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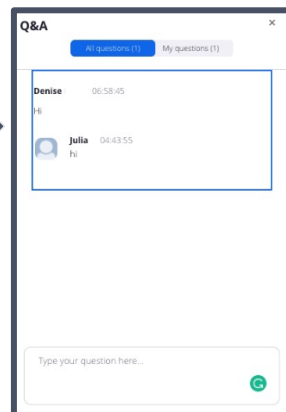
Questions or Comments?

Type them into the questions box!



"Why am I muted?"

Don't worry. Everyone is muted except the Presenter and the Host. Thank you and enjoy the show.



1

1

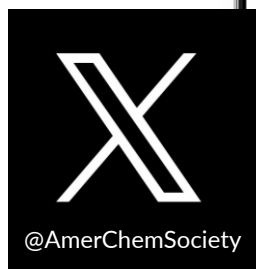


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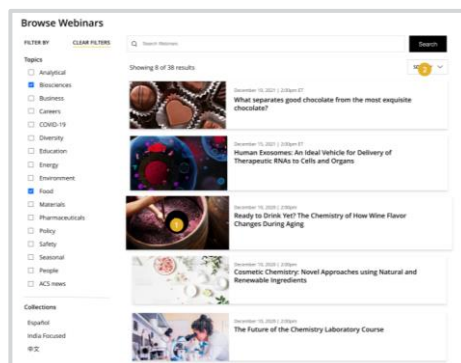
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A Career Planning Tool For Chemical Scientists



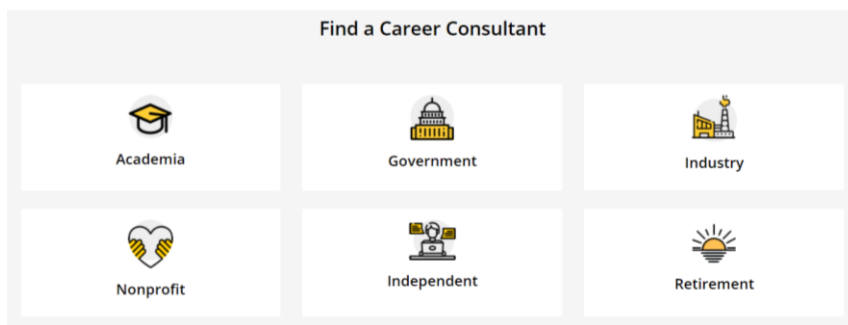
ChemIDP is an Individual Development Plan designed specifically for graduate students and postdoctoral scholars in the chemical sciences. Through immersive, self-paced activities, users explore potential careers, determine specific skills needed for success, and develop plans to achieve professional goals. **ChemIDP** tracks user progress and input, providing tips and strategies to complete goals and guide career exploration.

<https://chemidp.acs.org>

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Career Consultant Directory



- ACS Member-exclusive program that allows you to arrange a one-on-one appointment with a certified ACS Career Consultant.
- Consultants provide personalized career advice to ACS Members.
- Browse our Career Consultant roster and request your one-on-one appointment today!

www.acs.org/careerconsulting

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ACS Scholar Adunoluwa Obisesan

BS, Massachusetts Institute of Technology, June 2021
(Chemical-biological Engineering, Computer Science & Molecular Biology)



"The ACS Scholars Program provided me with monetary support as well as a valuable network of peers and mentors who have transformed my life and will help me in my future endeavors. The program enabled me to achieve more than I could have ever dreamed. Thank you so much!"

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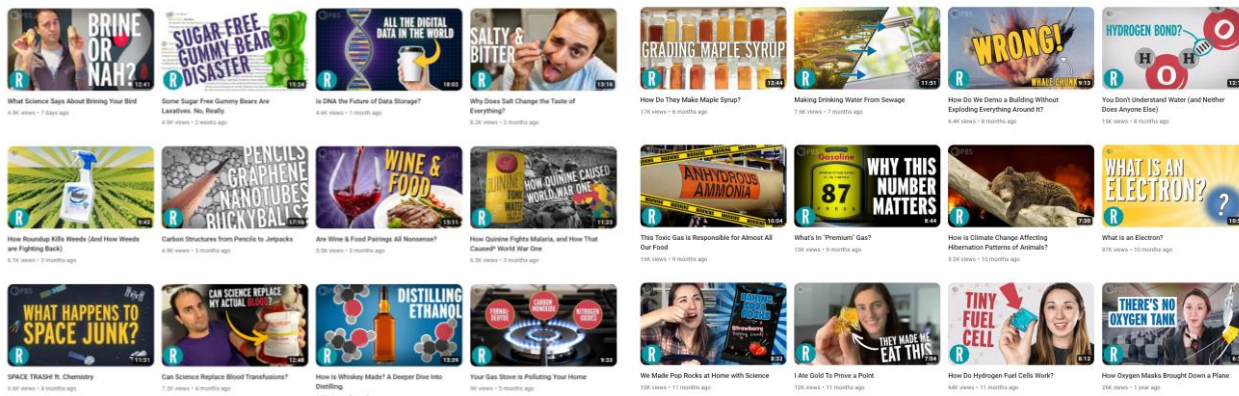



REACTIONS

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ACS
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Sam Jones, PhD
 Science Writer & Exec Producer



Deboki Chakravarti, PhD
 Science Writer & Co-Host

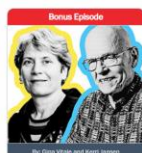
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c&en's STEREO CHEMISTRY



Bonus Episode
Carolyn Bertozzi and K. Barry Sharpless chat about sharing the 2022 Nobel Prize in Chemistry
December 6, 2022



Bonus Episode
Bioorthogonal, click chemistry clinch the Nobel Prize
October 9, 2022



Episode #40
Lithium mining's water use sparks bitter conflicts and novel chemistry
September 13, 2022



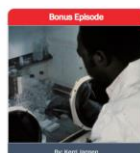
Bonus Episode
Happy 100th birthday, John Goodenough! For John Goodenough's 100th birthday, Stereo Chemistry revisits a fan-favorite interview with the renowned scientist
July 25, 2022



Bonus Episode
Jess Wade on Wikipedia and work-life balance
June 21, 2022



Bonus Episode
The sticky science of why we eat so much sugar
May 31, 2022



Bonus Episode
There's more to James Harris's story
April 27, 2022



Bonus Episode
The helium shortage that wasn't supposed to be
March 24, 2022

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cen.acs.org/sections/stereo-chemistry-podcast.html

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ACS Industry Member Programs

- **ACS Industry Matters**

ACS member only content with exclusive insights from industry leaders to help you succeed in your career. #ACSIndustryMatters

Preview Content: acs.org/indnl

- **ACS Innovation Hub LinkedIn Group**

Connect, collaborate and stay informed about the trends leading chemical innovation.

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Share your science with confidence - get essential tips for becoming a better writer, reviewer and communicator.

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acsoncampus.acs.org

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ACS Career Resources



Virtual Office Hours



<https://www.acs.org/careerconsulting.html>

Personal Career Consultations

Jim Tung
Marketing
Lacamas Laboratories
B.S., Biochemistry, University of Oregon
Ph.D., Organic Chemistry, University of Notre Dame

Jim Tung works at Lacamas Laboratories in Portland, OR, currently as a business development manager. He has been with Lacamas for 10 years, working on developing new chemical manufacturing projects. Before that, he was a senior research chemist at Oblet Research in Champaign, IL, performing kilo-scale organic chemistry.

