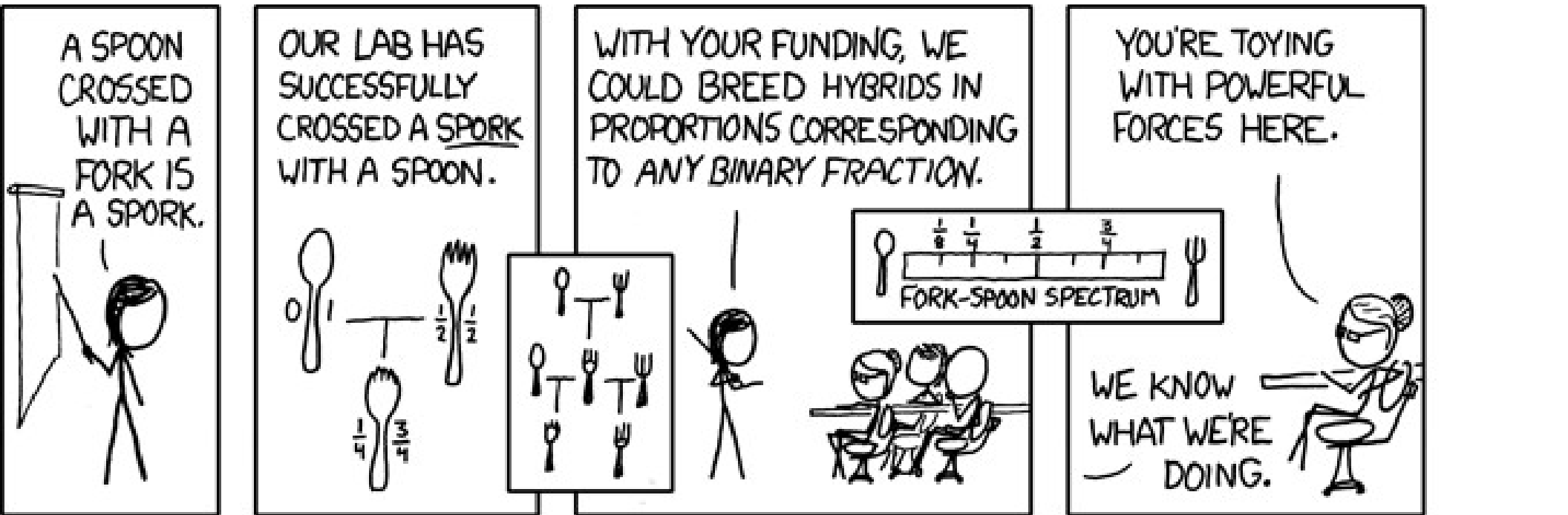
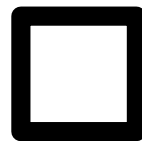


