How to DePaolo Lab

depaolo lab

scienceing the microbiome.

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I expect the highest level of performance in all tasks and projects. From the minute you step foot in the lab, I expect this level of performance on each and everything you take on from the most complex of experiments to the most mundane of cleaning tasks. Take pride in your work. Take pride in all of your work, even those mundane tasks.

I expect you to always maintain a clean and organized laboratory. This includes both your desk and your work bench. Be meticulous. Scientist are known to be messy and disorganized so, it is easy to use this as an excuse to keep your area unkept. I will not tolerate this behavour. If it is not in your nature, you will need to learn new habits. Clean and organize as you work because when you leave each evening, the lab, including your desk and your bench, should look as though no one has been there. Respect the space, your work, and your coworkers by working neatly and mindfully.

I expect you to manage the equipment. The lab equipment is yours to use; take care of it. Perform daily cleaning, startup, and shut down procedures. Monitor usage and make sure that no abuse or misuse is occurring. If you see misuse, immediately inform the user of their error. If you find that equipment is not functioning properly, immediately inform all lab members and speak up to the senior lab member. If you are the senior lab member, you should know how to handle the situation.

I expect you to know and follow the rules. Biosafety and IACUC protocols are to be followed to the letter at all times. There is no reason why you should ignore or override any protocol ever. To avoid mistakes, you should know the protocols inside and out. Always wear proper PPE. Never wear clothes inappropriate for working in the lab. Always kindly educate new lab members and / or visitors.

I expect your data to always include proper controls and sample sizes.

I expect your data to have been reproduced, analyzed, and interpreted before presenting it to me.

I expect you to know your own data. It doesn't matter if you have done 100,000 experiments, if you cannot discuss what you have done because you cannot remember the details, it is worthless. Take the time to understand your data. The more you analyze and study it, the more you will understand your data and the better you will become at accessing this information so you can actively and effectively contribute to discussion.

I expect you always be looking back through your data. It is important that you re-visit old experiments because new data may shed light on something you couldn't explain earlier.

I expect you to know the literature. Know the literature about your project and all tangential topics better than anyone. Know the big players in the field. Always be thinking about how their data affects your project. Always be looking for new techniques and thinking about how you might apply them to your project.

I expect you to attend symposia. Science grows from knowledge. Part of science is also interacting with your peers at such events. Go to these events and talk to people, exchange ideas, and have fun.

Expectations

To complete the training, you will need your UW NetID. If you do not have one, or have any questions, please contact Parker at aparker@medicine.washington.edu

Lab safety and animal training for both full and part-time lab members is found on the DePaolo Lab website, www.depaololab.com/lab-safety

You will need to complete the Animal Use Medical Screening (AUMS). As of May 1, 2019, all UW personnel who work in animal care and use environments must complete at least one animal use health screenings (commonly referred to as AUMS or AHA). You may decline the recommended subsequent periodic health screenings. This policy change is due to new enforcement practices by the federal Office of Laboratory Animal Welfare (OLAW). This brief EH&S article explains the policy change. To enroll in the initial AUMS, complete the form found here Animal Use Medical Screening (AUMS).

It it up to you to know where your lab safety training certificates are located. Not only should you know for yourself, but EH&S must know that you know. All of your lab training certificates are stored on UW's MyTraining. You will need your UW NetID to access this website. https://training.ehs.washington.edu/mytraining/

Animal training certificates are not currently stored by the UW but, DePaolo Lab does store them on the lab Sharepoint page. For all animal trainings, you will need to email any documentation and email it to Parker aparker@medicine.washington.edu

Training

Through presentations, you will learn how to deliver an effective, methodical, and coherent scientific story. Your presentations also serve as a outline for your paper.

I expect you to give your best whether you are presenting at our lab meeting, at the work-in-progress Microbiome Club meetings, or to a another audience all together.

Your presentation slides should always include the following (unless otherwise specific by the organizers):

BACKGROUND & SIGNIFICANCE

Why do I care? Why should I continue to support this project?

HYPOTHESIS OR OBJECTIVE

State your hypothesis clearly and concisely.

METHODOLOGIES USED

What is innovative about this project? Did you use new techniques, new methods and / or new approaches? What is your experimental design?

RESULTS

Your data should be analyzed and interpreted. All figures should be done according to the DePaolo Lab template ("data"). Reproducibility, sample size, and statistical tests should be clearly stated.

INTERPRETATION

I have done away with summary and conclusion slides; I never want to see them. They have become a boring waste of time.

Instead, I want a slide or two dedicated to your interpretation of your results. Not only what do these data mean in the context of your study but, also in the bigger picture of biology. How does your work fit in or contradict with the works of others in the field? What does this data mean for your project and for other projects in the lab? What does this data mean for life?

NEXT STEPS

Immediate plans to prove or disprove your interpretation of your data.

ACKNOWLEDGEMENTS

Your final slide should look like this ➡

Your first presentation is the start of your story and the start of your paper. No member of DePaolo Lab is to leave the lab without a published paper. ABW. Always be writing.

