

Message From The Chair

As many of you know, I rejoined the University of Toronto in October 2022 after moving from l'Université de Montréal. During this first 1.5 years as Chair, I've found the role incredibly rewarding and energizing. I feel fortunate to have the chance to work with the many amazing people within the department, the Temerty Faculty of Medicine, and the University.

Our department is a powerhouse of research impact and breadth with rich opportunities for collaboration and engagement with other departments, our affiliated hospitals, and research institutes. Together, you are leading the way in what is an unprecedented era of technology development that has transformed and will transform the way we learn and discover. It is an exciting time for the field of biochemistry and for our department.

After a pause, we are excited to re-launch this quarterly newsletter, in which we aim to highlight your exciting advances and accomplishments! Our successes are driven by you — faculty, postdoctoral fellows, MSc/PhD candidates, research associates, teaching assistants, staff, visiting researchers, undergraduate learners, and alumni. We hope the newsletter will help to share and to celebrate your milestones!

There are many initiatives underway, and I am looking forward to what lies ahead for 2024. Please stay tuned for future newsletters, and if you wish to include materials in the upcoming issues, please feel welcome to let us know.

If you'd like to meet or connect on any topic, I would be pleased to hear from you. Please take good care, and all the best for the Spring and remainder of 2024.

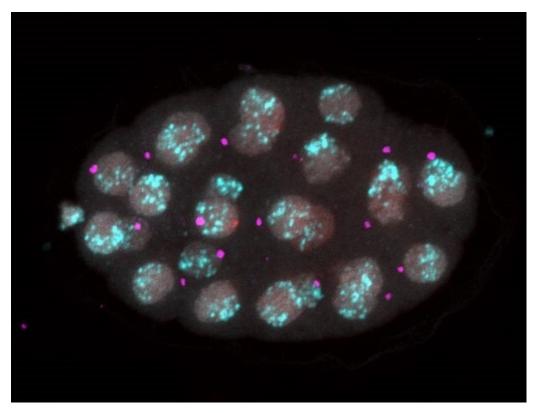
Sincerely,

Lea Harrington

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Researcher News



Co-immunofluorescence fluorescence *in situ* hybridization (FISH) of an early *C. elegans* embryo reveals the spatial organization of chromosomes. Nuclei are visualized with DAPI stain (gray). FISH probes for the entire chromosome V (cyan) are combined with immunofluorescence for the kinesin-like protein ZEN-4 (magenta). Image from Sawh Lab, by Ahilya Sawh.

Faculty Spotlight: Ahilya Sawh

Dr. Ahilya Sawh joined the Biochemistry Department as Assistant Professor in May 2023. Ahilya received her bachelor's degree in biochemistry from McMaster University and went on to study the mechanisms of RNAi in the Duchaine Lab at McGill University during her PhD. Her postdoctoral studies included investigations of nuclear organization in the Mango lab at Harvard University. The Sawh Lab focuses on 4D genomics, investigating the functional role of genome organization in cell fate decisions at the single-molecule level & across biological scales. Their work uses bioimage and spatial analysis to gain mechanistic & quantitative insights into *in vivo* chromatin biology. https://sawhlab.netlify.app



Researcher News

Congratulations to our Researchers and Educators for their Recent Distinctions and Achievements!

Roula Andreopoulos Recipient of the The Ontario Confederation of University Faculty Associations (OCUFA) Teaching Award https://ocufa.on.ca/press-releases/ocufa-awards-of-distinction-announced/

Karen Maxwell NSERC Arthur B. Macdonald Fellowship for outstanding early-stage researchers in the natural sciences and engineering https://www.utoronto.ca/celebrates/karen-maxwell-recognized-arthur-b-mcdonald-fellowship

Daniela Rotin Appointed Fellow of the Royal Society of Canada for her research and leadership in understanding membrane protein regulation by the ubiquitin system <u>https://rsc-src.ca/sites/default/files/2023 New Members_EN_1.pdf</u>

Joel Watts Renewal as Canada Research Chair Tier 2 in Protein Misfolding Disorders <u>https://temertymedicine.utoronto.ca/news/three-dozen-u-t-researchers-awarded-canada-research-chairs</u>

Haley Wyatt Recipient of Graduate Faculty Teaching Award for Early Career Excellence in Teaching and Mentorship <u>https://rhse.temertymedicine.utoronto.ca/graduate-faculty-teaching-awards-0</u>

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Please further join us in extending our congratulations to members of the Department who have been promoted to Professor, effective 1 July 2024.