An Oregon native, Jim got his B.S. in biochemistry from the University of Oregon, his Ph.D. in organic chemistry from the University of Notre Dame, with postdoctoral experience at Pfizer's laboratories in La Jolla, CA. He is past chair of the Portland Section of the American Chemical Society and was 2019 general co-chair of NORM 2019. He has interests in process chemistry, labor economics, social media outreach and encouraging career exploration and development for younger chemists.

Ask me about:
Working in industry
Applying for academic jobs
Getting your first job
[Contact with Jim](#)

<https://www.acs.org/careerconsulting.html>

LinkedIn Learning



<https://www.acs.org/linkedinlearning>

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ACS Advocacy
See your influence in action!



The impact and results of **ACS member advocacy** outreach and efforts by the numbers!

2439+

Members participated
In Act4Chemistry

Get Involved

1739+

ACS Advocacy
Workshops participants
or enrollees

Enroll in a workshop

49

Years of Public
Policy Fellows

Become a Fellow

2000

Letters sent to
Congress

Take Action

American Chemical Society

<https://www.acs.org/policy>

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A complete listing of ACS Safety Programs and Resources



Download it for free in the "Projects & Announcements" Section! www.acs.org/ccs



American Chemical Society

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ACS OFFICE OF DEIR

Advancing ACS' Core Value of Diversity, Equity, Inclusion and Respect



Resources

Inclusivity Style Guide Designed to help staff and members use language and images that respect diversity in all its forms. →	ACS Webinars on Diversity Covering diversity and inclusion at the workplace →
ACS Publications DEIR Hub See what ACS Publications is doing for fostering inclusivity in scholarly publishing →	ACS Volunteer and ACS Meetings Code of Conduct Fostering a positive and welcoming environment for attendees, volunteers and staff. →
C&EN Trailblazers C&EN highlights scientists from different backgrounds who are making an impact in chemistry. →	NEW! Download DEIR Educational Resources Download this educational guide for additional recommendations on videos, articles, books, podcasts, and more on diversity, inclusion, and related topics. →
Quick Guide: Inclusion Moments Learn more about what Inclusion Moments are and see ideas to host them during your meetings. →	Quick Guide: How to host inclusive in-person events Recommendations and best practices to ensure that your events can accommodate everyone. →

Diversity, Equity, Inclusion, and Respect

**Adapted from definitions from the Ford Foundation Center for Social Justice:

Equity**

Seeks to ensure fair treatment, equality of opportunity, and fairness in access to information and resources for all. We believe this is only possible in an environment built on respect and dignity. Equity requires the identification and elimination of barriers that have prevented the full participation of some groups.

Diversity**

The representation of varied identities and differences (race, ethnicity, gender, disability, sexual orientation, gender identity, national origin, tribe, caste, socio-economic status, thinking and communication styles, etc.) collectively and as individuals. ACS seeks to proactively engage, understand, and draw on a variety of perspectives.

Inclusion**

Builds a culture of belonging by actively inviting the contribution and participation of all people. Every person's voice adds value, and ACS strives to create balance in the face of power differences. In addition, no one person can or should be called upon to represent an entire community.

Respect

Ensures that each person is treated with professionalism, integrity, and ethics underpinning all interpersonal interactions.

<https://www.acs.org/diversity>

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www.acs.org/membership



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\$80 Recent Graduates* ⓘ	\$40 Recent Graduates* ⓘ	
\$55 Graduate Students		
\$25 Undergraduate Students		
\$80 Retired		
\$0 Emeritus		

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www.acs.org/acswebinars



Wednesday, May 15, 2024 | 2pm-3pm ET

Your Career Story:
Crafting CVs and Resumes

Co-produced with ACS Careers

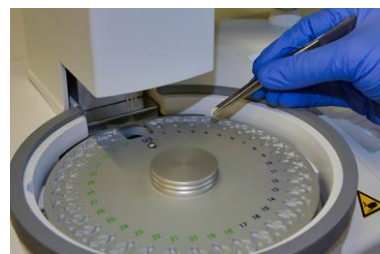
Register for Free



Thursday, May 16, 2024 | 2pm-3pm ET

Meet The Heroes of Chemistry: Featuring the Scientists behind Paxlovid™, RelyX™, and Trikafta®

Co-produced with ACS Industry Member Programs and ACS Committee on Corporation Associates.



Wednesday, May 22, 2024 | 2pm-3:30pm ET

Exploring Thermal Mechanics in Polymeric Materials: Thermomechanical and Self-Healing Properties

Co-produced with ACS Division of Polymeric Materials: Science & Engineering (PMSE)

Browse the Upcoming Schedule at www.acs.org/acswebinars

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ACS DIVISION OF PROFESSIONAL RELATIONS



Who are we?

Our members are a diverse group, representing all areas of chemistry and all types of chemical professionals including minorities, women, international chemists, younger chemists, academics, governmental, and industrial chemists, both employed and unemployed.



Younger Chemists



Chemists with Disabilities



Ethics



International Chemists



ACS Pride



Minority Affairs



Women Chemists

<https://acsprof.org>

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www.acs.org/acswebinars



THIS ACS WEBINAR®
WILL BEGIN SHORTLY...

👋 Say hello in the
questions window!

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Tools to Make Chemistry Education Accessible for Persons with Visual Impairments



BRYAN SHAW, PhD

Professor of Chemistry & Biochemistry,
Baylor University



CARY SUPALO, PhD

Founder, Independence Science
and Research Developer,
Educational Testing Service

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...AND SCIENCE FOR ALL

Universal tools for diverse abilities

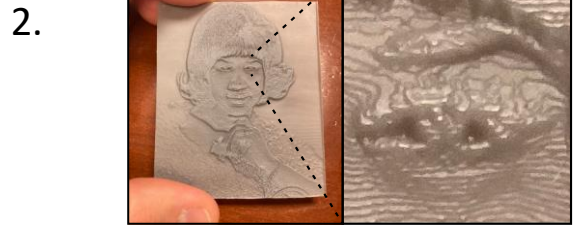
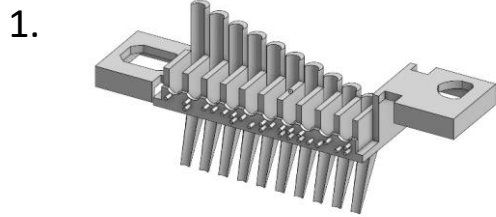
The Shaw Research Group
www.shawlaboratory.com
Baylor University



