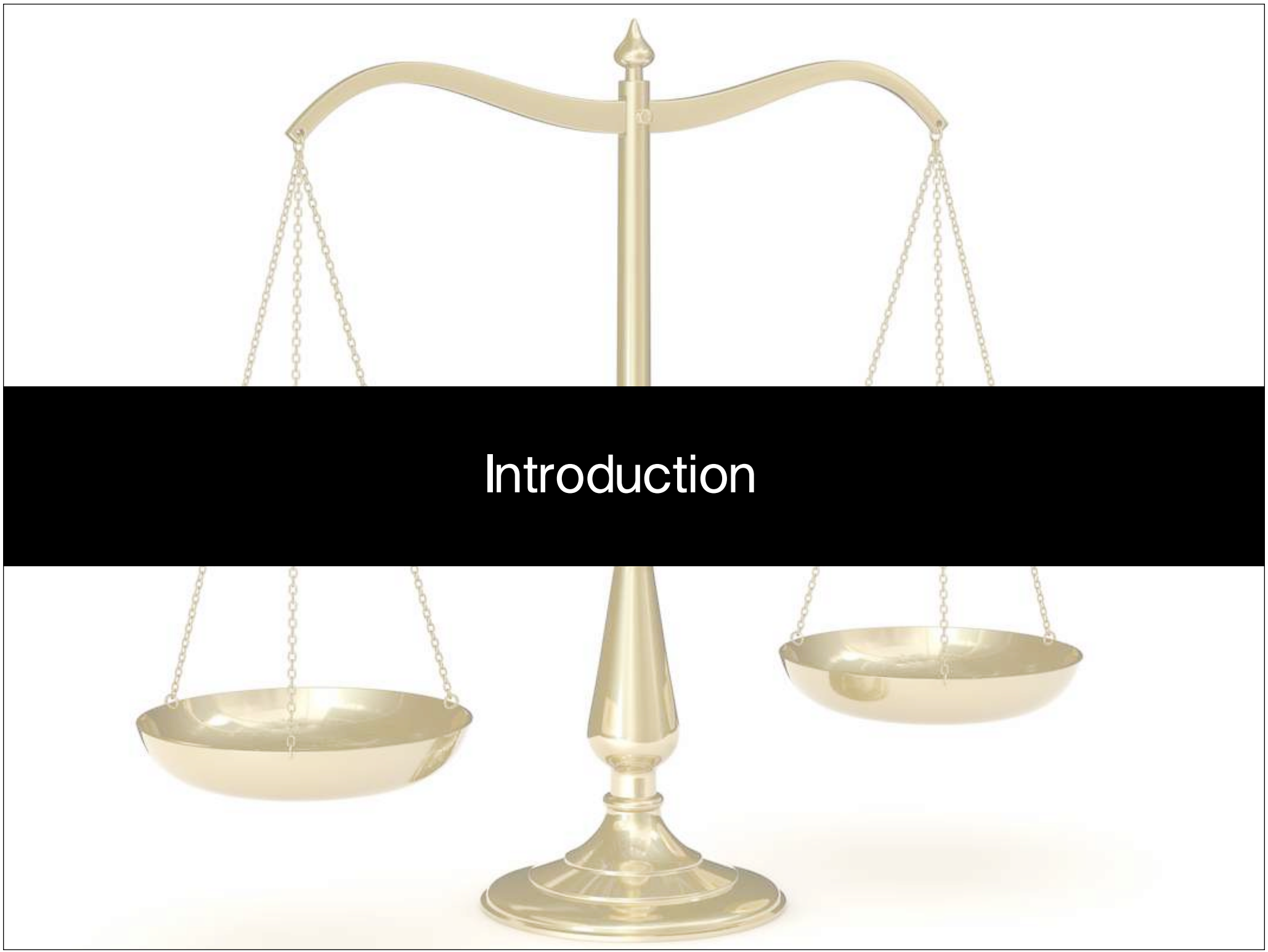
Julie Schell
Sr. Educational Research Associate
Mazur Group, Harvard University

Brooklyn College
Brooklyn, NY
March 6, 2013



Outline

1. Introduction
2. Case Studies
3. Quick start guide
4. Final evaluation



Introduction

Why is this dude smiling?