Karen Maxwell

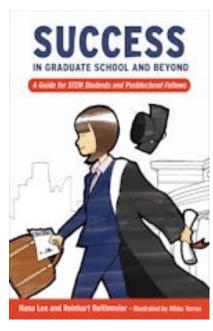
Alex Palazzo

Rob Screaton

Researcher News

Recent research in the Brown Lab: Feature Article by Anika Hazra

<u>U of T researchers pinpoint key issue with common chemotherapy drug, identify new potential</u> <u>therapeutic targets for pancreatic cancer</u>



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Drs. Nana Lee and Reinhart Reithmeier announce the launch of their second edition of "<u>Success in Graduate School and Beyond</u>" which is now available with a Canadian-wide perspective for all readers around the globe! Save the date: the official book launch will be on May 8, 2024 in the afternoon at Massey College!

Also, check out Dr. Reithmeier's Article in University Affairs

Career Advice: Five easy pieces of advice for new department chairs

MM

Post Doc Spotlight - Kirsten Meyer

Kirsten joined the Nodwell lab as a postdoc in 2020. Kirsten did her PhD in Pharmacology at Johns Hopkins University, and a first microbiology postdoc at Northeastern University. Kirsten is interested in developing new strategies to counter antimicrobial resistance, and in the Nodwell lab she's exploring mechanisms *Streptomyces* have to enhance the activity of the antimicrobial small molecules they produce. In particular she looks at the production of combination antimicrobials, and at antimicrobial packaging in extracellular vesicles.



Welcome New Team Members!

Linna Wei Department Assistant

What drew you to the Biochemistry Department?

I am an alumna of the Biochemistry Specialist program and I'm looking forward to fostering ongoing connections with the department.

How would you describe your role?

In addition to assisting with Department Administration, I help schedule meetings with the department Chair, field general enquiries, and direct individuals to appropriate channels for assistance, and schedule

Any fun facts you'd like to share about yourself?

I'm an avid crafter with a knack for DIY projects; I often find inspiration in everyday items, believing "I can make that". I'm a big fan of Toronto Summer months for the vibrant events and the opportunity to use my bicycle for commuting. I enjoy planning but I've learned to adapt to the chaos and embrace changes along the way.

What's the best way to contact you?

At my email -biochemistry.office@utoronto.ca



Adeel Firdousi Financial & Grants Officer

What drew you to the Biochemistry Department?

I am drawn to the idea of collaborating with researchers and faculty members, leveraging financial strategies to maximize resources and their impact. Plus, in my opinion Doctors are the closest to being real life superheroes, so having the opportunity to work with them is pretty cool.

How would you describe your role?

I help with the Financial Management of Grants, including processing invoices, expense reimbursements & time sheets for non-appointed USW staff. I can also help with creating purchase orders, and answer your questions about procurement.

Any fun facts you'd like to share about yourself?

I joined UofT in January 2021 and was working for the Department of Student Housing & Residence Life at UTSC prior to joining the department of Biochemistry. In my free time I like to play sports (basketball, soccer & baseball) and read about various topics. I would like to travel more so that I can continue to add to my "keychains from around the world" collection.

What's the best way to contact you?

By email, at <u>biochemistry.finance@utoronto.ca</u> or via Teams under "Adeel Firdousi"



Welcome New Team Members!

Coren Pulleyblank Communications Projects

What drew you to the Biochemistry Department?

As I recall, I got to do my first 'experiments' in MSB as a 6(?) year old. I would pipette dyes into a beaker of water and watch all the colours move with the turbulence patterns - I think that bit of childhood reverie will always stick with me. It's nice to be back in the place that got me started on my own scientific journeys.

How would you describe your role?

I am currently working on some communications initiatives for the department. My main project right now is migrating us to our new website. I look forward to getting all your updates so we can showcase the wonderful work being done here. Please share your ideas!

Any fun facts you'd like to share about yourself?

