

KOTHE LAB MANUAL**SUMMER 2019****1. Group philosophy: What it means to be part of the Kothe group****a. Goals**

We are working together in the Kothe group because we share a common interest in research and science and because we want to learn and develop our careers with each other. As a team, each person's success and happiness depends to some extent on the others, and we commit to a collaborative approach to achieve our goals.

We recognize the following as important goals that we aspire to achieve together:

- We want to advance our careers and prepare for interesting positions in any science-related field following our time together in the Kothe lab.
- We want to become the best scientists possible.
- We want to make meaningful scientific discoveries that are of general interest to many colleagues.
- We want to disseminate our discoveries through publications and conference presentations.
- We want to ask bold questions that address fundamental and applied issues in the molecular life sciences.
- We want to conduct rigorous and accurate experiments that provide clear insight.
- We want to steadily refine our critical thinking skills through constructive interactions and feedback on research conducted in the Kothe group and by others.
- We want to develop outstanding skills in scientific communication and presentations including using precise and clear scientific language.
- We want to become continuously better at teamwork, time and project management.
- We want to increase our scientific knowledge not only in our own research area to develop a broad knowledge base in the molecular life sciences.
- We want to celebrate each other's successes recognizing that progress of the entire team ultimately benefits each personal career.
- We want to share both successes and challenges because both are needed to make true advances in research and because we want to learn from each other.
- We want to develop strong perseverance by supporting each other.
- We want to enjoy working together.

b. Interacting with each other*Respect & Support*

The Kothe team strives to be a role model for professional, respectful and effective teamwork. To achieve this, every team member must actively contribute to the team atmosphere including reminding others about our lab philosophy if needed.

We treat each other with respect recognizing that we all have different skills, different experiences, different backgrounds, different personalities and simply different lives. Respect means for us to strive in our interactions for a good balance of providing support to each other

2. Work-life balance

We commit to enable each group member to achieve a healthy work-life balance! Therein, we recognize that everyone will have a different work-life balance, but our common goal is that each person can lead a healthy life. Furthermore, we recognize that each group member spends a significant time of their life as part of the Kothe group, but we also respect everybody's private lives.

- We support each other in our professional and personal needs and offer advice and support to each other in balancing our work and life commitments.
- When you need one day off on an occasional basis for various reasons (physical or mental health, family issues or other reasons), inform Ute by email that you will be absent. It is your choice whether or not you share the reason for your one-day absence.
- If you are supervising somebody or if you have a supervisor in the lab, inform your supervisor/student by email and copy Ute.
- Plan your holidays in advance with Ute. In general, it is acceptable to take up to one month of holidays balanced over one year to maintain a healthy work-life balance. If you want to take longer holidays, this needs to be discussed with Ute.
- Inform your team members ahead of time if you are absent for more than a week to help coordinating our research. Also, let us know whether or not (and how) you can be contacted during your holidays. We respect each other's holidays and contact a person on holidays only in very important cases.
- Our guiding principle in planning our *working hours* is to maximize both flexibility and productivity. In other words: we spent the time in the lab we need to get the research done. This approach allows us to balance long days/weeks with shorter days/weeks as optimal for both our experiments and our work-life balance.
- Whereas you are in general flexible in choosing your work hours, we commit to be present between 10 am and 3 pm for most of the time (e.g. except for lunch) to enable coordination and interaction among all group members. You may work in the wet lab(s) or the office as needed during this time.
- You are encouraged to enjoy your time in the Kothe team and the University of Lethbridge as much as possible engaging in healthy social relationships! However, be aware that mere presence and social interactions do not count towards research work.
- Independent study and honor thesis students should use the weekly office hours with Ute and their supervisor to plan the up-coming week and to get advice on managing their time. In general, the University of Lethbridge expects independent study students to invest 10 hours per week into the independent study. This time can be flexibly arranged across different weeks, i.e. it is likely that you will work more in certain weeks, but you are then able to invest less time in other weeks, e.g. when you have other obligations, midterms, etc.
- Graduate students prepare a research proposal including timeline at the onset of their studies which is a very useful tool to monitor your progress over time. Conducting graduate studies furthers your education and cumulates in an advanced degree based on your scientific achievements, but not based on your hours spent at the University. Therefore, you should be smart about planning your experiments as well as your time! Ute is available anytime for advice and feedback on your progress and time commitment, and it is recommended that you discuss your goals and achievements with her every term.

- Canadian Society of Chemistry Meeting
- CSMB Meeting (Canadian Society of Molecular Biology)

5. Publications

As stated in our goals, we strive to generate high-quality interesting publications that gather the attention of our international colleagues. A peer-reviewed publication is the gold standard of scientific research, but it takes many steps to achieve a publication:

- Generate a high-quality, reproducible data set and discuss with Ute the “story” emerging from the data, i.e. the main novel insight into RNA biology. This can be initiated early and repeatedly, and it can also be helpful to draw a schematic model of the take-home message for the publication. Ideally, you should come with a “story” in mind which can be further refined by talking with Ute.
- Decide what additional data are needed to complete the story for publication and to make it as interesting as possible.
- Discuss and decide on a journal (and alternatives) for publication based on similar publications by other colleagues in our field considering scope and impact of your work. Publication cost can also play a role.
- Read the submission guidelines for authors of this journal carefully.
- Prepare high-quality figures that are clearly organized and follow the journal’s guidelines. Write the figure legends.
- Use our “How to write a Paper” guideline document to write a first draft of the manuscript, typically in the order of materials & methods, results, discussion, introduction, abstract. Again, follow the journal guidelines.
- Improve and polish the manuscript through rounds of revisions with Ute and possibly other colleagues (from our or other labs, e.g. find someone who is specialized in the technique you are using).
- Write and improve a strong cover letter highlighting the impact of this manuscript in the broader (RNA) research community.
- Submit the manuscript and hope that the editor sends it to reviewers.
- Prepare more biomolecules, conduct more experiments in anticipation of the reviewers’ requests which typically need to be addressed in limited time.

