Global Gals

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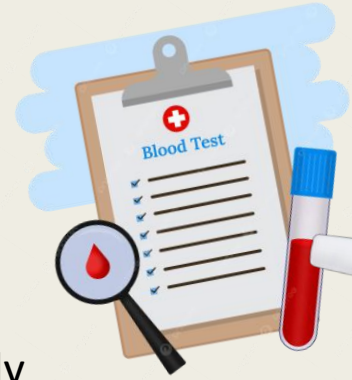
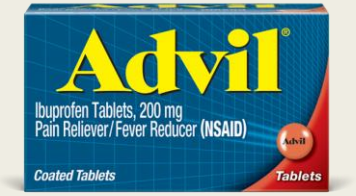
Outline

- How federally funded science shows up in our daily lives
- How is science funded?
  - Time and $
  - Institutions: NIH and NSF
- My own research
- Federal budget cuts to science
  - Early 2025
  - Mid-late 2025
  - Impacts of 2025 cuts
  - 2026 proposed cuts for FY2027
- Bond sales and state-specific funding for science
- SB895: California Foundation for Science and Health Research
  - Proposal
  - Current status

How Federally Funded Science Shows up in Daily Life

- Taking an Advil for a headache
- Treating a cut
- Blood tests for deficiencies or biomarkers
- Cancer screenings
- Hospital treatments, surgeries
- The fact that you are alive!
  - Child fatalities have decreased dramatically
  - Dropped by 77% from 1960 to 2013
  - Average lifespan has gone from 47.3 in 1900 to 79 in 2026
- Cars
- iPads
- Access to clean water, sewage systems





How is Science Funded?: A Look into the Time and $

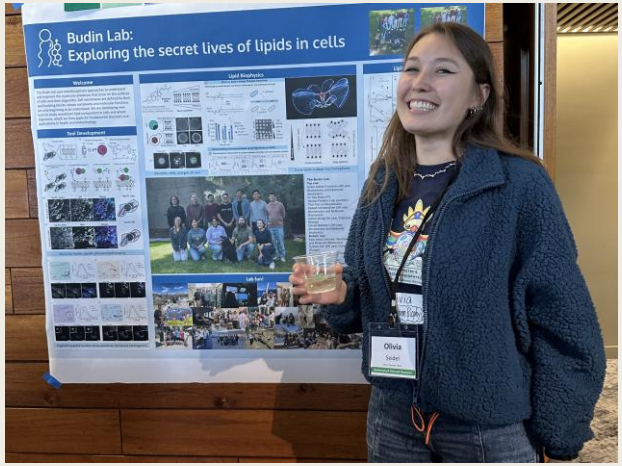
- In academia: it costs around $2-3 million a year to run a lab that does any kind of biology research for a lab of size ~12 people
  - Specialized equipment can cost millions on its own
  - PhDs in science are typically 5-6 years resulting in some kind of advancement or discovery within their field and a lot of collaboration
  - Then that has to be further built upon to really culminate in therapies and solutions
  - Discoveries take many, many people working together over many, many years
- Bringing a drug or treatment to patients via clinical trials takes another 10-15 years after lab work and $1-2 billion
- Two of the scientists that created Pfizer's mRNA vaccine took 30 years to develop it
- Very high failure rate in science and a lot of serendipity, so general research funding is important

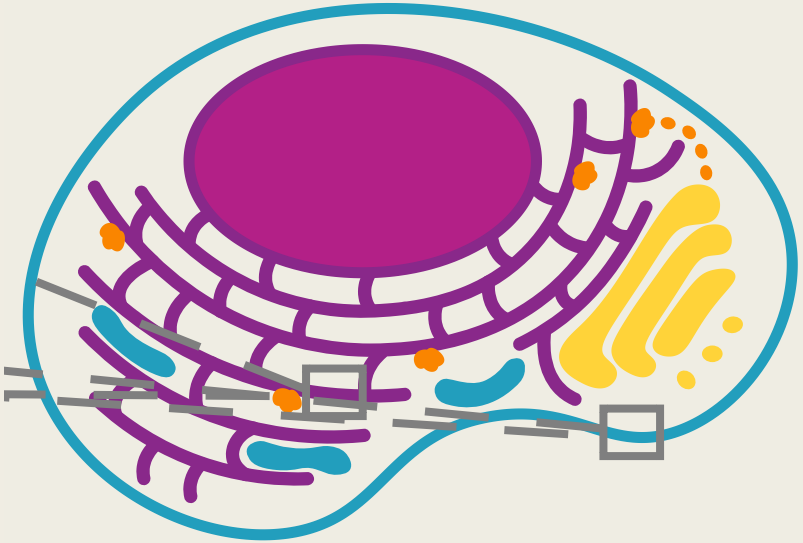
How is Science Funded?: The Institutions

