Maintaining a Lab Notebook

i-CTERM Lab

October 27, 2010

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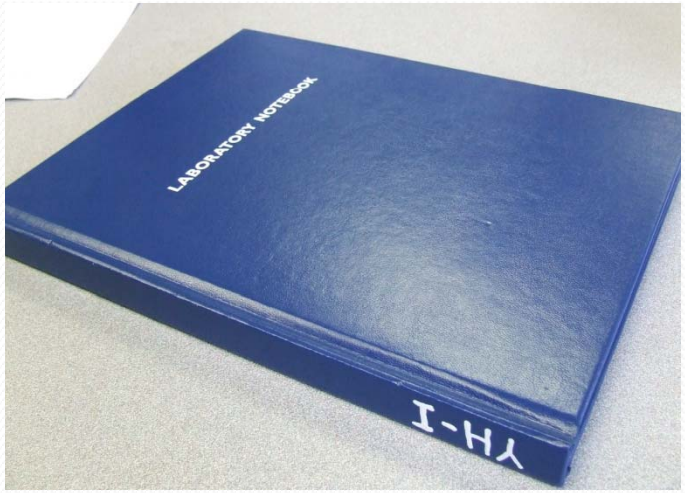
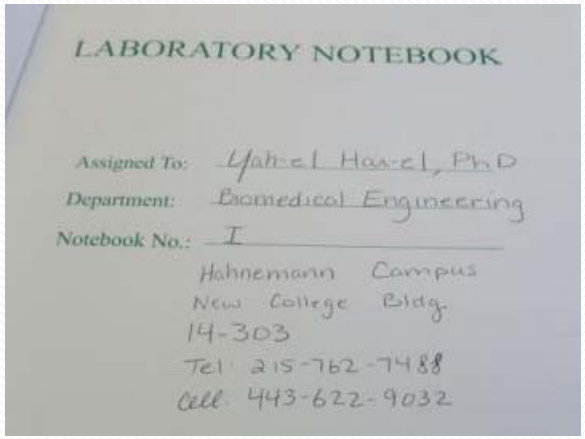
What Kind of Notebook?

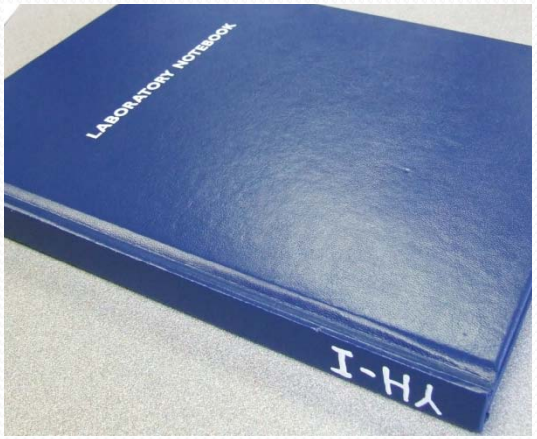
- Bound Notebook
- NUMBERED Pages



Before You Start

- Label Notebook (ex: YH-I, CTS-II, HGS-III, etc)
- Write a Preface – what you plan to do, can be very general
- Table of Contents – may already be in book, but if not, leave 2 pages at front

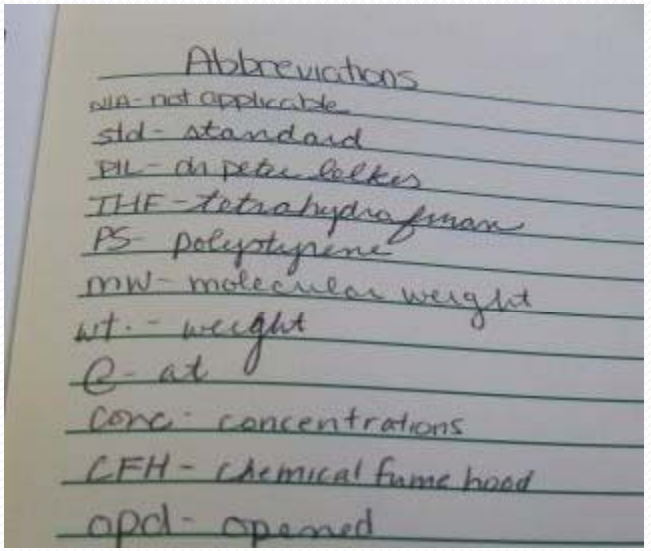




Abbreviations Page

- Add them to your abbreviations page as you use them

PLGA	poly(lactide-co-glycolide)
PS	polystyrene
CFH	chemical fume hood
p.	page
w/	with
opd	opened
soln	solution
wt	weight
vol	volume
volt	voltage



Writing in the Lab Notebook

- Sign and date each entry
  - Date the top of each page
  - Initial and date the bottom of each page
    - At the conclusion of the experiment, or
    - Weekly
  - Have each page countersigned by Sr. Lab Member
    - Weekly (can ask Dr. Har-el for this)
    - Upon meeting with them

Writing in the Lab Notebook (con't)

- Use black ink
  - Ball point pen only
  - No pencils
- Do not leave blank spaces
  - Place an X on unused space
- Do not tear out pages
- Do not erase or use white out
  - ~~Clearly cross out~~ and explain why (typo, wrong #, etc)
  - Initial and date these cross-outs