An important consideration when publishing is authorship. In general, any researcher who has made substantial intellectual and/or experimental contributions to the work will become a co-author. Experimental contribution means that you have generated at least one figure in the manuscript. Students who helped with preparative work (proteins, RNA, cloning, mutagenesis, etc.) are typically recognized in the acknowledgements. Intellectual contribution means development of ideas, data analysis and/or writing of the manuscript. In our field, the order of the authors reflects the magnitude of the contribution with the first author having conducted most of the work.

6. Intellectual Property

Successful research depends on interesting ideas and high-quality experiments. The outcome of research is typically either a publication (with associated copyright) or a patent; both copyright and patent fall under the topic of intellectual property. To familiarize yourself with intellectual property, you should read the UofL “Intellectual Property Guidelines for Graduate

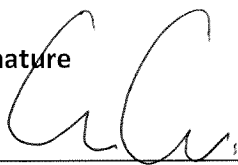
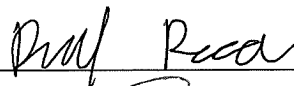
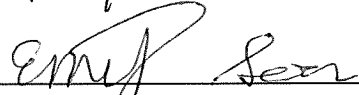
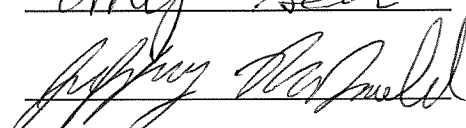



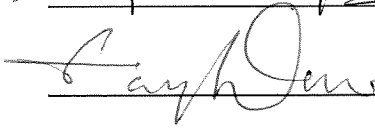
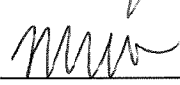
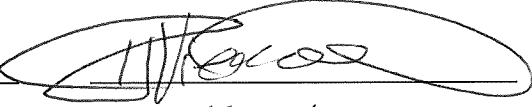


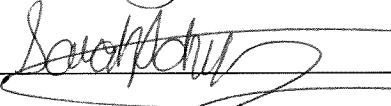

following information: date, type of gel, sample description for each lane including quantities loaded. For western blot, add the antibody name and dilution and the exposure time).

- Label your samples clearly, ideally with initials and date to refer clearly to your lab book where additional information can be maintained.
- Enter all samples for long-term storage in Quary in particular if these are stored at -80°C, i.e. glycerol stocks with plasmids/strains verified by sequencing, plasmid stocks verified by sequencing, protein preparations, antibodies, primer stocks (100 µM).
- New chemicals must be entered in Chematix with a barcode and location. Empty chemicals must be removed from Chematix.
- When working with radioactive materials, complete the documentation within 24 hours and ensure it is 100% correct (if needed, ask for help and double-checking) because we may otherwise lose the radiation license for the entire lab.

9. Lab safety and maintenance

To achieve our goals, we must maintain a safe and functional lab where each team member has access to all the required materials and instruments. The following list of rules is not exhaustive, but covers many basic aspects of maintaining a safe and functional lab:

- No food and no drinks are allowed in the lab.
- Do not store personal property in the lab (no backpacks, coats, etc.).
- You must wear appropriate clothing at work, i.e. closed shoes and long pants to protect your feet and legs (no flip flops, shorts, skirts).
- You must always wear a lab coat and gloves when working in the lab, and you need to know when safety glasses or other Personal Protective Equipment (PPE) is needed.
- Long hair must be tied into a ponytail or similar in the lab to minimize contamination with hair.
- No headphones on both ears (only one). You must be able to hear the others talking and be able to hear an abnormal sound coming from an instrument.
- Wash your hands when you leave the lab.
- Follow the common Kothe lab protocols and suggest improvements as you see fit.
- Never wear gloves when using the computer.
- Only one glove is allowed outside the lab area; open doors without gloves.
- Talk with a principle investigator if there was an incident and file a report together.
- At the end of every day, remove clutter from your bench and clean it with 70% ethanol. In general, don't leave your materials/gloves in other lab areas.
- Always clean the balance with a wet paper towel after each use. Also, remove spills immediately.
- Fill your own tip boxes using gloves, label them with your name and bring them to the autoclaving area.
- Know and complete your lab tasks in a timely manner such as dishwashing, mopping, preparing buffers/media etc.
- Read instrument SOPs and familiarize yourself with new equipment before using it.
- Use our booking systems to reserve equipment for the time you actually need it; remove/adjust booking if your time changes. Respect other bookings.
- Turn off equipment after you used it to increase its lifetime. Similarly, check if all

Name (printed)	Signature	Date
Julia GUEGUENIAT		August 01, 2019.
Daniel Rocca		Aug 1 2019
Emily Soon		Aug 1, 2019
Jeffrey McDonald		Aug 1, 2019.
Dennis Campbell		Aug 1, 2019
Dominic Czekay		Aug 1, 2019
Damian ha Rocca M.		Aug 1, 2019.
Gayatri Devi		Aug 1, 2019
Michelle Wu		Aug 1, 2019
Hope Vienmeau		Aug 1, 2019.
Ute Kothe		Aug 1, 2019
Elijah Dueck		Aug. 1st, 2019.
Sarah Schultz		Aug 1/19
Timothy Vos		Aug 1/19