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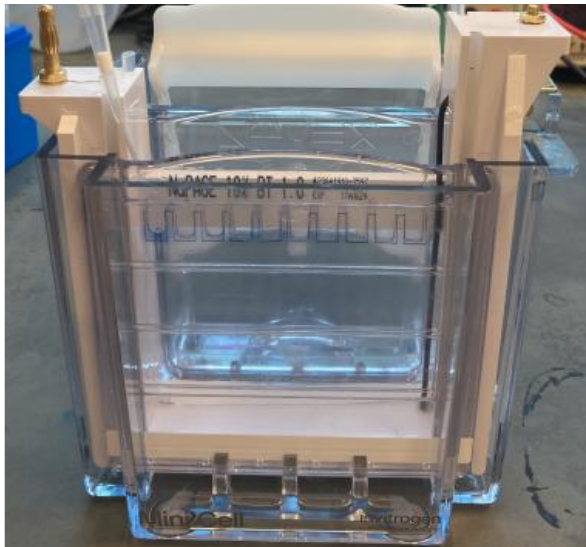
24

Tools to make data and lab tools accessible to people with blindness and low vision (BLV)



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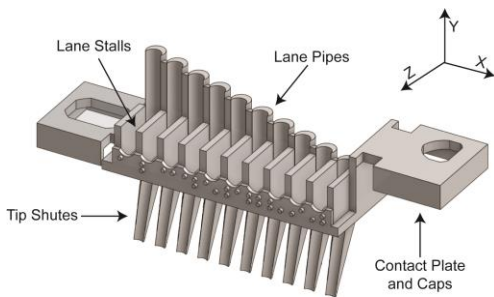
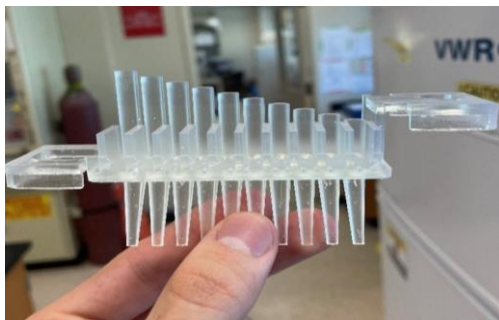
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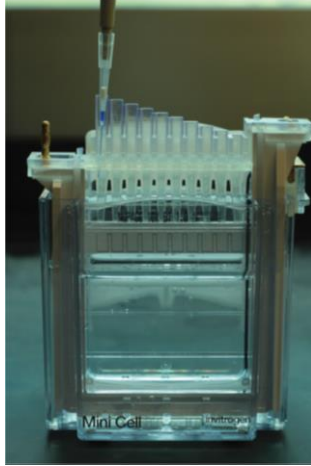
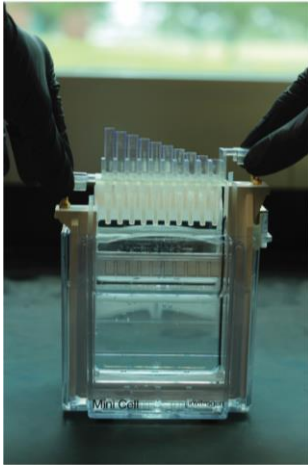
27

The Zampona (created by Levi Garza)



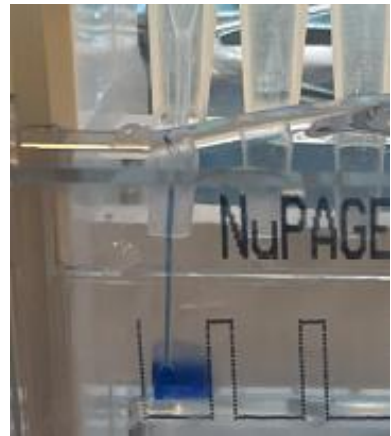
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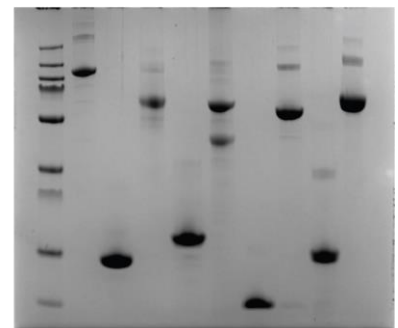
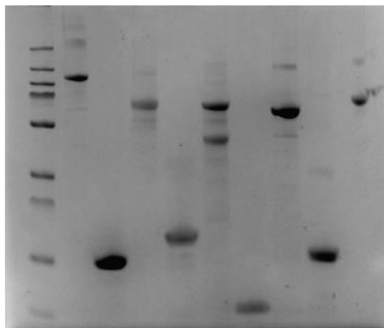
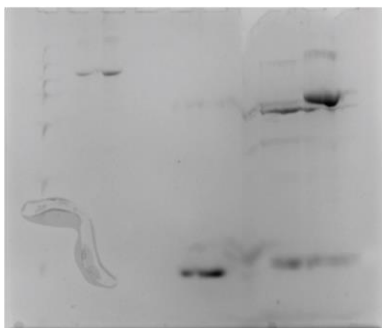
31

Dr. Vezengho's first successful gel since vision loss:

Without Zampona

With Zampona

Gold standard



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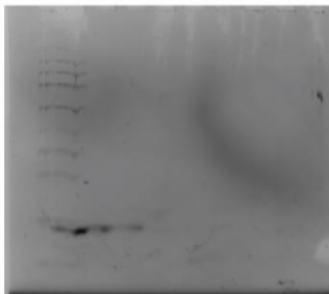
High schoolers with blindness from TSBVI visited the lab and ran gels too



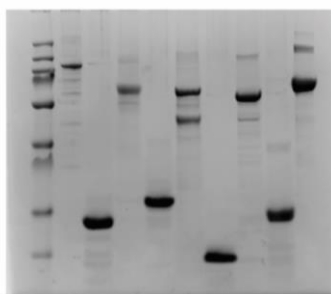
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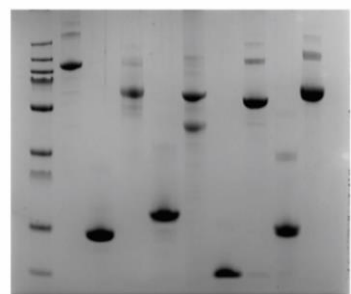
Without Zampoña