I've really enjoyed the opportunity to do fieldwork in the subarctic, Alps, and closer to home in the Rouge River Valley... there is something wonderful in science about engaging with matters of scale. I enjoy growing tomatoes on my balcony in the summer and I love singing in stairwells.

What's the best way to contact you?

At my email – <u>coren.pulleyblank@utoronto.ca</u> or just flag me down at MaRS or MSB–always happy to chat



NEW BIOCHEM WEBSITE ON ITS WAY

WE ARE LOOKING FOR YOUR INPUT!

KEEP AN EYE OUT FOR YOUR PROFILE UPDATE REQUEST

SHARE YOUR PHOTOS, RESEARCH IMAGES, VIDEOS

NEWS, FEEDBACK, AND IDEAS

SEND YOUR CONTENT AND IDEAS TO COREN.PULLEYBLANK@UTORONTO.CA

International Women's Day Remembering our First Woman Faculty Member Jeanne Manery Fisher



Jeanne Manery Fisher was the first woman to achieve professorial status in the Department. In 1932 she graduated from the Biological and Medical Sciences course given by the Department of Biochemistry at the University of Toronto and after obtaining her Ph.D. in Physiology, and post graduate studies in the United States, she returned to the Department in Toronto in 1940. Although she carried heavy teaching responsibilities and established an active research program, prejudices against women academics prevailed and she was not appointed to the professorial staff until 1948. She maintained her research program until her death in 1986, and achieved worldwide recognition for her studies on electrolytes, during the development of this field from doubts about the reality of a true plasma membrane to the isolation from the membrane of the key molecule involved in transporting Na+ and K+ across cell walls. Very aware of the need to increase the visibility and participation of women in the Canadian Biochemical Society, she was instrumental in establishing its Equal Opportunities Committee in 1981. Following her death, the Society established the Jeanne Manery Fisher Lecturer Award to honour her memory.

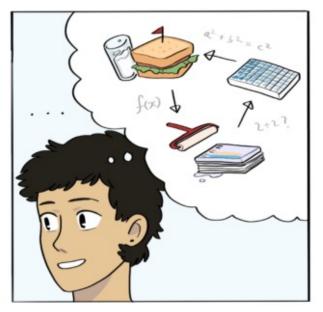
- Excerpt From Miriam Packham's History of the Biochemistry Department

Transcripts

Hey Biochem!

To celebrate the return of the Transcripts column in the relaunched departmental newsletter, we would like to highlight some of the articles that were featured on the Transcripts blog in the past.





"Biochemistry Cartoon Series: Getting Food with Your Labmates" by Matt Giles and Cindy Yimei Wan: <u>http://www.transcripts.blog/2022/11/07/biochemistry-cartoon-series-getting-food-with-your-labmates/</u>

"Interview with 2022 Biochemistry Retreat Keynote Speakers: Dr. Gira Bhabha and Dr. Damian Ekier" by Alison Mao:

http://www.transcripts.blog/2022/11/10/keynote-speakers-dr-gira-bhabha-and-dr-damian-ekiert/

"Choice of Life" by Kate Jiang: http://www.transcripts.blog/2023/08/15/choice-of-life/

"Transcripts 1-sentence Thesis Contest" by Alison Mao: <u>http://www.transcripts.blog/2023/08/30/transcripts-1-sentence-thesis-contest/</u>

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In addition, we are happy to announce that the Transcripts podcast series will be launched later this year. We are currently recruiting guests for the first episode, which will focus on the experience of graduate students interested in careers in industries. If you are an MSc student who is planning to pursue a career in industry and would like to talk about your experience, contact Raabez at <a href="mailto:real-about-mailto:real-butto

As the graduate student-run blog of the biochemistry department, we are open to submissions yearround. If you have a piece of creative work related to science, academia or graduate student life, contact Kate at <u>kate.jiang@mail.utoronto.ca</u> for details!

Make sure to follow us on Twitter and Instagram @transcriptsblog for more updates on our work!

From the Committees

Undergraduate Program

As the semester comes to an end, we would like to thank all of our instructors, teaching assistants, students, and student support staff for making this a successful year. A special congratulations to the **students who received funding for summer research this year and the supervisors who have agreed to host them. Lastly, we would like to point your attention to an exciting development on the undergraduate front: the ongoing recruitment of a new teaching-stream faculty member. Talks are being held this month and we encourage all members of the community to attend. Further details in your Inbox!