Lab Notebook Contents

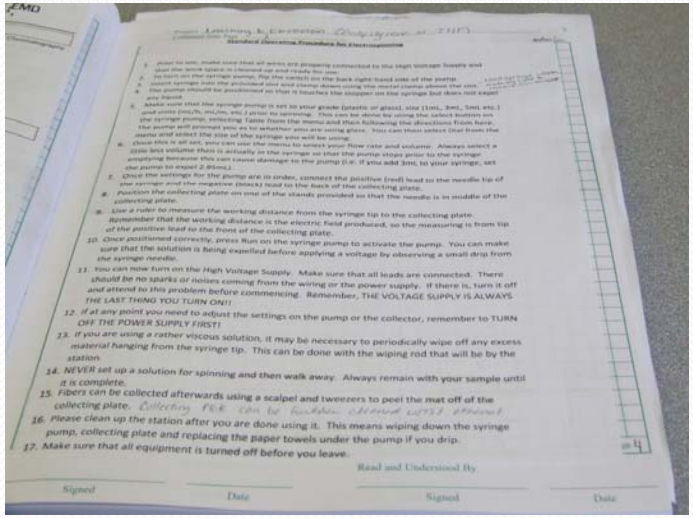
- Experiments
- Protocols
- Results
- Thoughts and Ideas

Experiments

- Should be presented as a progress report:
  - Specific Question/Hypothesis
  - Methods
  - Results
  - Critical Discussion (including problems/challenges)
  - Future Steps

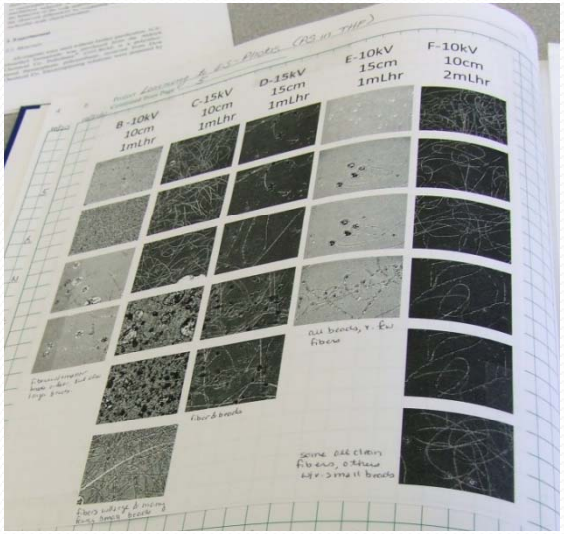
Protocols

- Can be handwritten, typed and printed or directly from manufacturer
- Protocol can be referred to in future experiments
- NB should detail any deviations from Protocol



Results

- Results put into Lab notebook can be …
  - Write in location of data analysis files
    - Computer, directory, file name, etc
  - Paste in photos from microscope,
    SEM, etc
  - Paste in Excel graphs or histographs
  - Write in relevant numbers
    - Amt DNA collected, protein
      concentrations, etc



Additional information

- Show all your calculations
- Write legibly!!!
  - It is easy to mistake a 1 and a 7
- Use significant figures of measurement
  - If you weigh 0.2345g, write that, not 0.23
- Use proper decimal spacing
  - It is easy to mistake .4 for 4, use 0.4 instead

IMPORTANT!

- Keep notebook up-to-date!
- Notebook if Lab Property and is not to be removed!
  - Calculations and analysis should be done in the lab
  - If you must, photocopy pages and take those home

Chemicals

- Any chemical used should include:
  - Chemical name
  - How much used
  - Manufacturer
  - Catalogue number
  - Lot number

Solutions

- When making a solution, record:
  - Which chemicals used (weight, manuf, cat. & lot #)
  - Where weighed? In beaker, in weigh boat, top balance, analytical balance?
  - Did you use a beaker, volumetric flask?
  - How much liquid was added?
  - How was it dissolved?
  - Was solution heated? For how long?

Solution – 1M Acetate Buffer, pH 4

- 30mL glacial acetic acid (jtbaker, cat #:3423, Lot # jhk)
  - Transfer to 1L volumetric flask with glass pipet
- 68.05g sodium acetate (sigma, cat #:S-3456, Lot #2343)
  - Weigh in weigh boat, transfer to vol. flask, wash with DI water
- Add ~900mL DI water to vol. flask. Add stir bar and stir with no heat until dissolved
- pH to 4 using 1N NaOH or 1N HCl (specify)
- Remove stir bar and top off to 1 liter

Sample Labels

- Basic sample ID:

  Notebook – Notebook Page – Sample

Example 1. Acetate buffer, 1M, pH 4

SFY-II-60, 10/25/10

Example 2. PLGA Microspheres

PLGA MS-control, SFY-II-62-A, 10/26/10

PLGA MS-drug, SFY-II-62-B, 10/26/10

or

SFY-II-62-Ctl MS, 10/26/10

SFY-II-62-Drug MS, 10/26/10

Example 3. Degradation Study of PLGA Microspheres

- Produces many samples over a large time period. Most likely many small samples are stored in a box, jar, or other container

Label container:

PLGA MS degradation, 10/26/10, SFY-II-75

Label samples:

SFY-II-75-A1 through A100 (where A-control) or

75-B1 through B100 (where B-drug)

Example 4. Microscope Slides

- When writing in small areas such as microscope slides, at the minimum, use basic sample ID and date if there is room

SFY-II-72-A, 10/20/10, PS in THF

where A is electrospinning 10kV, 10cm, 1mL/hr and is recorded on p.72

Tissue Culture

- Proliferating cells should be labeled with:
  - Cell type, passage #, date, your initials
- Cells used for experiments in multi-well plates, petri dishes, etc
  - Sample ID, cell type, date, brief description
- Multi-well plates: the sample ID should refer to where in NB you have recorded what is in each well
  - Label side of multi-well plate AND lid to make sure these are not confused

Any Questions?

Presentation in pdf form and a Word document will be posted on the Google group and on Dr. Lelkes' website.