With Zampoña

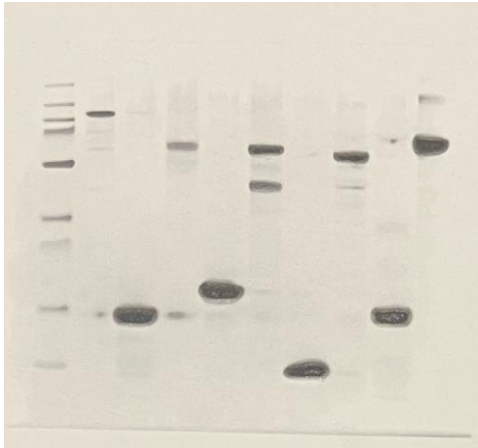


Control

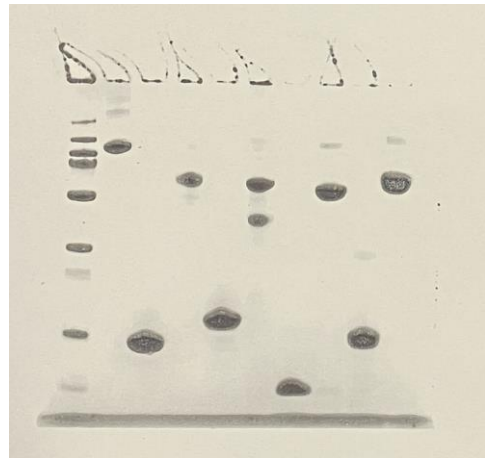


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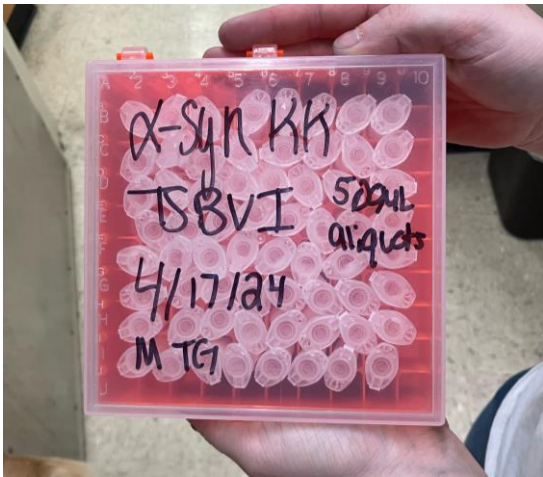
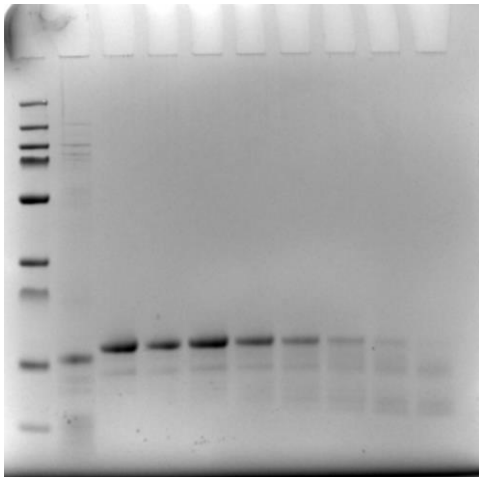
Hightschooler with blindness
(using "zampona" loader)



Gold standard

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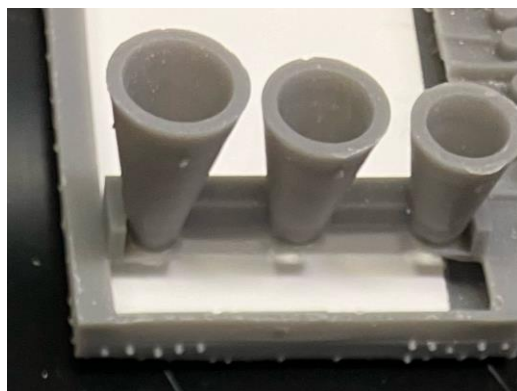
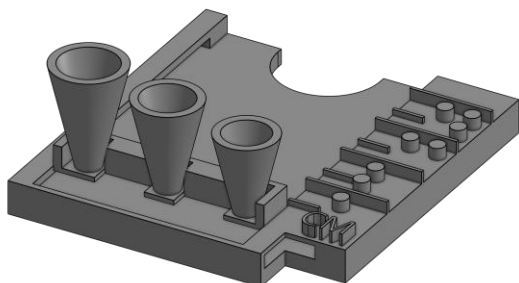
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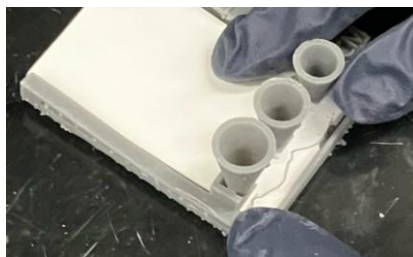
Spotting TLC plates: made accessible in a few days
(by Roxanne Jourdain and Levi Garza)...



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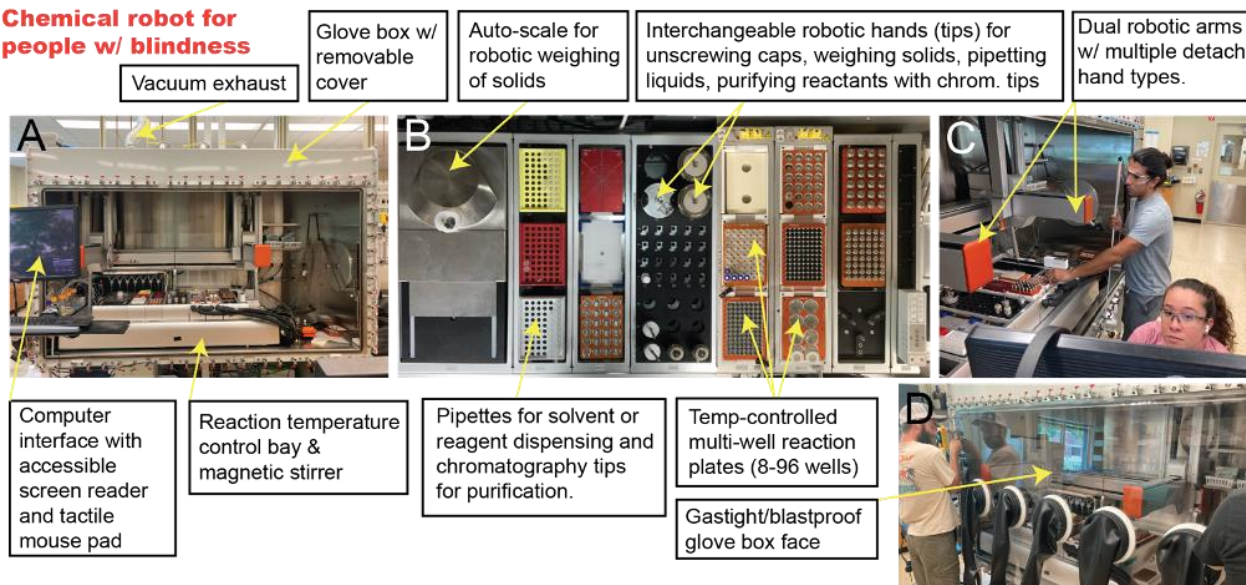
Student from Texas School for Blind and Visually Impaired spotting
TLC plate of Fischer-Speier esterification reaction



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Chemical robot for people w/ blindness

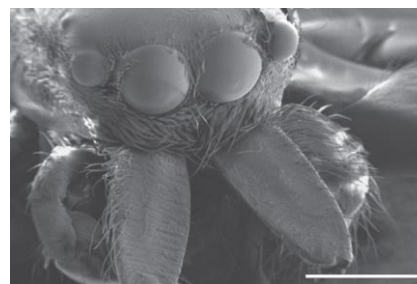
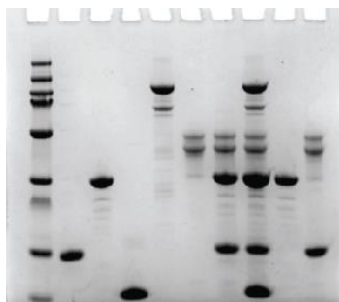
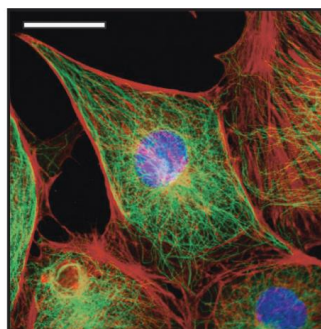


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Universal Pictures...