Who is he, anyway?

Dr. Hwang Woo Suk

Successfully cloned a dog

Successfully cloned a dog

"Snuppy"

Most famous for making STEM cells from 11 cloned embryos

REPORT

Patient-Specific Embryonic Stem Cells Derived from Human SCNT Blastocysts

Woo Suk Hwang[1,2,*], Sung Il Roh[3], Byeong Chun Lee[1], Sung Keun Kang[1], Dae Kee Kwon[1], Sue Kim[1], Sun Jong Kim[3], Sun Woo Park[1], Hee Sun Kwon[1], Chang Kyu Lee[2], Jung Bok Lee[3], Jin Mee Kim[3], Curie Ahn[4], Sun Ha Paek[4], Sang Sik Chang[5], Jung Jin Koo[5], Hyun Soo Yoon[6], Jung Hye Hwang[6], Youn Young Hwang[6], Ye Soo Park[6], Sun Kyung Oh[4], Hee Sun Kim[4], Jong Hyuk Park[7], Shin Yong Moon[4], Gerald Schatten[7,*]

± Author Affiliations

[*] To whom correspondence should be addressed. E-mail: hwangws@snu.ac.kr (W.S.H.); gschatten@pdc.magee.edu (G.S.)

ABSTRACT

Patient-specific, immune-matched human embryonic stem cells (hESCs) are anticipated to be of great biomedical importance for studies of disease and development and to advance clinical deliberations regarding stem cell transplantation. Eleven hESC lines were established by somatic cell nuclear transfer (SCNT) of skin cells from patients with disease or injury into donated oocytes. These lines, nuclear transfer (NT)-hESCs, grown on human feeders from the same NT d… genetically unrelated individuals, were established at high rates, regardless of… NT-hESCs were pluripotent, chromosomally normal, and matched … histocompatibility complex identity of each NT-hESC wh… immunological compatibility, which is importa… these NT-hESCs, evaluations of gene… remains to be done regardi… elimination of r… evide…

1 problem

REPORT

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At least 9 of 11 were fabricated.

Science 16 December 2005:
Vol. 310 no. 5755 pp. 1748–1749
DOI: 10.1126/science.310.5755.1748

NEWS OF THE WEEK

STEM CELLS

Korean University Will Investigate Cloning Paper

Dennis Normile, Gretchen Vogel*

With reporting by Sei Chong, Ji-soo Kim, and Richard Stone. Chong and Kim are freelance writers in Seoul.

SEOUL AND TOKYO–– Embattled Korean stem cell scientist **Woo** Suk **Hwang** and his university have bowed to pressure for an investigation into a growing list of questions about a landmark paper he and colleagues published online in *Science* on 19 May 2005. (Read more.)

The editors suggest the following Related Resources on Science sites:

NEWS OF THE WEEK
STEM CELLS
Cloning Researcher Says Work Is Flawed but Claims Results Stand
Dennis Normile, Gretchen Vogel, and Constance Holden

At least 9 of 11 were fabricated.

Science 13 January 2006:
Vol. 311 no. 5758 pp. 156–157
DOI: 10.1126/science.311.5758.156

NEWS OF THE WEEK

CLONING

South Korean Team's Remaining Human Stem Cell Claim Demolished

Dennis Normile, Gretchen Vogel, Jennifer Couzin*

With reporting by Sei Chong in Seoul.

In an announcement that researchers worldwide both expected and feared, **Woo** Suk **Hwang**'s last remaining claim to have advanced the promising field of human embryonic stem cells has been declared fraudulent. (Read more.)

Read the Full Text

NY TIMES

Researcher Faked Evidence of Human Cloning, Koreans Report

Published: July 7, 2010

Dr. Hwang Woo Suk, the South Korean researcher who claimed to have cloned human cells, fabricated evidence for all of that research, according to a report released today by a Seoul National University panel investigating his work.

The finding strips any possibility of legitimate achievement in human cell cloning from a researcher who had been propelled to international celebrity and whose promise to make paralyzed people walk had been engraved on a Korean postage stamp.