Storytelling

Acknowledgements

Depaolo Lab Present

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Depaolo Lab Past

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Include all lab members

All other groups, people and/or institutions that contributed, this should include UWGI and CMiST

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Personal social media(optional)

Lab website & your contact info (optional)

Lab logo (on lab website – "Press Kit")

depaolo lab

www.depaololab.com | @depaololab

Your figures are to follow the same design. In addition to needing figures for your own presentations, manuscripts, grants, etc., I will be requesting figures from you often for the same types of materials. For your purposes and mine, I would strongly urge you to create figures correctly from the get-go so you do not have to potentially correct them later. If you are unsure about a figure, take a look at some of the past publications from the lab.

Be meticulous. Always keep in mind that someone else, a reader, reviewer, peer, mentor, me(!), etc., will be looking at and interpreting your figures so, it is in your best interest to create them with care. Take the time to create figures that effectively present the data you worked so hard to obtain.

Figures

MOUSE GROUP ABBREVIATIONS

1. Knock-out mice, TLR1 and TLR6, should be abbreviated as follows:

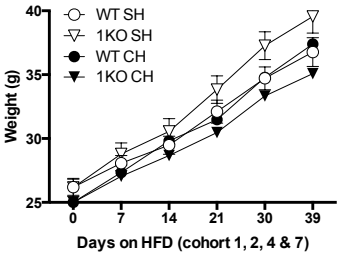
a. TLR1 → 1KO
b. TLR6 → 6KO

2. If you have two mouse groups, symbols should be as follows:

a. 1KO →▼
b. WT →●
c. For bar graphs, one group will be black and the other white

3. If you have 2 treated mouse groups, symbols should be as follows:

a. Control treated 1KO →▽
b. Experimentally treated 1KO →▼
c. Control treated WT →○
d. Experimentally treated WT →●



GENERAL FIGURE GUIDELINES

1. Do not title graphs
2. Use only shades of black. Do not use color.
3. If you need to further clarify bar graphs, use patterns rather than color.
4. Do not change the default text.
5. All lines within the graph should be 0.5 point, like so

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6. Error bars should be underneath the symbol.
7. Whenever possible, any text written under the x-axis is to be horizontal, not at an angle or vertical. I recognize that there are times when this will not make sense.

Data

LAB NOTEBOOK

Your lab notebook is part of a living record of all experiments and studies in DePaolo Lab. It is important that you understand and appreciate that your lab notebook will serve as a reference for you, and often other lab members, during your time in the lab but, also for the lab members who come after you. You create your notebook but, it belongs to DePaolo Lab. Work efficiently but, take time to keep your notebook neat and tidy.

Your notebook must include:

• A legible table of contents. Again, not only do you need to be able to use this notebook but, so do other lab members, including myself. Make sure that your table of contents directly reflects the following pages.

• All experiments in your lab notebook should correspond to your electronic data, that is, in your lab notebook, each experiment should list where any corresponding data is stored electronically.

Start to organize your lab notebook the minute you put pen to paper. It will help you if / when you need to reference earlier experiments. Also, I may ask that you bring your notebook to a 1:1 meeting with me. I do not want to wait while you try and figure out where things are in your notebook. Further, your notebook stays with the lab and should be easy for those after you to follow. Upon leaving the lab, if your notebook is not up to snuff, you will need to fix it. So, rather than play catch up, start off right.

ELECTRONIC DATA

Organize your electronic data with the same care as you organize your lab notebook. Your data will accumulate fast. And the number of electronic files your store will grow even faster so, it is paramount that you keep your files organized right from the start. It is good practice to sit down often and go through your files because they will inevitably get out of hand. You will likely find that when you do this, you will come across something that you did not noticed before.

You will be using your data all of the time. Make it easy on yourself and organize it from the start. If that is not reason enough, keep in mind that there may come a time when I need to sift through your files and I do not want to have to guess where things are located. I expect you to know your own data inside and out, backwards, forwards, sideways, and keeping it organized will help you.

• All of your data is to be stored in OneDrive and backed up on one of the lab hard drives. The organization should be identical in each location.

OneDrive Login: depaololab
OneDrive Password: P00pscience

• Each and every file should reference the page number of the corresponding experiment(s) in your lab notebook

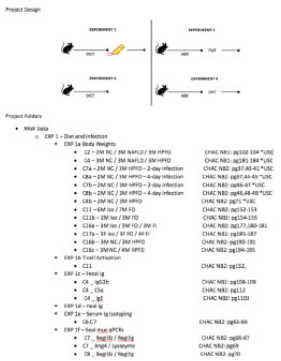
• Files should be organized by project, then experiment

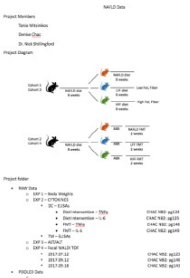
• Back up your data on a regular basis. You spent time and resources to collect that data so, keep it safe.

• **"All data" means you are to store your raw data too.**

Also, keep in mind that just like your notebook, your electronic data files belong to DePaolo Lab and may need to be referenced after you have left. Avoid organizing at the last minute and just do it from the start.