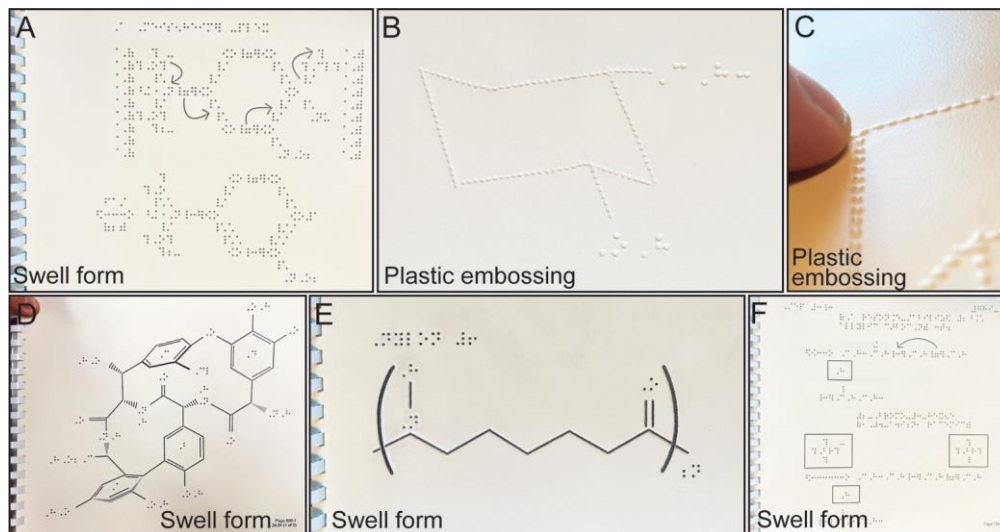
...making 2D imagery accessible



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Conventional 2D tactile graphics: swell form and embossing
(not good for high resolution graphics, e.g., TEM's, NMR's)



Alonzo et al., Science Advances 10, 2 (2024) adj8099 41

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Lithophanes: old fashioned art forms (here, in thin porcelain)

Front lit (light in front)

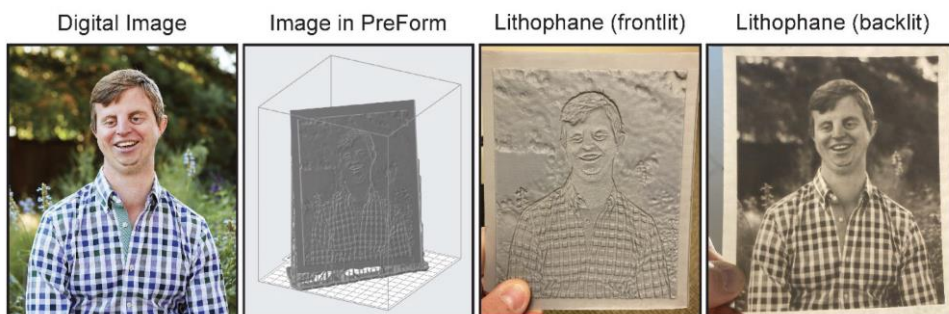


Back lit (light in back)



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Free online lithophane generator: 3dp.rocks/lithophane/

Lithophanes made on a \$5K 3D printer from Form Labs.

Polymer is UDMA (urethane dimethyl acrylate).

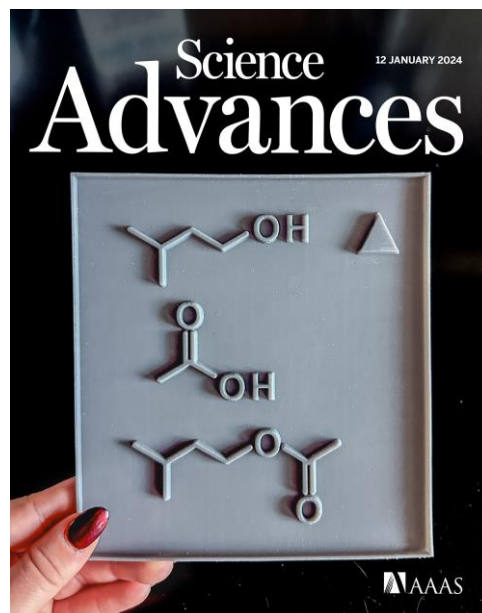
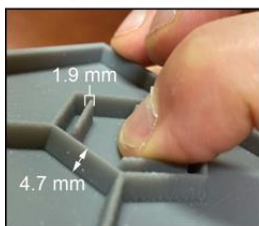
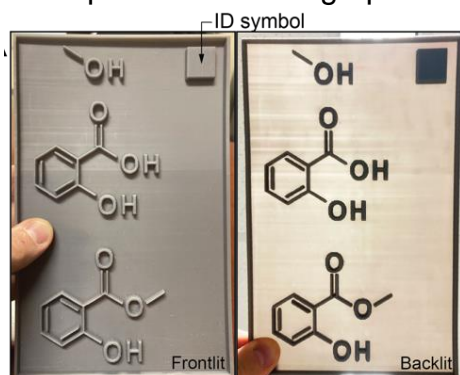
We like gray lithophanes, but white ones work too.

Alonzo et al., Science Advances 10, 2 (2024) adj8099

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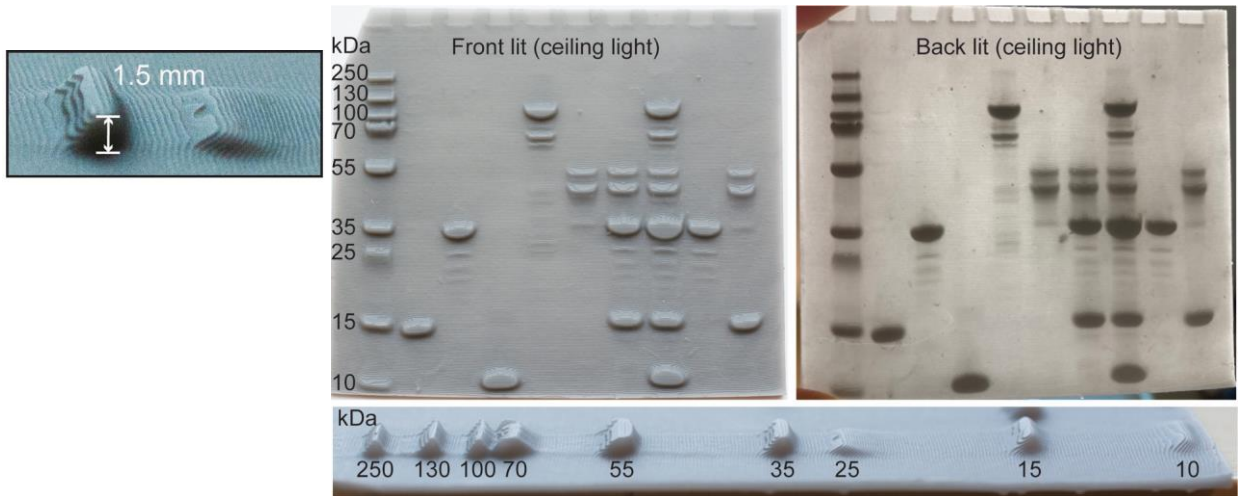
Lithophane chemical graphics