In his string of splashy papers, his one legitimate claim was to have cloned the dog he named Snuppy, the panel said.

"Dr. Hwang's team cannot avoid taking grave responsibility for fabricating its papers and concealing data," said Chung Myunghee, the head of the university's investigatory panel.

Last month the panel said there was no evidence to support Dr. Hwang's claim of June 2005 to have cloned cells from 11 patients with an efficient new technique using very few human eggs.

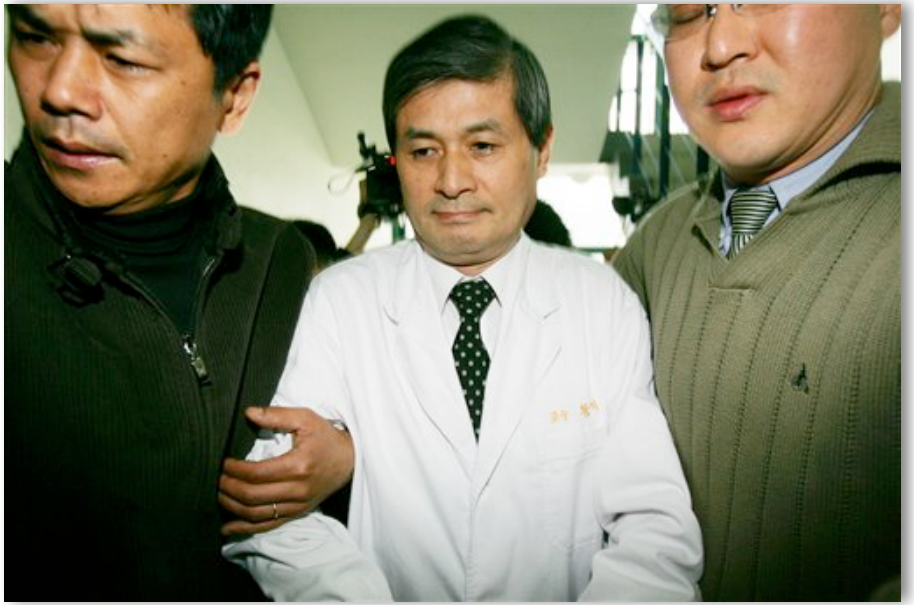
But that still left open the possibility that he had gotten the cloning technique to work to some degree, as he wrote in the report first announcing his success in an earlier article of March 2004. The panel has now found the 2004 article was also fabricated, according to wire service reports.

2 YEARS PRISON
EXPELLED FROM UNIVERSITY
BARRED FROM RESEARCH
PAPERS RETRACTED

His poor judgement hurt many careers...

Big question....

How do you prevent this from happening to you?



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3 Basic Principles to Guide Human Subjects Research

1 Respect for persons
2 Beneficence
3 Justice

Principle 1: Respect for persons

2 basic ideas:

1. Individuals should be treated as autonomous agents.

2. Persons with diminished autonomy are entitled to additional protections.

Principle 2: Beneficence

2 basic ideas:

1. Do no harm
   -Doing harm is called maleficence

2. Maximize possible benefits and minimize possible harms

Excerpted from http://phrp.nihtraining.com/

Principle 3: Justice

Justice requires fairness in how individuals and groups are treated during research and equity in bearing the burdens and receiving the benefits of the research.

Excerpted from http://phrp.nihtraining.com/

Federal definition of a human subject

A human subject is: a **living** individual about whom an investigator conducting research obtains...

1. Data through intervention or interaction with the individual, or
2. Identifiable private information

Excerpted from http://phrp.nihtraining.com/

Federal definition of death

“A person is dead when physicians determine, by applying prevailing clinical criteria, that cardiorespiratory or brain functions are absent and cannot be retrieved.” (p. 309, Neuroethics).

A person is brain dead “when ‘all functions of the entire brain, including the brain stem’ have irreversibly ceased.” (p. 309, Neuroethics).

