Tri-Institutional PhD Program
Chemical Biology

TPCB Research in Progress Seminar Series 2024–25

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Overview

The TPCB Research in Progress Seminar Series is an important component of our graduate training program. It provides students with opportunities to learn about chemical biology research being carried out in other TPCB labs, to identify new potential collaborations, and to receive advice and feedback about their own research from peers and faculty. In addition, student presenters gain invaluable experience in developing high-quality oral and visual presentations suitable for a broad scientific audience. This experience can then be translated to other presentations at scientific conferences and thesis defenses.

Attendance and Participation Requirements

TPCB students who have completed their PhD candidacy exams (ACE/TRP) are required to present at least once per academic year. Presentations may be scheduled to serve as practice talks for other seminars that the student will be giving at conferences or their thesis defense.

All TPCB students are required to attend all Research in Progress seminars as part of their training and are expected to participate actively in the discussions. Any absences must be approved *in advance* by the TPCB Program Director and a makeup assignment completed, consisting of a one-page written summary and critical analysis of published work presented by the seminar speaker or another related paper from that laboratory. Students may not use artificial intelligence (AI) platforms to draft or write makeup assignments in this course, and should conduct their own, independent analysis of the research paper.

Presentation Format

Each student seminar will consist of a **25-minute oral presentation**, followed by a 5-minute question-and-answer period; questions may also be asked during the oral presentation. Students are expected to prepare a polished presentation designed specifically for a *broad chemical biology audience of non-specialists*. As such, the presentation should focus on the overall background and rationale for your work, *selected* key experimental results, significance of the findings, and future directions. In other words, this should not simply be a copy of your last group meeting presentation with every detail of every experiment. TPCB faculty thesis mentors have been asked to assist their students in preparing and reviewing these presentations. Please see the General Tips sections below for additional presentation advice.

Each presention must also contain an explicit analyses of Rigor & Transparency and Responsible Conduct of Research considerations in the work (one slide each at the end):

Rigor & Transparency are essential to ensuring that scientific conclusions are based on critical analysis of robust experimental data, and that experiments can be reproduced by other

scientists, thereby validating the original results and the readiness of the research to progress to the next phase. Students should provide a thoughtful self-assessment that includes specific examples of how they considered and addressed considerations such as alternative hypotheses, potential reproducibility issues, and/or validation of research materials. It is not sufficient to simply state, for example, "experiments performed in triplicate; protocols available upon request." Other elements to be assessed may include, but are not limited to: use of suitable controls, statistical analyses, blinding of research samples, data and resource sharing, availability of detailed experimental protocols, validation and chararacterization of chemical and biological reagents, consideration of biological variables including sex in animal experiments, and reproduction of the experiments by other scientists in the lab or elsewhere. For more information, see: https://www.nih.gov/research-training/rigor-reproducibility.

Responsible Conduct of Research ensures that the work adheres to ethical and professional norms. Students should provide formal disclosures regarding considerations specific to their work that may include, but are not limited to: electronic manipulation of images, data management and retention, laboratory safety protocols, proper citation of collaborators and literature precedents, funding sources, intellectual property, financial conflicts of interest (for the student, coworkers, and/or PI), animal welfare and protection of human subjects, and ethical implications. For more information, see: https://oir.nih.gov/sourcebook/ethical-conduct/responsible-conduct-research-training

Presentation Feedback

Each seminar will be attended by several TPCB faculty, including the Thesis Mentors of the students presenting and selected Guest Mentors, who will provide candid, constructive feedback on both the scientific content and oral and visual aspects of each student's presentation. The attached evaluation form will be used to provide detailed feedback to each student. Note that the scores are for informational purposes only and are not used in grading.

General Tips for PowerPoint Slide Design

- Depending on how much material you put on each slide, you should have ideally 12–15 slides (1–2 min/slide) and absolutely no more than 25 slides (1 min/slide)
- Include an outline slide at the beginning of the talk and a summary slide at the end
- Use descriptive slide titles that explicitly state the take-home message of each slide, not just the topic; this can also be done with subtitles, headings, or a summary line
- Develop and use a clean, consistent layout for all slides, titles, text, and figures; proofread slides by reviewing each element for consistency, one at a time
- Use slide master to number all slides in the lower right or left corner for easy reference
- Use color, font formatting, and animation judiciously to emphasize key items
- Avoid layouts that are overly sparse (white space) or overly dense (no spaces)
- Use at least 14-point font, larger for titles & headings (12-point is ok for references)
- Use hanging indents for bullet lists; use concise phrases instead of full sentences
- Make sure all graphics are clear and readable; redraw structures if necessary
- Do not use the ACS format for ChemDraw structures – for a PowerPoint presentation, structures should be 25–50% larger, with thicker lines, and larger atom labels
- Use regular, 120° bond angles where appropriate for ChemDraw structures

General Tips for Oral Presentations

- Stand up for all presentations; command the attention of the room
- Rehearse your presentation several times prior to your seminar; shorter talks should be rehearsed more times to ensure that you adhere to time limits
- Avoid reciting from notes or text from your slides; memorize your talk and place information on the slides to cue your verbal statements
- Avoid colloquialisms such as: “you know”, “I mean”, “like”, “um”, “ah”, “sort of”, etc.; listen to yourself as you speak to catch and eliminate these phrases
- Use a strong laser pointer, or mouse if presenting online, and guide the audience step-by-step through each slide
- Speak authoritatively and confidently - avoid raising the inflection of your voice at the ends of phrases and sentences, unless you are actually asking a question?
- Be dynamic in your oral presentation and convey your enthusiasm to the audience

Key Online Resources

- Communicating Science: Giving Talks (Burroughs Welcome Fund)
  http://www.bwfund.org/career-tools/communicating-science-giving-talks
- Designing Effective Scientific Presentations (Susan McConnell, PhD)
  http://www.ibiology.org/ibioseminars/techniques/susan-mcconnell-part-1.html
- TED Talk: Talk nerdy to me (Melissa Marshall)
  https://www.presentyourscience.com/