

EDUCATIONAL CONSIDERATIONS FOR TRAINING

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Tunisian Association of Biological Sciences

How to keep a good lab book

BELGIAN SOCIETY FOR

Biochemistry
& Molecular Biology

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What is the « Lab Book »?

➤ Story of your life

☞ **In the lab!**

- ☞ Of your daily life at the bench
- ☞ Of your scientific thoughts
- ☞ Of your daily work
- ☞ Work progress (e.g. time line,)
- ☞ Of your PI/Supervisor's remarks/Suggestion/Comments
- ☞ Maybe also some things you have read, ideas you had

➤ Its your lab "autoLABOgraphy"

What should the Lab Book really tell?

- Its your “*lab life story*” - your lab *autolabography*”
 - ☞ You are the author so you think it should look “good”
- But it is not a novel.... Not meant to be a best seller ...
 - ☞ IT IS LOG BOOK → It must tell
 - ↪ The GOOD
 - ↪ The BAD
 - ↪ The UGLY

The Bottom Line?

Its the *Bad* & the *Ugly*
That are going to make you do the
Good science

So what is the Lab Book's purpose?

- Follow up of experiments
- Sample traceability
- Contribute to the labs group research - Discussions
- Write up your articles
- Write up your thesis
- Proof of experiments and results and dates

Do you really think that you will remember tomorrow what you did today?

What should be consigned in the Lab Book?

- ✓ What you think
- ✓ What you plan to do
- ✓ What you will do
- ✓ How you will do it
- ✓ What you actually did
- ✓ What were the outcomes – RESULTS
- ✓ What it means to you – the interpretation
- ✓ What to do next

What you actually do????!!!

- This is where The **Bad & the Ugly** and also the **Good** are consigned
- Here is where you describe what you do – **everything** that happens
 - 👉 The changes made
 - 👉 The timing – incubation times
 - 👉 The temperatures (what is a *room temperature*??)
 - 👉 OBSERVATIONS MADE e.g.: un unexpected change in color or transparency, a precipitation, a drop lost, a drop to much, no sure of exact volume, mistake in timing, temperature, sample,...

➔ **Murphy's Law is especially true in the lab**

Murphy's law states that if anything can go wrong it will

Luckily "Sometimes systems that should not work, work nevertheless." Richard Zeckhauser"

So what is the purpose of the Lab Book's purpose?

- Discuss results with your supervisor or PI – at Lab Meeting
- Plan next experiment(s)

➔ **what is the lab book for then??**

- 👉 Know what was done
- 👉 How it was done
- 👉 Results generated
- 👉 Be able to describe it to colleagues and PI/Supervisor –write it up

👉 **AND ANSWER THE QUESTIONS KNOWLEAGEABLY!!!**

PI: “How much antibody did you use on your blot? Or PCR product did you put on gel? Or the amount of primers used (final concentration)? Or antibiotic used for selection? Or was the serum heat inactivated?”

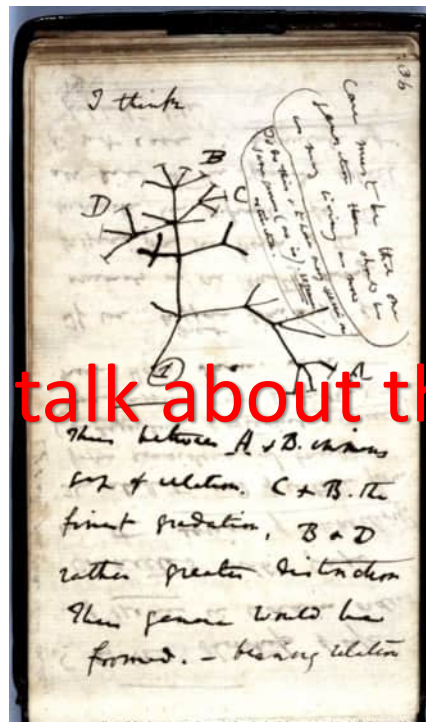
The Young & Bold & Growing Scientist : “20 μ l”

PI: That does not mean anything!!! 20 μ l of what? What was the dilution of your antibody or volume of your PCR reaction or the concentration of your primer stock and dilution factor?

The Young & Bold & Growing Scientist: looks in her/his lab book - Oups “Euh .. I didn’t write that down”.

It was last week of course and she/he does not remember.

PI: 🙄 or maybe even 🤪 if this leads to lost experiments (time & money).



So want to talk about the Lab book??

1) Experiment Information

- To start **THE DATE**
- Indicate what is the subject you are addressing (project or sub-project title)
- Mention what is the purpose of the planned experiment(s)
- Describe the experimental design
- List what you are going to do


2) Preparation

- List samples to be used (name, type, origin, date, concentration, ...)
- List materials to be used (primers, antibodies, buffers, culture media, antibiotics, ...) → *name and reference are often essential to know*
- Protocols List how you are going to do it
 - ☞ Describe all the steps: You must list procedures used, e.g. paste a print out if it's a routine lab procedure, ...
 - ☞ Modifications made: If using a "user's manual" mention which one (kit reference), version and describe any
 - ☞ Provide space for indicating relevant information during the experiment(s)

- Copy of
 - ☞ Tables
 - ☞ Picture/Images - if it is a digital file indicate file names(s) and location(s)
 - ☞ Instrument printouts
- Remarks, Comments, Conclusions for the given experiment(s)
- If problems and/or inconsistencies arise point out & indicate possible reasons
- Indicate the follow-up, i.e. what next?
- Next steps or controls to do or experiments for problem solving

Darwin's "Tree of Life" sketch, from his Lab notebook.

The Text starts with: "*I think...*"



Thanks for your Attention

From: <https://betterscienceteaching.com/2013/04/18/famous-science-notebooks/>