CASE STUDIES

CASE STUDY A

since 2006: You are an undergraduate student at Florida State and you have done work in Dr. Falk's group there for 3 years, looking at what different brain structures can tell us about people

summer 2009: you do a summer in Dr. Schell's lab at Harvard on drugs that effect brain structure

fall 2009: Schell asks you to prepare a research paper on a new drug you have tested

Eric, a postdoc in Dr. Falk's group, want's to be a co-author because:

-he trained you in basic research methods that you used at Harvard
-you wrote the paper while you were at Harvard, not at Florida

CASE STUDY A

Just before submitting the paper where you are first author, Dr. Schell calls you to let you know that she is submitting an invention disclosure and that a pharmaceutical company has already agreed to provide Harvard a 2M yearly listing fee for the new drug. You and *all* the paper's authors will share Harvard's "inventor share" of $600K.

CASE STUDY A

The correct approach to issues of authorship:

- determine if your lab or the journal has an authorship requirements, if not, use ours (next slide)
- discuss the contents of the paper and authorship with all parties involved before beginning to write the paper, agree who will be responsible for each part
- ensure every author satisfies all authorship requirements
- include a paragraph at the end of the paper detailing author contributions AND acknowledgements for important non authors

CASE STUDY A

My lab's authorship requirements:

Each author must be willing to take full, public responsibility for the content of the paper and have made substantial contributions to:

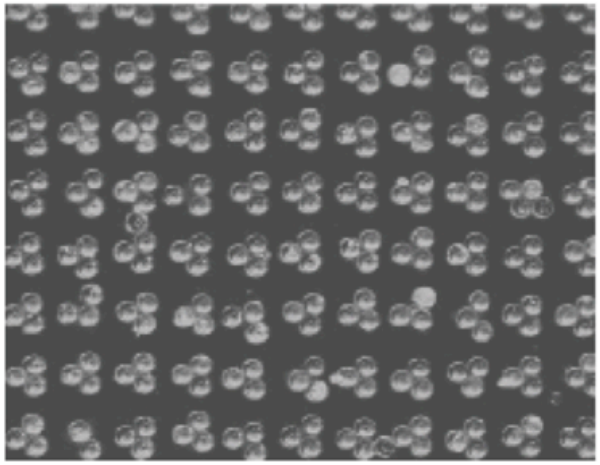
- either the conception and design or the analysis and interpretation of the data
- drafting the article or revising it critically for important intellectual content
- final approval of the version to be published

CASE STUDY B

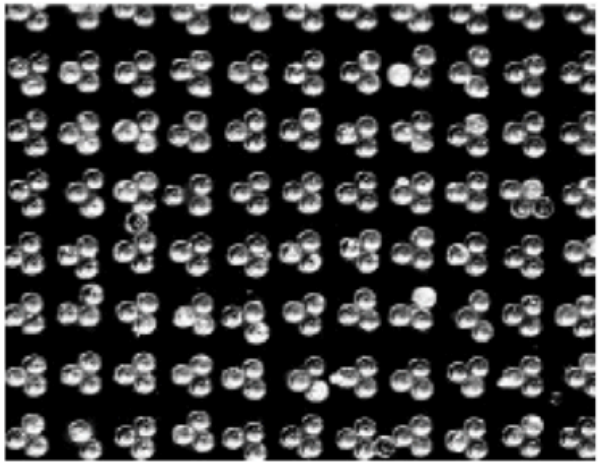
Dr. Schell asks you to take some images of cells in the brain of fish that have been effected by mercury. You find small mercury deposits and pull them out on a slide. You show them to Dr. Schell and she asks you to prepare an image to present to your group. She is so impressed, she decides to submit the image to the journal Animal Brain.