Alonzo et al., Science Advances 10, 2 (2024) adj8099

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Lithophane of SDS-PAGE gel



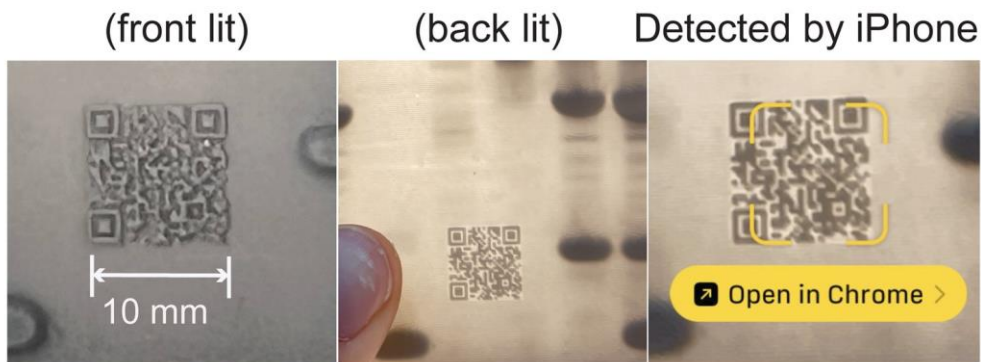
Koone et al., Science Advances,
8, 33, 2022 eabq2640

Cool Youtube video: <https://www.youtube.com/watch?v=a-7O8C3Q7pQ>

45

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Axis/numbers/labels/info can be stored in QR code. Thumb size works.

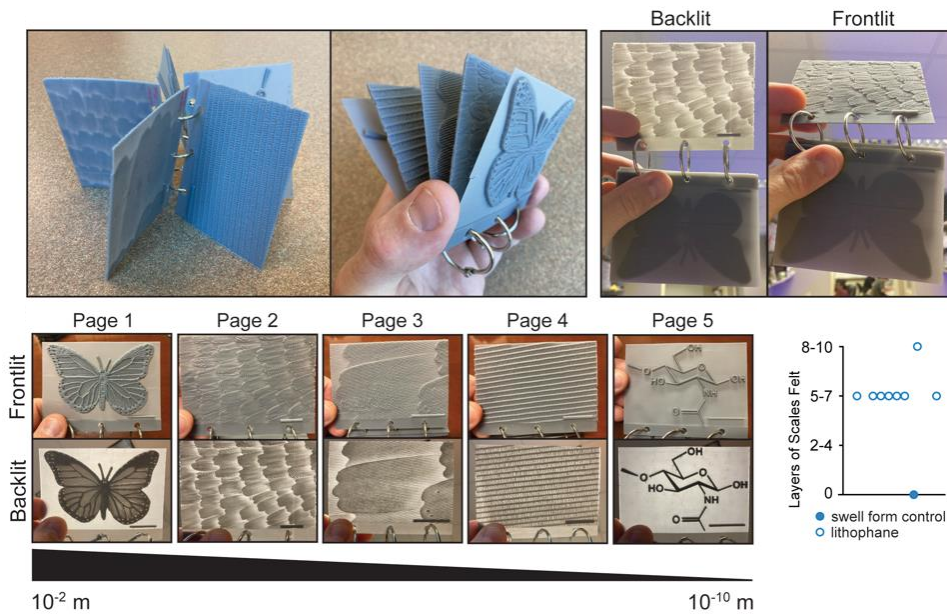


Koone et al., Science Advances, 2022, Volume 8, Issue 33, eabq2640

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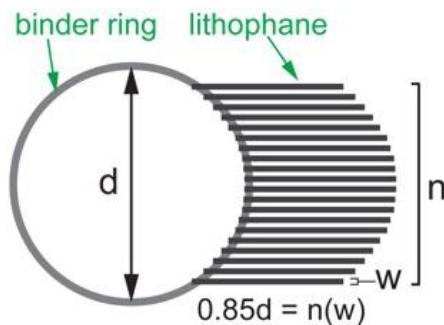
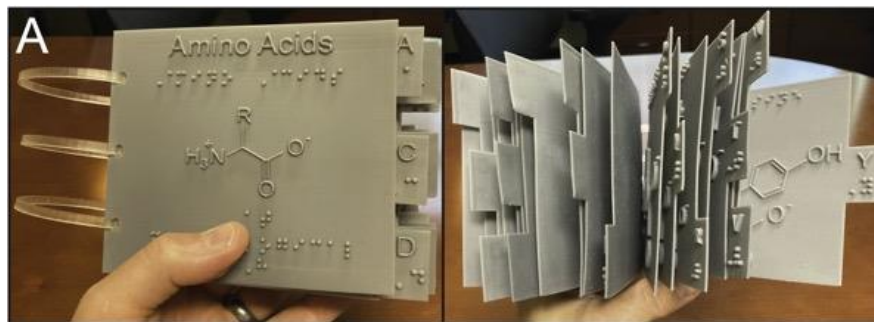
Lithophane codex given to high schoolers with blindness



Alonzo et al., Science Advances 10, 2 (2024) adj8099

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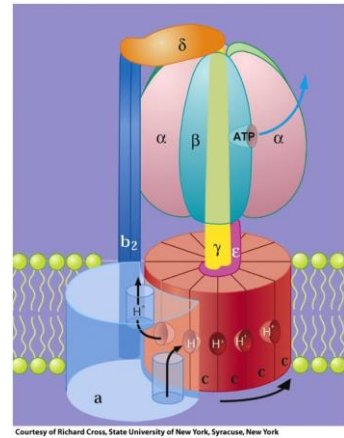
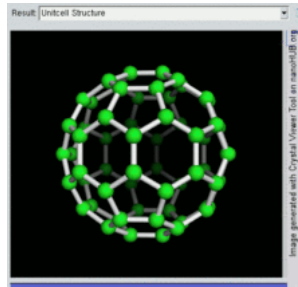
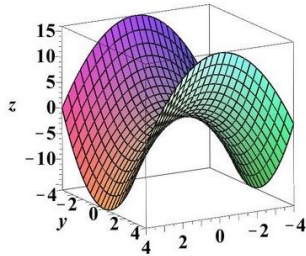
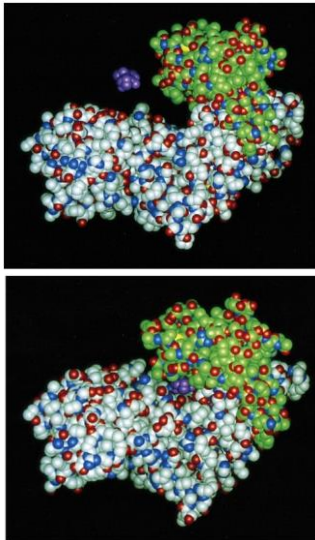