Graduate Program

Hope everyone is enjoying the end of the academic calendar. We'd like to thank Dr. Haley Wyatt for serving as our Associate Graduate Coordinator (Admissions and Recruitment for 2024-25). There will be a Biochemistry graduate student recruitment event on May 30 – May 31st. There will be a meet and greet session for faculty and the BGSU will host another evening activity with the potential new recruits-stay tuned for details. We are also supporting the relaunch of the BGSU annual survey on April 24- see details on the upcoming events page! There will be Pizza and Prizes!

Congratulations to all our Graduate Students who Presented their Work at the First Talks Symposium!



From the Committees

BGSU

The BGSU is Kickstarting an new industry professional seminar/meet-and-greet series! We will be inviting scientists who have entered a wide range of different fields in industry to come give a talk about their professional experience. We'll be setting up small-table meetings with biochemistry graduate students. We welcome any recommendations on speakers to invite. To start off this series, we have the privilege of having Dr. David Sealy, on April 16.

WIDE

Biochemistry Day

The WIDE Committee is thrilled to be hosting Biochemistry Day today, Wednesday, April 17th from 1-4pm in MSB! Biochemistry Day allows underserved high school students from across the GTA to learn about STEM carers and participate in hands-on lab activities. This year, the high school students will have the opportunity to discuss career paths in both academia and industry with a panel of representatives from the Department of Biochemistry and industry. Our Biochemistry student volunteers will then lead the high schoolers through ELISA-based and agar plate streaking activities. Please email Nick Silver (<u>nicholas.silver@mail.utoronto.ca</u>) for more information.

Upcoming Institutional Dates of Recognition

Sikh Heritage Month April 1-30	National Accessibility Week May 25-June 1
Asian Heritage Month May 1-31	National Indigenous History Month June 1-30
International Day Against Homophobia, Transphobia, and Biphobia May 17	National Indigenous Peoples Day June 21
	Pride Month June 1-30

For more information and days of observance, visit: https://people.utoronto.ca/inclusion/dates-of-observance/

Upcoming Events

RECAP

This Spring:

Public Talks for Teaching Faculty Recruitment

PhD Seminars Keep an eye on Cette Semaine

Website Launch-We'll keep you posted

2024 Summer Research Student Program Begins!

April 17 Biochemistry Day for Highschool Students

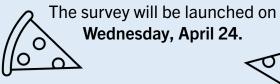
April 24 BGSU Survey Day - MSB 2172

May 8 Book Launch at Massey College Success in Grad School and Beyond

May 30-31 Graduate Student Recruitment Event

June 3-21 Convocation June 5 TFOM Convocation

AND... The BGSU Annual Survey is back!



To promote completion, MSB 2172 is reserved from 1-2 pm so that people can sit and fill out the survey immediately after student seminars. Pizza will be provided! In addition, everyone who completes the survey will be entered to win one of three gift cards of their choice

Graduate Seminar Series and Connell Lectures

April 17 MSB 2172 Randy Yoo (Jean-Philippe Julien) Amogh Natu (Aleixo Muise)

April 24 MSB 2172 Zi Hao (Nemo) Liu (Julie Forman-Kay) Robert Wilson (Alan Davidson)

May 1 MSB 2172 George Connell Lecture: Dr. Heidi McBride

May 8 NL Building Rm. 6 Visiting Speaker: Anthony Leung

May 15 NL Building Rm. 6 George Connell Lecture: Dr. Sabine Petry

May 29 NL Building Rm. 6 George Connell Lecture: Dr. Asma Hatoum Good Luck to All Our Undergraduate Students For Exam Season!

Upcoming Events

BGSU Industry Meet and Greet Series

David Sealey

April 16, 2024, 3pm, MaRS 15th floor Sign Up through the BGSU!

David Sealey, PhD, is Director of Regulatory Affairs (Oncology) at AstraZeneca Canada. He trained as a cancer biologist at the Campbell Family Institute for Breast Cancer Research and went on to hold roles of increasing responsibility in Regulatory and Medical Affairs at the Janssen Pharmaceutical Companies of Johnson & Johnson. David has guided drug development programs at various stages including basic and translational research, early clinical development (IND), application for marketing authorization (NDS/SNDS), and postapproval lifecycle management.