CASE STUDY B

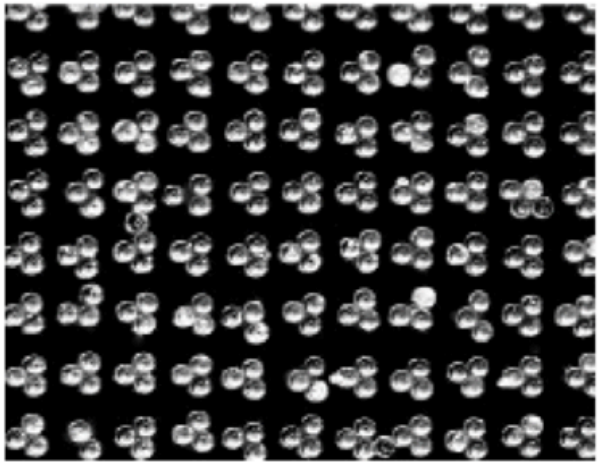
original



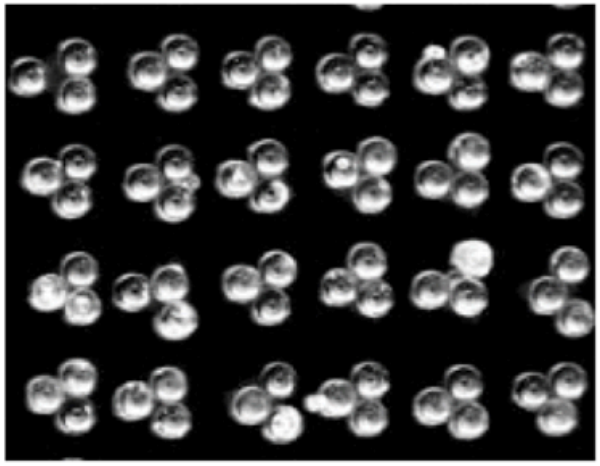
1. adjust contrast



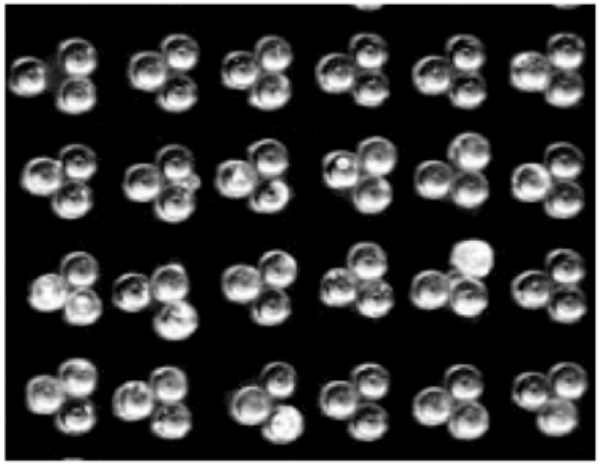
2. remove blemishes



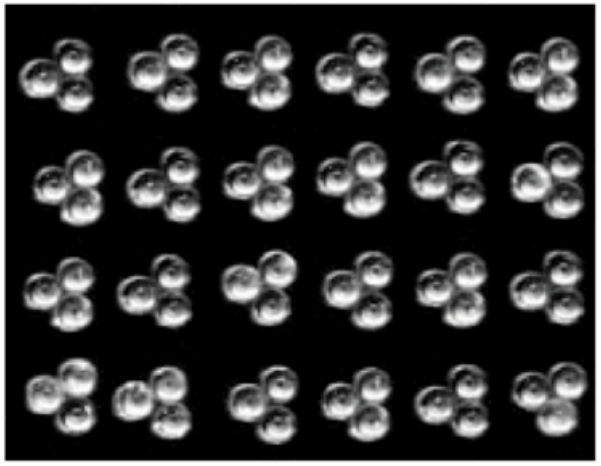
3. crop



4. remove outliers



5. reconstruct

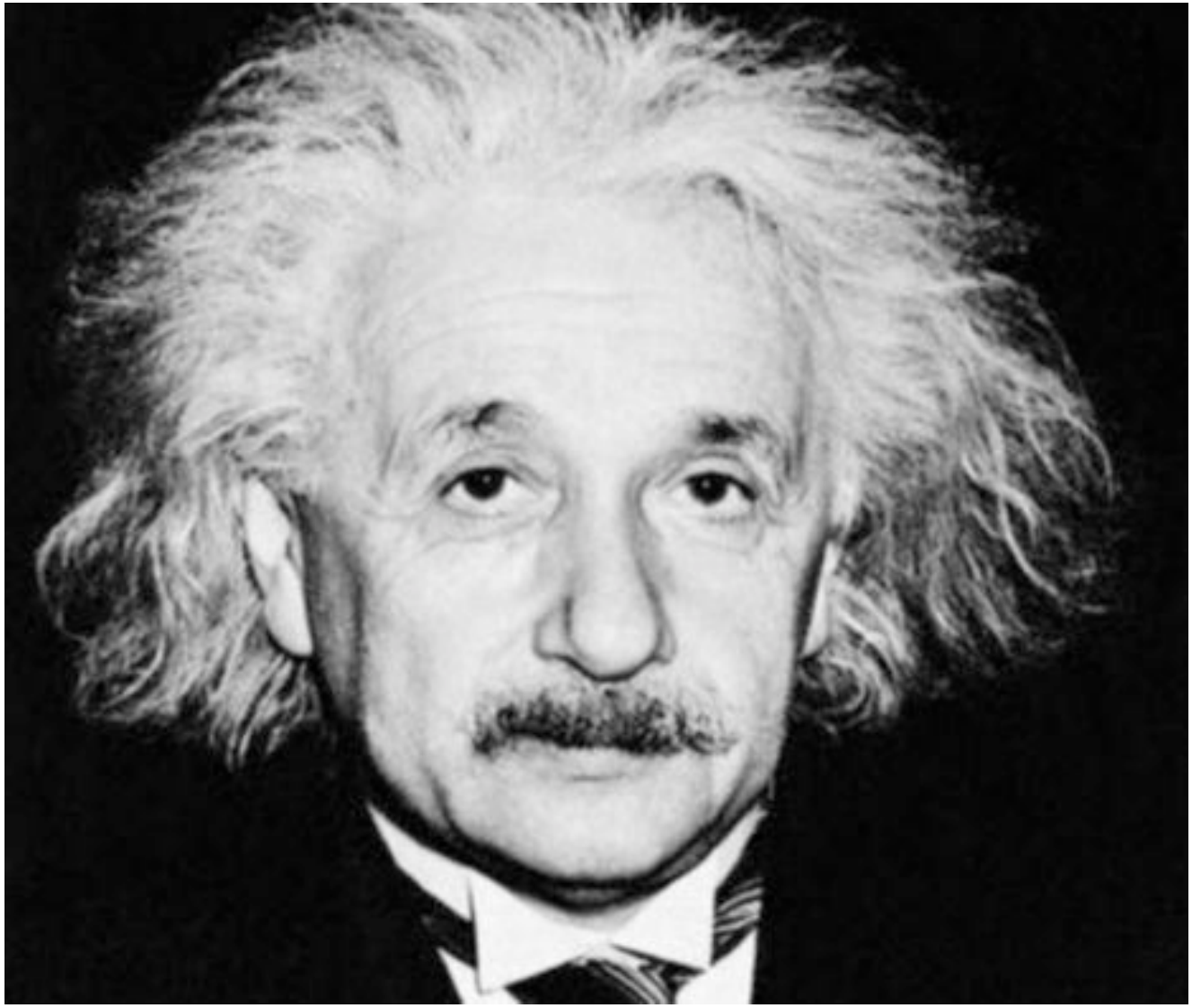


CASE STUDY B

The editor of Animal Brain calls Dr. Schell and asks for an original, unedited microscope image for posting on their website.

CASE STUDY C

Einstein's Brain



CASE STUDY C

1. Read the email from Dean Falk
2. Join your assigned group.
3. Prepare a short (3-5 sentences) case study and a question for the class on the case of Einstein's Brain.

QUICK START GUIDE FOR MAKING ETHICAL DECISIONS

The Newspaper Test

1. Imagine what you are preparing to do (or someone you are working is doing) will be reported the next day on the front page of your local newspaper.

2. Are you 100% comfortable having your advisor / employer, colleagues, friends, and family know exactly what you are involved in?