# This week: Funding Research and Patents



CNS lecture on Sunday,  
10/9 at 5pm in Welch  
2.224... be there or be



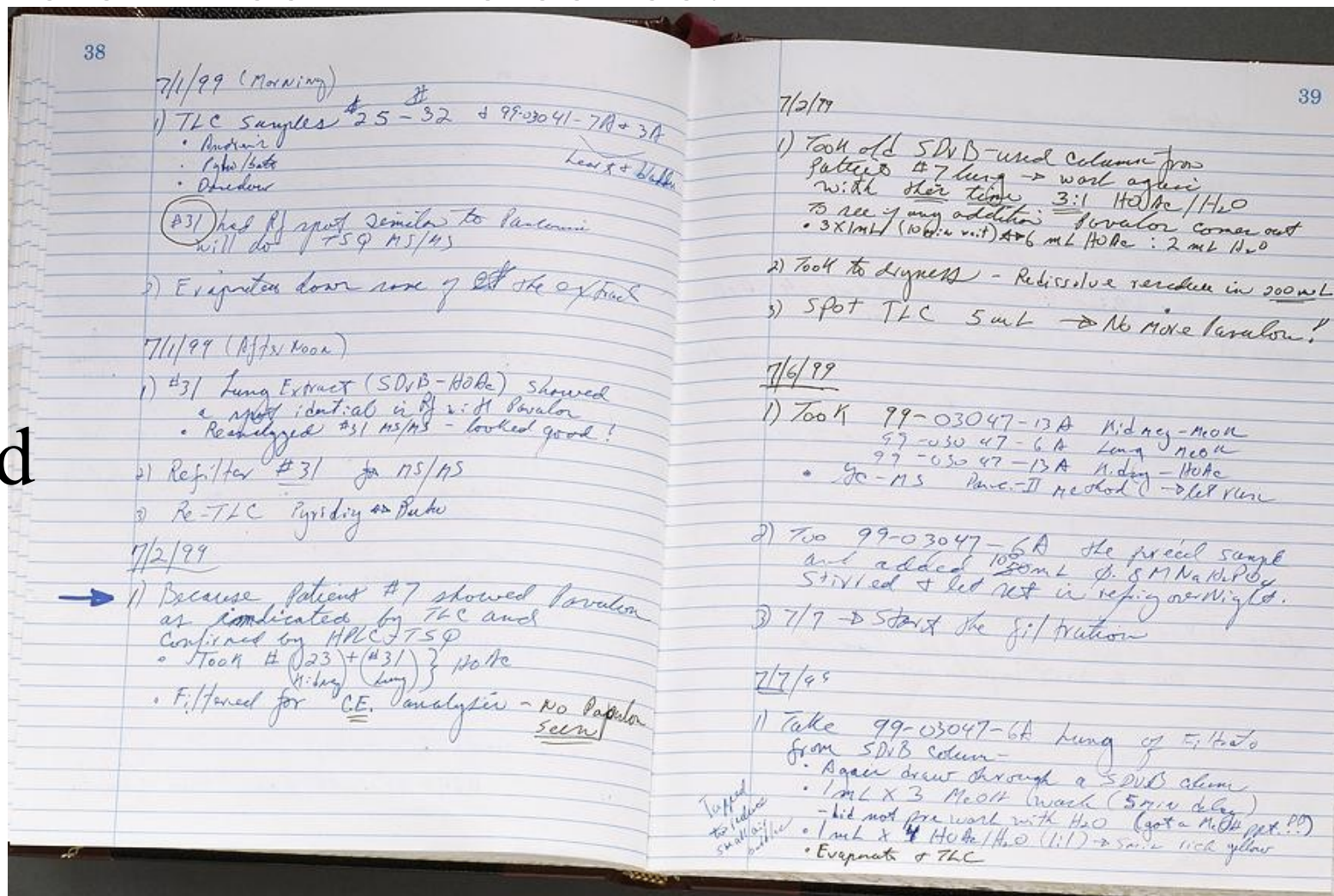
Most egregious inquiry 1 mistakes:

-There is no “main” or “primary” hypothesis.

-Chi<sup>2</sup> expected values must have some reason or logic behind them.

-Any human participants must remain anonymous and must be 18 or older.

• **In your lab notebook:** Write everything about your experiments. Each entry should have a date. Include notes (intro and conclusions), so when you, or someone else, go back to look at your notebook, the entries make sense.



Notebooks will be turned in as a HW later in the semester.

Your name and lab time: Assignment #8

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1) What is different between research at a public or private institution?