The images below are an excellent example electronic data organization. While the exact format is up to you, you will need to share your OneDrive files with me so, do yourself a favor and do not make me work to figure out how to sift through your folders. In this example, the graduate student even provided a figure of her experiments.





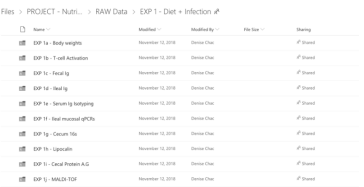
The two main folders are organized for RAW and POOLED. The organization within the folders is based on the organization of the students computer and Excel raw data.

OneDrive example:

PROJECT - Nutrition and Infection >
> RAW Data
> EXP 1 - Diet - Infection (opened below)
- EXP 1a - Body weights
- EXP 1b - T-cell Activation
- EXP 1c - Fecal Ig..
- so on....

> EXP 2 - Diet
- EXP 2a - body weight
- EXP 2b - Fecal Ig

EXP 2c - ileal Ig
> EXP 3 - ABX + Diet
> EXP 4 - ABX + FMT



When your data is safely stored in OneDrive and a lab hard drive, you will need to wipe your lab desktop computer clean. We will meet a few days before your last day so you can physically walk me through everything. Assuming there are no issues, wipe the computer clean so it is as if you never used it.

SAMPLES

Stay on top of your sample organization. Your samples will accumulate as quickly as your data so, you will need to go through them regularly and get rid of what you (or anyone else in the lab) cannot use and condense your tubes / cassettes in to the fewest number of boxes. It is in your best interest to stay on top of this because when you leave the lab you will need to provide a detailed inventory of every single last sample.

Samples

MEETINGS

You will need to set up two meetings with me.

First meeting - 2 weeks before your last day

At this meeting, you and I will discuss various items to make your leaving the lab a smooth transition for you and your fellow lab members.

Second meeting - 3-4 days before your last day.

At this meeting, you will need to physically walk we through where / how your data is stored, where your samples are located, and the status of your bench and desk.

TISSUE/POOP/DNA, ETC. SAMPLE INVENTORY

At least three days before your last day, you will need to provide a complete inventory of your samples. If you have kept up with your organization, this should not take very long. If not, dig in. The images to the left are an example from a former clinical fellow.

Once your samples are meticulously organized, create an inventory of every sample as follows:

Photographic inventory – take a photo of each box contents and the label

Exit

Written inventory – create an Excel spreadsheet with a tab for each sample box and include the following detail for each box.

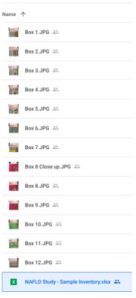
- Experiment
- Cohort
- Type of sample
- Number of samples in the box, etc.
- Page number that the box corresponds to in your notebook

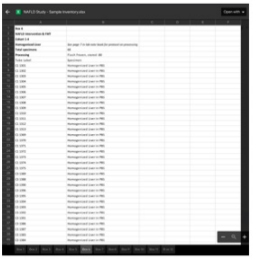
This inventory spreadsheet should be stored in the same locations as your data (OneDrive and lab hard drive).

HISTOLOGICAL SAMPLE INVENTORY

All histological and immunofluorescence samples should also inventoried and organized in the same manner and the spreadsheet stored in the same locations.

Example of sample inventory





MOUSE COLONIES

Your mice are your responsibility. You will need to continue maintenance of your mice through your last day in the lab. Before you leave, all mice remaining must be identifiable and genotyped. If there are pups that need to be weaned, wean them. Mice must be weaned before you leave, even if it's your last day in the lab, and genotype any mice that need to be genotyped. Do not leave these tasks for someone else to do.

Likely, you will need to cull your colony to something like this:

3 breading cages
1 cage of 5 females that are no more than 8 weeks old
1 cage of 5 males that are no more than 8 weeks old

You will need to provide me with a final inventory of your mice. A copy should be saved with your electronic data files.

YOUR DESK & LAB BENCH

Any reagents and / or kits that were specific to your project(s) should be inventoried and the list provided to the lab members and stored in your OneDrive file.

Be sure that each and every western blot and immunofluorescence antibody is catalogued including all pertinent information.

Catalogue all primers as well. Please include all pertinent information for these as well.

Your bench should look exactly as it did when you first arrived. Every drawer and shelf should be completely cleaned out and wiped down

Any tube racks, plates, tubes, bags, etc., should be put back where they belong or thrown out if they are not usable.

If there are solutions that can be saved and given to another lab member, do so. Any bottles with solutions no longer viable, should cleaned and put away. Same goes for any aliquots, such as PCR water.

Your desk should also be completely cleaned and completely emptied. All drawers and shelves should be emptied and wiped down.

Once all data is stored from your desktop computer, it too should be completely "emptied" and wiped down using a cloth friendly to computer screens.

Like your desktop computer, you will leave your desk and your lab bench completely wiped down as if you had never been there so that it is ready for the next lab member. Take the time to do this correctly and with care so that the next person can walk into the same clean and inviting space that you did.