David is currently a Mentor at the Health Innovation Hub (H2i) at the University of Toronto.

Post Doc Social

Have a break

Free Coffee. Free Snacks. Free Chats.

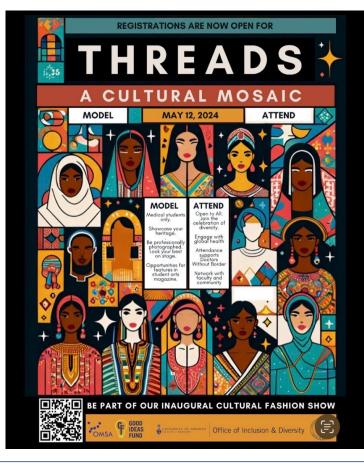
Meet other Post-Docs, Share challenges, Chat, and Relax.

All Departments Welcome Research Associates Welcome No Career Development Required!

Last Wednesday of every month MaRS Rm 1623

Want to join but aren't sure how to visit MaRS? Email <u>elizabeth.radley@utoronto.ca</u>





Biochemistry NEWS - Spring 2024

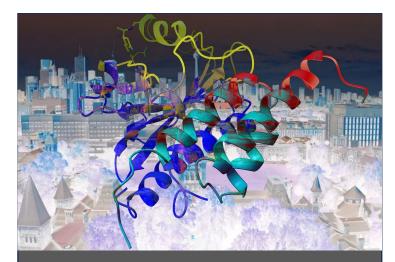
Upcoming Events



20th Annual Chemical **Biophysics** Symposium

Workshops in: **Coarse Grained Molecular Dynamics** Theory and Practical Aspects of Cryo-EM April 26-28 – U of T St. George Campus

www.chembiophysics.ca



5th Protein Engineering Canada (PEC) Conference **Medical Sciences Building** June 26-28, 2024

https://event.fourwaves.com/pec2024/pages





- **R**eplication
- Repair
- **Symposium**

Keynote Speaker: Dr. David Pellman

Faculty Club, University of Toronto April 19, 2024 9am-7pm

Registration Free https://tdrrs.wordpress.com

Cryo-EM of the Nucleosome Core Particle Bound to Ran-RCC1 Reveals a Dynamic Complex.

Huang SK, Rubinstein JL, Kay LE. Biochemistry. 2024 Apr 2;63(7):880-892. doi: 10.1021/acs.biochem.3c00724. Epub 2024 Mar 19.

Poly(ADP-ribosyl)ation enhances nucleosome dynamics and organizes DNA damage repair components within biomolecular condensates.

Nosella ML, Kim TH, Huang SK, Harkness RW, Goncalves M, Pan A, Tereshchenko M, Vahidi S, Rubinstein JL, Lee HO, Forman-Kay JD, Kay LE.

Mol Cell. 2024 Feb 1;84(3):429-446.e17. doi: 10.1016/j.molcel.2023.12.019. Epub 2024 Jan 11.

Nedd4-2-dependent regulation of astrocytic Kir4.1 and Connexin43 controls neuronal network activity.

Altas B, Rhee HJ, Ju A, Solís HC, Karaca S, Winchenbach J, Kaplan-Arabaci O, Schwark M, Ambrozkiewicz MC, Lee C, Spieth L, Wieser GL, Chaugule VK, Majoul I, Hassan MA, Goel R, Wojcik SM, Koganezawa N, Hanamura K, Rotin D, Pichler A, Mitkovski M, de Hoz L, Poulopoulos A, Urlaub H, Jahn O, Saher G, Brose N, Rhee J, Kawabe H. J Cell Biol. 2024 Jan 1;223(1):e201902050. doi: 10.1083/jcb.201902050. Epub 2023 Nov 30.

<u>Upregulated pexophagy limits the capacity of selective autophagy.</u> Germain K, So RWL, DiGiovanni LF, Watts JC, Bandsma RHJ, Kim PK. Nat Commun. 2024 Jan 9;15(1):375. doi: 10.1038/s41467-023-44005-4.

