

The Importance of Keeping Good Laboratory Notebooks—Intellectual Property

Laboratory Notebook Rationale

Maintaining a properly kept laboratory notebook is essential for many reasons. One reason is to help an inventor establish her/his right to a patent. Patents are generally granted to inventors who are the first to conceive of an invention. An invention is considered to be conceived when each of its features is in a form that is clear, definite and permanent enough that it would take only ordinary skills to reduce the invention to practice. Another important factor for establishing “priority” regarding an invention is determining when the invention was “reduced to practice.” An invention is considered to be reduced to practice when the invention works for its intended purpose. With diligent, careful note-taking, a laboratory notebook can help to establish both the date of conception and the date that the invention is reduced to practice.

Several legal rules apply to the admissibility of evidence that can be used to establish an inventor’s priority: (1) the inventor’s testimony regarding the dates of conception and reduction to practice must be verified by independent evidence; (2) an inventor’s own written documentation may only be used to corroborate her/his oral testimony if the written documentation is witnessed; (3) joint-inventors may not corroborate one another’s work; (4) corroboration is not required to demonstrate the content of physical evidence; and (5) all relevant evidence is taken into account, including circumstantial evidence, when evaluating the integrity of the inventor’s testimony.

Taken together, these rules mean that an inventor’s oral testimony must either be corroborated by another person that is not a co-inventor or by physical evidence such as a lab notebook that has been witnessed by someone, other than a co-inventor. (Physical evidence, such as data or auto-radiographs, in a witnessed laboratory notebook does not require corroboration.) As a result, maintaining a laboratory notebook witnessed by another person who is not a co-inventor has proven to be a practical and cost-effective method of corroborating an inventor’s testimony and is therefore critical to establishing an inventor’s claim to priority.

Recommended Procedures

There are many specific procedures to follow when keeping your laboratory notebook that are outlined below, but in general you should always remember to record: what was done; who did it; when it was done; why it was done; what were the results; and what conclusions

were drawn. Ideally, a laboratory notebook will allow another person who reviews it to determine the nature of the project, when it began and when it was completed, what ideas were considered, the compounds made or circuits and equipment actually built and tested, the results of all tests, final conclusions reached, and the dates related to all of the above.

More specifically, best practices include:

1. Keep a notebook that has pages that are consecutively numbered and have a glued or sewn binding. The pages should never be removed under any circumstances.
2. The signature of the inventor(s) and the start date should appear on the front cover of the notebook and each completed page should be signed and dated.
3. The objective(s) and reason(s) for the experiment should be described in a short paragraph and include a flow chart of steps, where applicable.
4. A record of ideas, suggestions and comments made by each person in every lab meeting discussion should be maintained. These documentations can help to provide proof of the invention's early conception date.
5. All entries should be chronologically written in ink, and there should be no erasures or "white-outs." If there is an error, draw a line or an "X" across it.
6. Draw an "X" in any empty area of the notebook so that there won't be any accusation of inserting an entry at a future date.
7. Document and explain all protocol conditions and test results in detail. Write short conclusions that are factually supported by data results and exclude opinions and commentaries.
8. Entries should be made regarding the progress and completion of assemblies, compounds or models that are being prepared, clearly indicating how the compound or equipment is being made. Particular attention should be given to documenting the successful testing of a compound or the successful testing of a particular setup or piece of equipment since the date of such successful testing is the date that an invention is "reduced to practice."
9. A person who is not a co-inventor but understands the invention technology should witness each page on a daily, weekly or monthly basis. Witnessed documentation on a daily basis provides the best evidence for patent litigation.
10. Photographs can be a very effective method of identification, particularly where a model has been made and successfully tested. It is important to have photographs dated and the name of the photographer included.

11. The raw data should be stapled, pasted or taped in, or put inside, an envelope that should be attached onto a page in the notebook. Sign and witness each data attachment or across the attachment and onto the page.
12. Write a table of contents and provide a list of acronyms used along with their definitions.

There is a risk using an electronic laboratory notebook for note-taking since their veracity in patent litigation cases has not been established; therefore, KAUST encourages the use of traditional hand-written laboratory notebooks. However, some precautions should be taken if an electronic notebook is to be used. The safety measures described below should be followed to increase the probability of admitting the e-notebook into evidence:

1. Make a permanent back-up copy on a “write once” medium of all entries on a regular basis. Before making the back-up, the witnessing person should read the notes and then enter her/his name and the date indicating that she/he has “read and understood” the entry. Another option is for the witness to read the back-up copy and then sign and date a “read and understood” permanent label to be affixed to the disk. Attach the disk and additional disks in a laboratory notebook and consecutively store them in the same location along with the print-outs of data results.
2. Mark the disks with consecutive numbers and ensure that the start date of disk 2 is the day after the last date of disk 1, and so forth.
3. Date the entries daily or time-stamp them with a separate server. Sign the entries with electronic signatures.
4. Protect the electronic notebook/computer; do not allow unauthorized persons to have access; use digital signature or encryption devices; be selective in distributing the stored information; change the user codes and passwords frequently; and maintain data on the frequency of checking the system and changing the codes.