The Newspaper Test

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Researcher Faked Evidence of Human Cloning, Koreans Report

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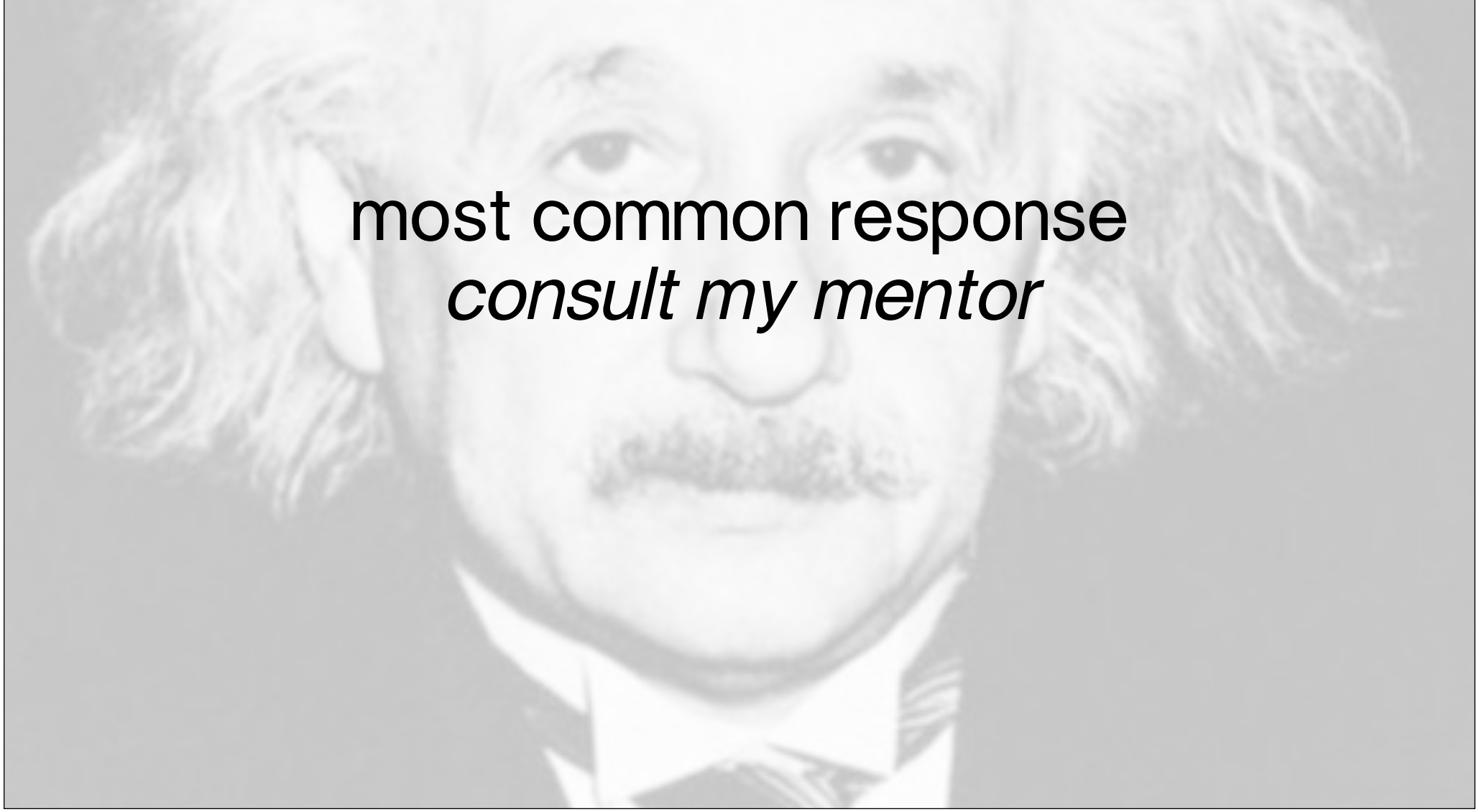
MOST POPULAR