- National Institute of Health (**NIH**)
  - Federal funding (taxes)
  - Gives ~$47 billion each year in grants
  - In FY2025, this resulted in ~$94 billion in *new* economic activity
  - Basic research funded by the NIH contributed to every new drug approved by the FDA from 2010-2016
  - Only the very best research is funded: 1 in 5 proposals are funded
  - Only makes up less than 1% of the national budget
- National Science Foundation (**NSF**)
  - Gives ~$10 billion each year in grants
  - Funds ~25% of all federally funded basic research conducted by US universities (vs biomedical research, which is the NIH's focus)
  - Funds key research areas beyond biology/chemistry including artificial intelligence, robotics, disaster prevention, data and cybersecurity, energy technology, advanced materials
- ~$6 billion in grants to California alone each year from NIH and NSF

My Research

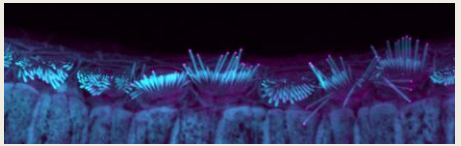
- 2nd year PhD student studying Biochemistry and Molecular Biophysics at UCSD
- I study lipid trafficking in cells
- We don’t know how the cell knows which lipids go to which membrane or *when* to transport them (basic research)
- There are proteins that transport lipids between membranes, but there must be sensors as well
- But dysregulation in lipid transport is implicated in many diseases including neurodegenerative diseases, vision loss, cancer, diabetes, and more (health)
- So I am funded by the NIH!



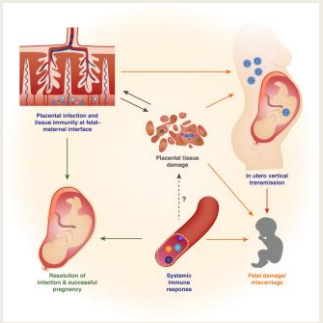


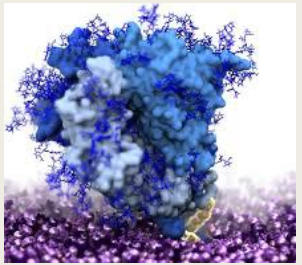
Federal Budget Cuts: Early 2025

- In Jan 2025, Trump unilaterally cut all DEI-related NIH grants ($2.4 billion) and NSF grants in an executive order
- All research had to pause immediately
  - Hearing loss research at UCSD suddenly lost all funding
  - Grants cut for HIV and women's reproductive health at UCSD
- Not just cuts, but NIH was forced to stop reviewing grants as well as part of government shut downs
- On top of this Trump, proposed 35% cuts to science agencies (NIH, NSF, DoE, NASA, CDC, etc) for FY2026 amounting to $32 billion



Uri Manor, hearing loss





Rommie Amaro, HIV and aerosols
Ina Stelzer, maternal immune system

Federal Budget Cuts: Mid-Late 2025

- But we fought back!
- Huge efforts in CA, scientists organized:
  - Days of action across the country in 37 cities (April 2025)
  - Phonebanks for urging members of congress to oppose the cuts
  - Congress sign-on letters that ended up with half of the senate and 22 Republicans on them
  - Congressional town halls with testimonies from those impacted by cuts

- Result: Congress voted NO cuts to NIH budget for FY2026!
- In court, fought the unlawful DEI-related cuts and WON, with restoration to hundreds of grants (June 2025) and the review of grants that had been desk rejected by the measure (Dec 2025)