Alonzo et al., Science Advances 10, 2 (2024) adj8099

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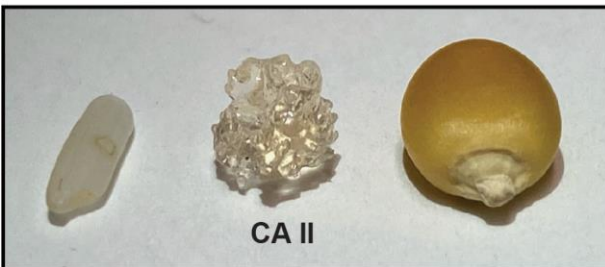
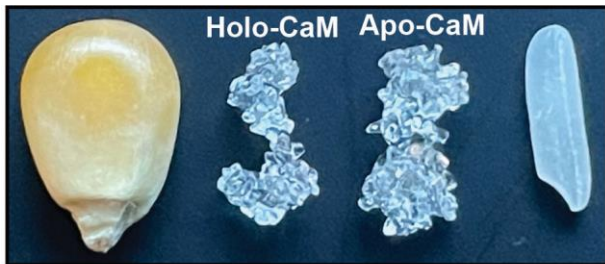
Making 3D imagery accessible



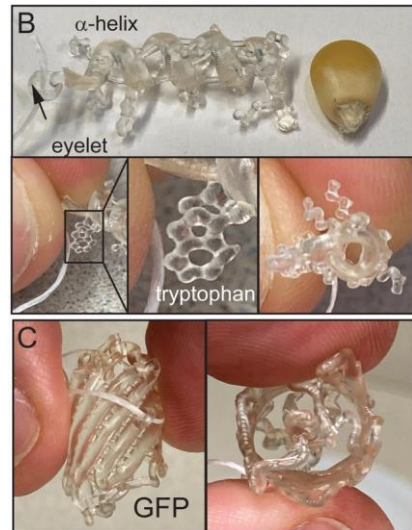
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We are going small and smaller. These are made of dental resin. Too small?



Baumer et al., Science Advances, 2021, 7, 22, eabh0691



Alonzo et al., Science Advances, 2024, 10, 2 adj8099

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Your tongue and lips are your best tactile sensors:
smaller models and maybe information via gustatory sensing.



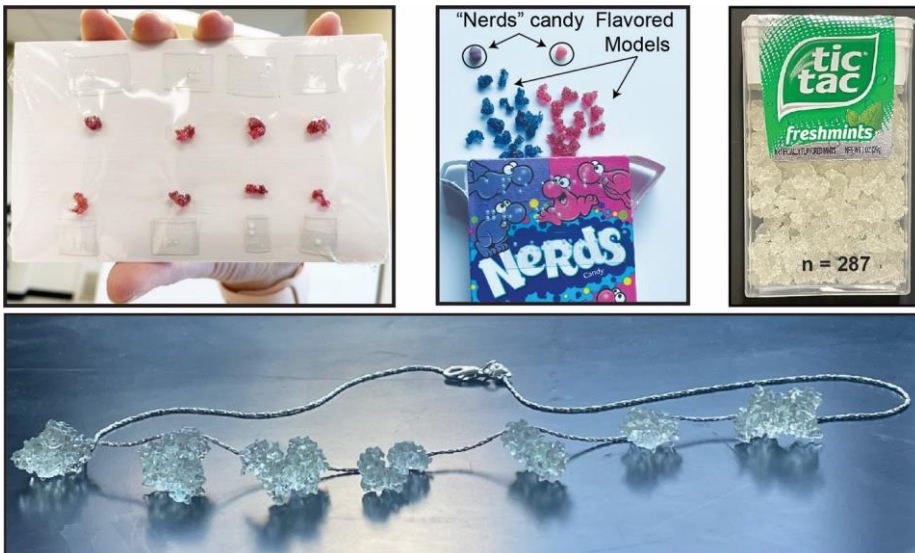
Oral somatosensory perception has not been used to visualize imagery
in education

Baumer et al., Science Advances, 2021, Volume 7, Issue 22, eabh0691

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Smaller = portable, cheap, light, easy to organize

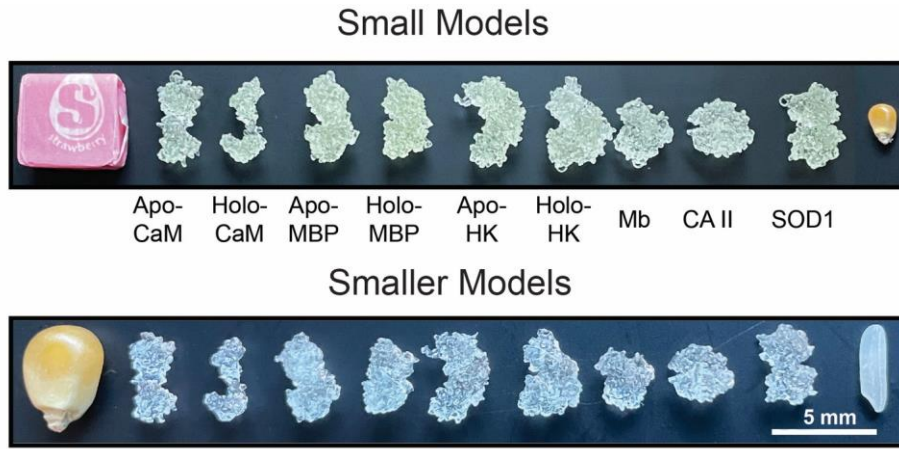


Baumer et al., Science Advances, 2021, Volume 7, Issue 22, eabh0691

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Small and Smaller molecular models we tested (dental resin)

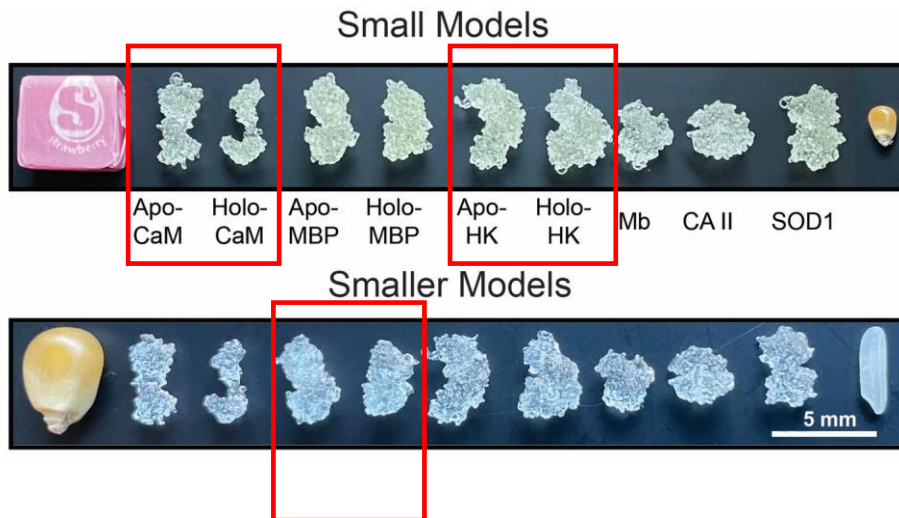


Baumer et al., Science Advances, 2021, 7, 22, eabh0691

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Small and Smaller molecular models we tested (dental resin)