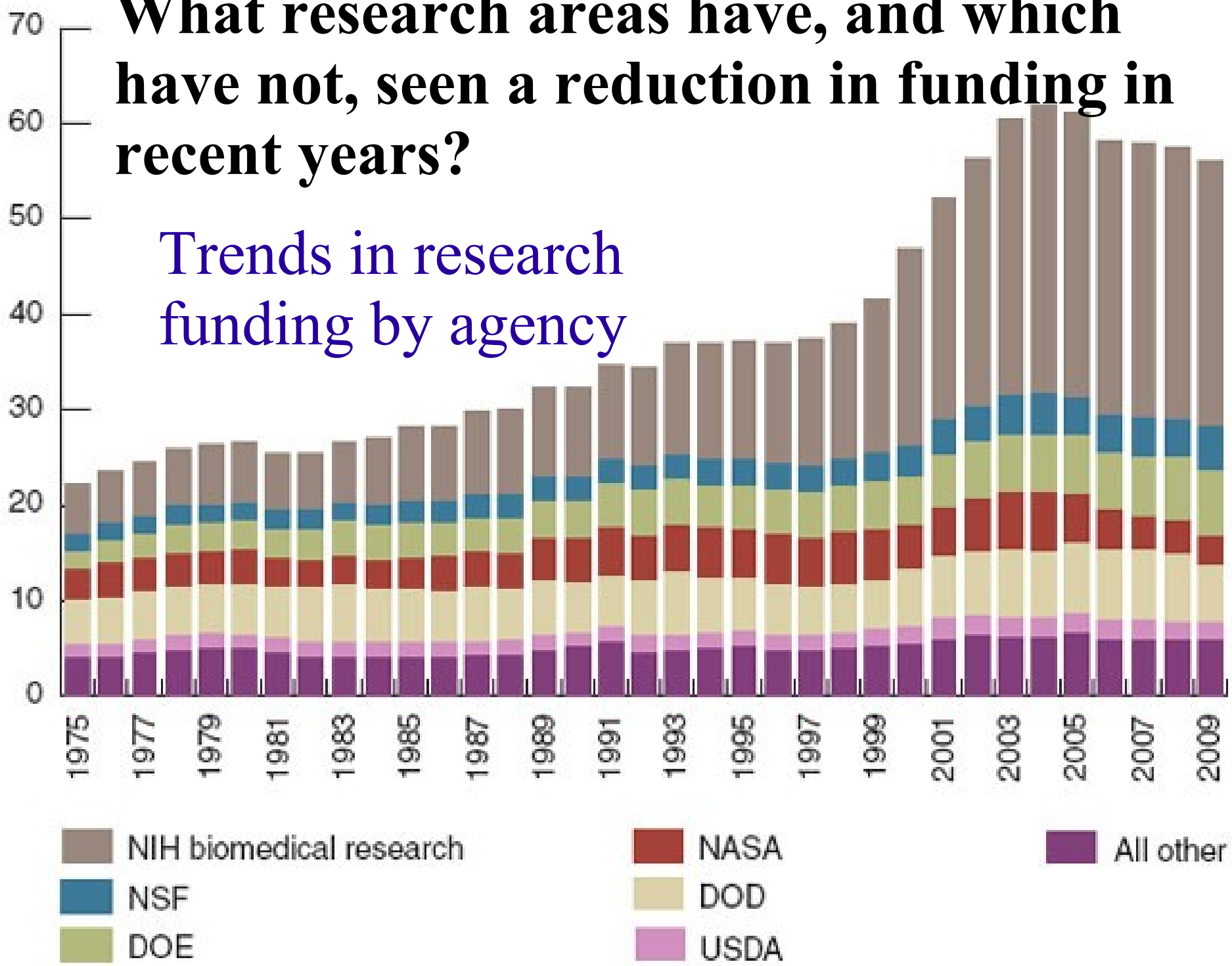
Your name and lab time: Assignment #8

2) Funding of research at a public institution by private entities is: great, good, ok, acceptable, a necessary evil, or a terrible idea. Why?

# What research areas have, and which have not, seen a reduction in funding in recent years?

\$Billions constant financial year 2008

Trends in research funding by agency



Why might a researcher at the beginning of their career have a hard time getting funding?



Why might a researcher at the beginning of their career have a hard time getting funding?

What could they do to increase their odds of being funded?

3) What is a problematic about public funding of research?

Next: Can you own an idea?



CNS lecture on Sunday, 10/9 at 5pm  
in Welch 2.224... be there or be



Next: Can you own an idea?



CNS lecture on Sunday, 10/9 at 5pm  
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- Can you own an idea?

- Would you share your idea if others will profit from it?

- Can you own an idea?
- Would you share your idea if others will profit from it?
- Would you accept someone else taking credit for your idea(s)?

Who issues patents?



Who issues patents?

Why?

# Patents give 20 year monopoly for inventor



[www.uspto.gov](http://www.uspto.gov)

As part of your research on the genetic causes of diabetes, you discover a human DNA sequence that can be used to predict the likelihood that someone will become diabetic. You are ready to present your findings at a meeting, but your boss tells you not to present this data because he wants to patent your findings. He says the money from the patent will allow the lab to make more discoveries into the causes of diabetes. Is your boss correct in keeping you from presenting? Is your discovery patentable? What ethical conflicts might there be in applying for a patent on your discoveries?

# Patentable inventions must be:

- Useful
- New or Novel
- Non-obvious

The patent application must include sufficient information for someone “practiced in the art” to apply the patent.





Patents give right to exclude others from making, selling, and/or using the invention.

Patents are considered personal property and may be sold, licensed, etc.