Federal Budget Cuts: 2025 Cuts Impact

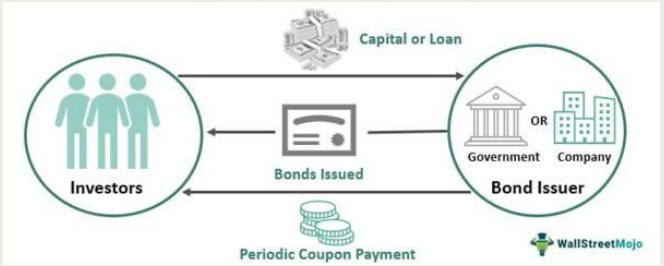
- We won, but…
  - Uri Manor, deaf professor at UCSD who lost all funding had to lay off several lab members
  - Clinical studies for an HIV vaccine were halted immediately, and they can't be un-paused- all monkeys that were undergoing treatment had to be euthanized because they didn't have the money to keep them alive. When the grant was re-instated, they had already used significant funds to start the study, and they couldn't begin it again, despite extremely promising results
  - When NIH was forced to stop reviewing grants, young faculty did not know if they could take on more students. Many students had to leave programs because labs could not take them- a lost investment in STEM workers
- Ultimately, the taxpayer money was already invested, so it was a complete waste to cancel these grants so rashly

Federal Budget Cuts: 2026 Proposal (FY2027)

- Trump's proposed cuts:
  - 10% to NIH
    - $5 billion in cuts
  - 54% to NSF
    - Another $5 billion in cuts
    - Already fired the entire Scientific Advisory Board for the organization
  - 47% to NASA
    - Despite the very successful (and popular!) Artemis mission
  - 100% to National Oceanic and Atmospheric Administration
  - And more

In California: Bond Sales

- California Institute of Regenerative Medicine
  - Funds stem cell and gene therapy research
  - Cutting edge treatments for cancer, heart disease, neurological conditions, diabetes, immune disorders, aging, and more
  - 56,000 jobs created, 116 clinical trials funded
  - Passed in 2004 with $3 billion (59% yes vote) and updated in 2020, adding $5.5 billion (51% yes vote)



- Funded through bonds, a way of funding government projects
  - The government puts an amount of bonds for sale, institutions or private citizens can purchase bonds and the government will repay them with interest
- Benefits:
  - Government can pay amount back *over time* from taxes and ROI
  - Can be multi-year and can have more money added on later
  - These measures are protected from federal budget cuts

SB895: California Foundation for Science and Health Research

- A bond measure to promote research and education in the state of California
  - Sponsored in part by University of California and many more CA institutions
  - 47 legislative co-authors: 18 CA Senators, 29 Assemblymembers
- Sets aside money for research, but also includes discounts for medicines and therapies for CA residents
- Unlike previous bonds or the NIH/NSF, companies, patents, and revenue generated from projects funded by the bond must pay a percent back to the bond: self-sustaining and great built-in ROI
- Will strengthen CA's biotech and innovation economy, which already produces over half of the US's biotech revenue

SB895: California Foundation for Science and Health Research

- Taking the legislature route (governor approval) vs signature (requires 500,000)
- We have been collecting signatures of support since January, currently have 22,000 statewide and 3,000 in San Diego, which gives a sense of support to politicians
- UC president James Milliken delivered the petition to Gavin Newsom on May 4th
  - He was supportive but did not sign on the spot
- Petition signature collection is ongoing:
  - SB895 just passed in the CA Senate Committee last week, but went from $23 billion to $12 billion over 10 years
  - Next: Appropriations Committee in early June and then Assembly Floor
  - Meeting with CA Assemblymembers to co-author bill and circulate petition
  - Yesterday we got the SD County Board of Supervisors to sign a letter in support
- Finally: back to Gavin Newsom's desk, but with even more support from legislators and petition; his signature will put it on the ballot in November

SB895: California Foundation for Science and Health Research

SAVE SCIENCE.
SAVE LIVES.

- Last year, it was primarily scientists fighting against federal budget cuts, but now we need *everyone* on board to:
  1. Get this measure on the ballot
  2. Pass this measure in November
- The effort for signatures of support has been primarily on UC campuses: we need YOUR help to spread the petition to communities outside of UC!
- What has been working so far:
  - Posting link on NextDoor
  - Posting link on LinkedIn
  - Talking to people and asking them in person
  - Canvassing in public places

Link to sign the petition in support of SB895!

THANK YOU!