Strategies for making decisions

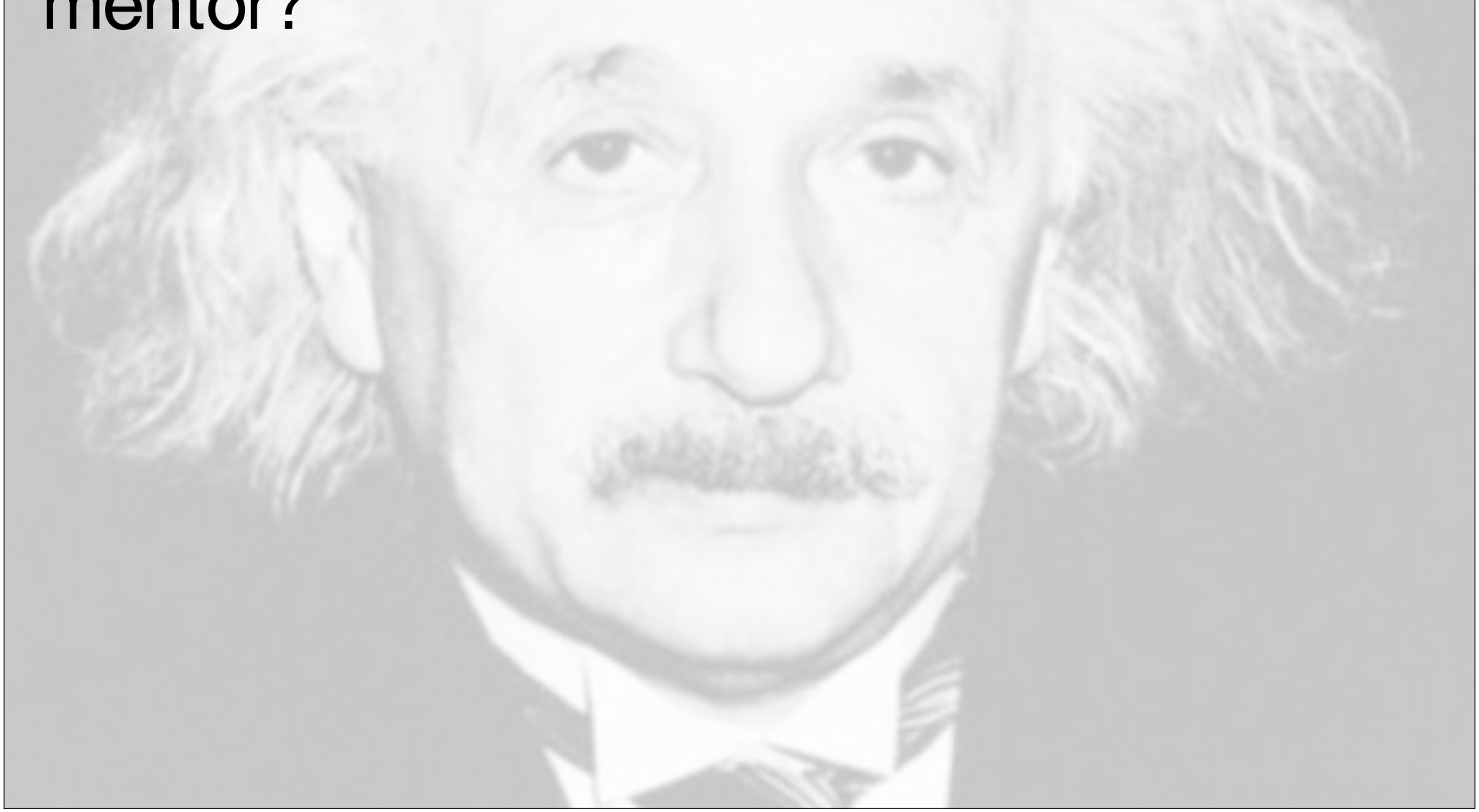
What is the first thing you would do?



most common response
consult my mentor

Strategies for making decisions

What if the issue involved your mentor?



Quick Start Guide to GOOD Decisions

G	Listen to your **GUT**, it is often the first to tell you something is wrong.
O	**OUTLINE** the possible consequences of all your decisions according to the principles of respect for persons, beneficence, and justice
O	seek the **OPINION** of a third party (your mentor or REU supervisor)
D	**DO The Newspaper Test**

Acknowledgements

Dr. Eric Mazur
Dr. Dean Falk
National Institutes of Health
National Science Foundation