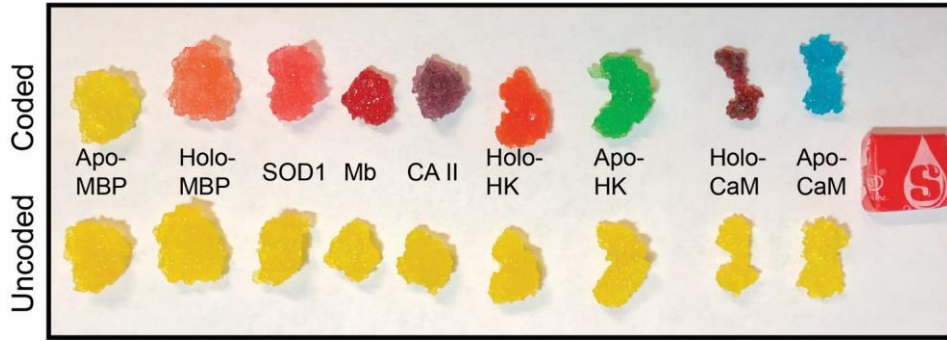


Baumer et al., Science Advances, 2021, 7, 22, eabh0691

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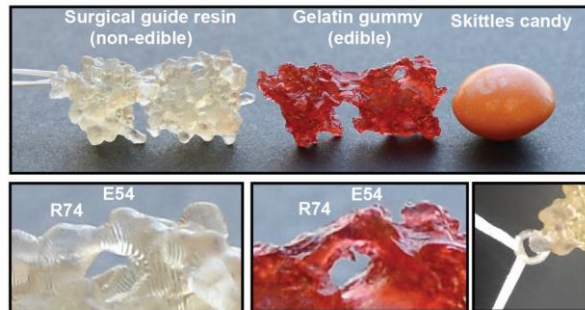
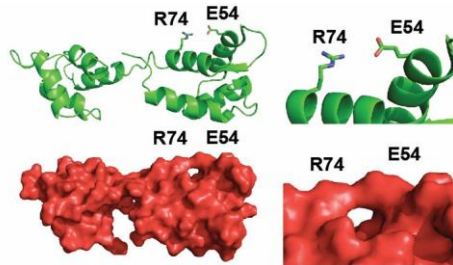
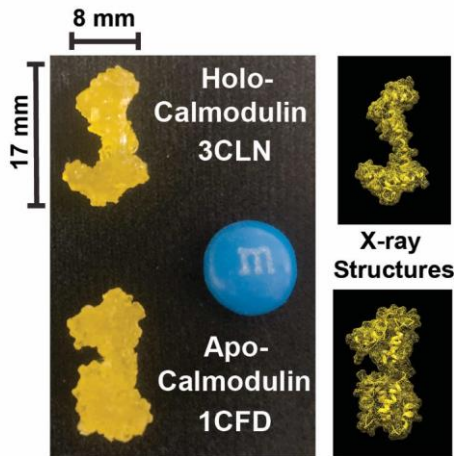
Small Edible Models



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The atomically accurate, edible molecular model



























Baumer et al., Science Advances, 2021, Volume 7, Issue 22, eabh0691

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Testing recall of a particular protein structure: 5261 tests performed on 396 students

Study Protein	Test Proteins							
	1	2	3	4	5	6	7	8
Holo CaM								
	Mb	Holo CaM	CA II	Apo CaM	Holo CaM	SOD1	Apo CaM	Holo MBP
Apo HK								
	Mb	Apo HK	CA II	Holo HK	Apo HK	SOD1	Holo HK	Apo CaM
Apo MBP								
	Mb	Apo MBP	CA II	Holo MBP	Apo MBP	SOD1	Holo MBP	Holo HK

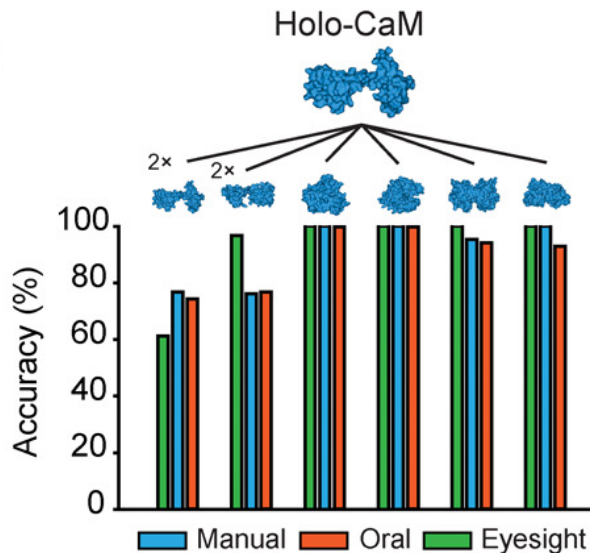
1. Provide one of three study proteins to visualize by mouth or hand.
2. Provide series of 8 models; 2 are original protein and 2 are alternate conformer.
3. Ask: Is this the same protein we originally gave you?

Separate control group used eyesight and molecular graphics (video screen).

Baumer et al., Science Advances, 2021, Volume 7, Issue 22, eabh0691

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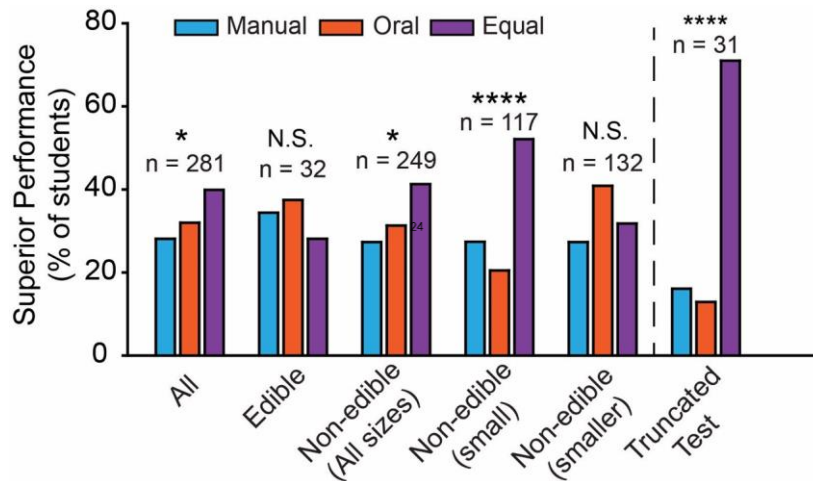
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Is the mouth better than the fingers? For some people—yes/maybe.



Smaller models:

41 % of students had superior recall by mouth

32 % of students had equal recall by mouth or hand

27 % of students had superior recall by hand

Baumer et al., Science Advances, 2021, Volume 7, Issue 22

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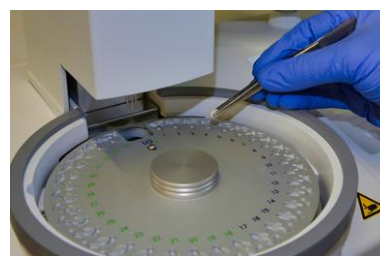
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