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Rotin D, Prag G.

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Design of amyloidogenic peptide traps.

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Labib M, Wang Z, Kim Y, Lin S, Abdrabou A, Yousefi H, Lo PY, Angers S, Sargent EH, Kelley SO. Nat Biomed Eng. 2024 Mar;8(3):263-277. doi: 10.1038/s41551-023-01135-w. Epub 2023 Nov 27.

iPSC-cardiomyocytes in the preclinical prediction of candidate pharmaceutical toxicity.

Lee TYT, Coles JG, Maynes JT.

Front Pharmacol. 2024 Feb 28;15:1308217. doi: 10.3389/fphar.2024.1308217. eCollection 2024. Review.

A general platform for targeting MHC-II antigens via a single loop.

Du H, Liu J, Jude KM, Yang X, Li Y, Bell B, Yang H, Kassardjian A, Mobedi A, Parekh U, Sperberg RAP, Julien JP, Mellins ED, Garcia KC, Huang PS. bioRxiv [Preprint]. 2024 Jan 30:2024.01.26.577489. doi: 10.1101/2024.01.26.577489. Preprint.

<u>Measurement of solubility product in a model condensate reveals the interplay of small oligomerization and self-association.</u> Chattaraj A, Baltaci Z, Mayer BJ, Loew LM, Ditlev JA. bioRxiv [Preprint]. 2024 Jan 26:2024.01.23.576869. doi: 10.1101/2024.01.23.576869. Preprint.

<u>A cholesterol switch controls phospholipid scrambling by G protein-coupled receptors.</u> Menon I, Sych T, Son Y, Morizumi T, Lee J, Ernst OP, Khelashvili G, Sezgin E, Levitz J, Menon AK. J Biol Chem. 2024 Feb;300(2):105649. doi: 10.1016/j.jbc.2024.105649. Epub 2024 Jan 16.

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Anti-phage defence through inhibition of virion assembly.

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Subcutaneous white adipose tissue independently regulates burn-induced hypermetabolism via immune-adipose crosstalk. Knuth CM, Barayan D, Lee JH, Auger C, de Brito Monteiro L, Ricciuti Z, Metko D, Wells L, Sung HK, Screaton RA, Jeschke MG.

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Mesoscale condensates organize the cytoplasm.

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Olyha SJ, O'Connor SK, Kribis M, Bucklin ML, Uthaya Kumar DB, Tyler PM, Alam F, Jones KM, Sheikha H, Konnikova L, Lakhani SA, Montgomery RR, Catanzaro J, Du H, DiGiacomo DV, Rothermel H, Moran CJ, Fiedler K, Warner N, Hoppenreijs EPAH, van der Made CI, Hoischen A, Olbrich P, Neth O, Rodríguez-Martínez A, Lucena Soto JM, van Rossum AMC, Dalm VASH, Muise AM, Lucas CL.

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HiTaxon: a hierarchical ensemble framework for taxonomic classification of short reads. Verma B, Parkinson J.

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Cell4D: a general purpose spatial stochastic simulator for cellular pathways.

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Target lysis by cholesterol extraction is a rate limiting step in the resolution of phagolysosomes. Barreda D, Grinstein S, Freeman SA. Eur J Cell Biol. 2024 Mar;103(1):151382. doi: 10.1016/j.ejcb.2023.151382. Epub 2023 Dec 27.

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Optimization of TROSY- and anti-TROSY-based ¹⁵N CPMG relaxation dispersion experiments through phase cycling. Cui Y, Jin Y, Hou Y, Han X, Cao H, Kay LE, Yuwen T. J Magn Reson. 2024 Feb 2;361:107629. doi: 10.1016/j.jmr.2024.107629. Online ahead of print.

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Mao YQ, Seraphim TV, Wan Y, Wu R, Coyaud E, Bin Munim M, Mollica A, Laurent E, Babu M, Mennella V, Raught B, Houry WA.

Cell Rep. 2024 Feb 27;43(2):113713. doi: 10.1016/j.celrep.2024.113713. Epub 2024 Feb 1.

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<u>Use of OneNote class notebook as a combined electronic laboratory notebook and content delivery tool in an introductory biochemistry laboratory course.</u>

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