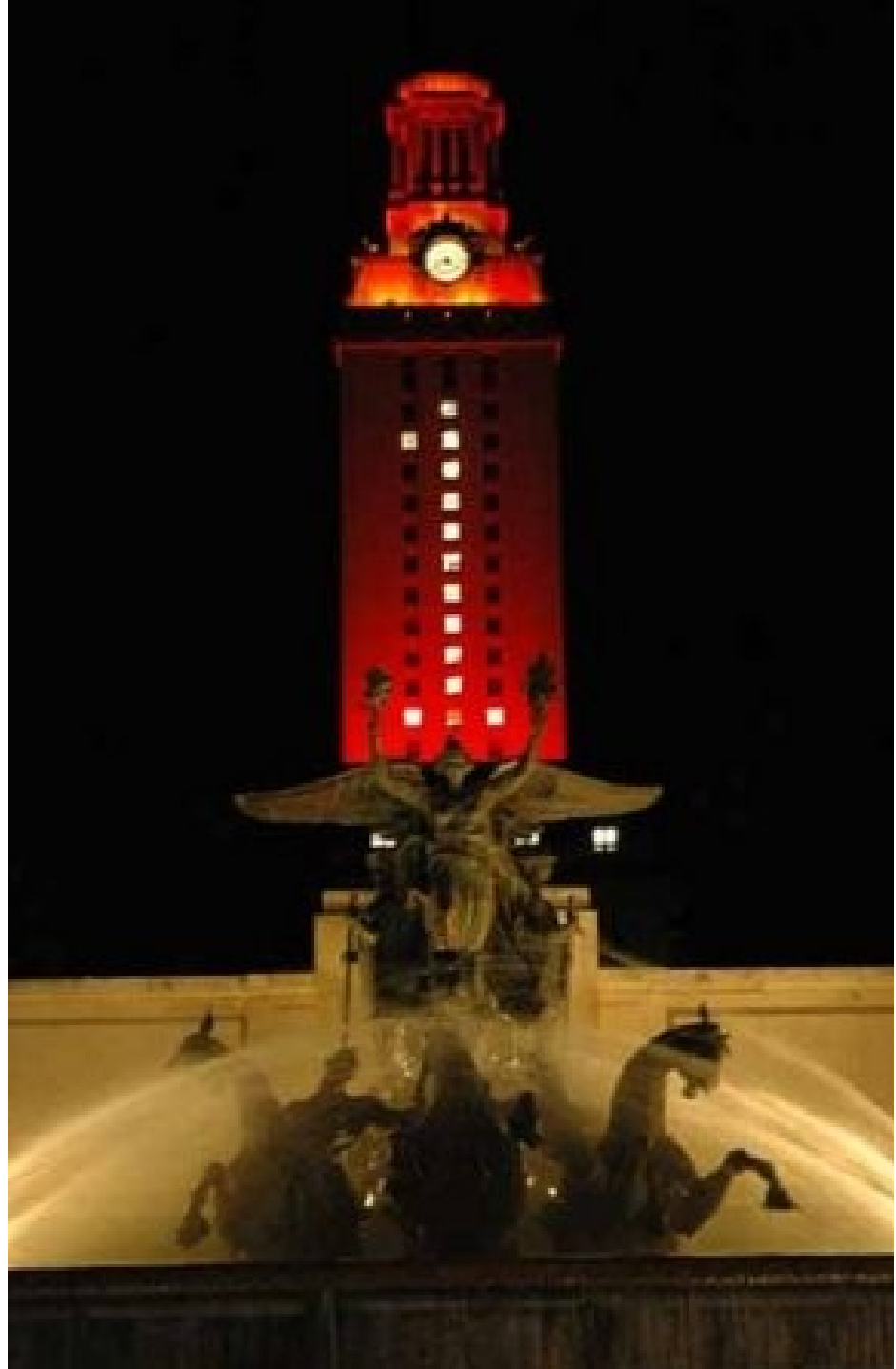
You are a researcher studying various chemicals found in plants that grow in the rainforest. As part of your research you interact with local people who help direct you to plants that they use medicinally. You have been offered a grant from a private funding agency to identify new chemotherapy drugs from rainforest plants. As part of the grant, the private funding agency wants you to sign over the rights to any patents that may come from your discoveries. What ethical issues should you consider before agreeing to take money from this agency?



Who owns your data?

**UT**

Employers generally own their employees data.



Employers often receive a royalty-free license to a patent.

Funding agencies also often have rights to patent licenses.

As public funding levels decrease, there is pressure on public institutions (universities and researchers) to seek alternate sources of funding.

Patenting discoveries provides a possible revenue source.

Does patenting of DNA sequencing  
impede research or increase research by  
adding a profit motive?

From “Wired Science” License to Green:  
Clean Energy vs. Patents

by Lisa Larrimore Ouellette April 21, 2010

<http://www.wired.com/wiredscience/2010/04/climate-desk-patents-ouellette/>

# Examples of current patents:

- Atryn- antithrombin produced in transgenic goats (in milk) has anti-clotting properties
- Evolutec has patents on proteins in tick saliva for use as anti-inflammatory
- GTG in Australia has patents on non-coding human DNA for detecting risk of various diseases

While patents help encourage innovation, there is some concern that they also inhibit innovation, especially in areas with low marketability. Also, the patenting of life has given rise to ethical concerns.

# What is the purpose of public research?



versus

**Technology  
Factory**



We will discuss this question in more depth next week...