University of Oklahoma
OFFICE OF TECHNOLOGY DEVELOPMENT

Protecting Your Intellectual Property

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Documenting Scientific Discovery

An appropriately maintained laboratory notebook can often mean the difference between gaining recognition for a discovery and not gaining recognition. U.S. patent law states that inventorship is determined by the first to *invent*, not the first to *file*. (Foreign patent offices determine inventorship by the first-to-file method.) Your lab notebook can be the key piece of evidence in making that determination.

The laboratory notebook establishes a permanent record that can be referred to while completing a disclosure report and later provides accurate documentation of the work done. When a researcher makes an invention during the course of a research project, the dates of conception and reduction to practice become very important. Generally, a sketch and brief written description are sufficient to establish conception. Reduction to practice can be established only by the actual construction and successful testing of a device incorporating the invention.

During prosecution of a patent application before the U.S. Patent Office, or even after issuance of a patent, the filing of another patent application may initiate an interference proceeding to determine which party was the first to invent. Each party has an opportunity to take depositions and submit documentary proof of his or her dates of conception and reduction to practice. A laboratory notebook may be the crucial piece of evidence in this procedure. The patent for the invention is awarded in accordance with the facts established by this evidence.

Lab notebook entries should be made in ink, using a standard laboratory notebook having permanent pages. Write legibly and identify entries with respect to the particular project for which the work was done. Include all formulae or diagrams and sketches of circuits and equipment that were considered during the project, including those actually built and tested. Accompany each diagram and sketch with a note sufficient to identify and explain the subject matter.

Another investigator should be able to replicate the invention by reviewing your entries. The notebook should allow one to determine:

- the nature of the project
- when it commenced

- what ideas were considered
- the compounds, circuits and equipment actually made and tested
- the results of the tests
- the dates for each of the above
- and the final conclusions.

Tips for Keeping Lab Notebooks

Even though you might not keep a laboratory notebook in ideal fashion, the entries may be valuable at some future time, provided certain simple safeguards are observed. The following guidelines may help you avoid some common mistakes. Lab notebooks are available from OTD.

- Use bound notebooks with consecutively numbered pages. Number notebook volumes sequentially.
- Use permanent ink.
- Never tear or cut pages from a laboratory notebook.
- Identify the project to which all data relate. If possible, indicate the project or experiment number or, at a minimum, provide a brief descriptive heading.
- Date and sign all entries. If you do not work on the project for a period of time, indicate the reasons and identify the dates spent away from the research.
- Record all experimental data, conceptions, drawings, calculations and other observations on a daily basis.
- Define all abbreviations and acronyms on first reference.
- Have entries witnessed. At least one other person – not a co-investigator or joint inventor – should review and witness the entries by signing and dating the notebook pages on a regular (weekly, if not daily) basis.
- Avoid fragmentary diagrams and sketches. Include explanatory notes with all figures. For example, draw circuit diagrams as comprehensively as possible, using blocks or similar notations to indicate conventional parts.
- Avoid loose pages and inserts. If a sketch or note is made on a loose piece of paper and you wish to place it in your book without making another entry, permanently affix it in the notebook and have its placement witnessed by another investigator.
- Permanently attach such additional material or data as computer printouts and photographs, and refer to that information in a notebook entry.
- Avoid splitting entries between books. When two or more investigators are working on the same project, they should not split entries between laboratory books. One book should be complete in itself, and investigators should initial and date their own entries.
- Make notations of the progress and completion of compounds, assemblies or models being prepared for testing. Relate these entries to previous sketches or entries that explain how the compound or equipment is being made.
- Record significant events. Successful testing of a compound, setup or piece of equipment is “reduction to practice” and the date of such an accomplishment is

important. Make notations of these tests, identifying the compound or equipment and commenting on the results of the test. Document tabulated test data, if available.

- Avoid unnecessary derogatory remarks about tests.
- Make corrections by drawing a single thin line through the entry. Do not erase or obliterate mistakes.
- Use photographs. Photographs are useful in keeping a complete laboratory notebook. Particularly when a model has been made, it is desirable to take photographs that will serve as future identification. Permanently paste the photographs into the lab notebook and identify the photograph and document the date and name of the photographer.
- Keep lab notebooks in a safe place when not in use.
- Keep lab notebooks relating to patent applications for at least 20 years, which is the term of most patent applications filed in recent years. Because laboratory notebooks can help establish the date an invention was conceived and by whom, the notebooks should be kept for at least as long as the term of the patent.

About Patents

What rights are granted by a patent?

A patent granted by a government gives the owner the exclusive right to keep others from making, using or selling a product that infringes upon any claim contained in the patent. Because it does not give the owner the right to make, use or sell the invention, a patent is known as a negative property right. Patents are issued for the public good because governments recognize that, unless a manufacturer is given some assurance of exclusivity, the cost of taking an innovative product to market may be prohibitive. As property, patents can be sold, assigned or licensed. Commercialization may be accomplished when the owner exercises the exclusive rights referenced above or permits others to exercise rights under the terms of one or more licenses.

What are the requirements for patentability?

Under U.S. standards of patentability, all patent applications are examined for novelty, utility and nonobviousness. The applicant, usually through a patent attorney or agent, must established these elements to the satisfaction of the U.S. Patent and Trademark Office (link) before the patent is allowed.

- Novelty: The invention has not been previously used, sold or described publicly or through written publication.
- Utility: The invention is useful and not just a subject for additional research.
- Nonobviousness: The invention must not be obvious to a person having ordinary skill in the art to which it pertains.

How long does a patent remain in effect?

For U.S. patent applications filed before June 8, 1995, utility patents are granted for a period of 17 years from the date of issue. For applications filed after June 8, 1995, utility patents are granted for a period of 20 years from the date of application. Design patents are issued for a term of 14 years from the date of issue. The life of certain drug patents may be extended a few years under limited conditions. The duration of foreign patents varies widely from country to country.

What types of inventions are eligible for patenting?

Patent laws set forth classes of inventions eligible for patenting. Statutes provide that any inventor who "invents or discovers a new or useful process, machine, manufacture or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of the law." The scope of statutory patentable classes of inventions has been expanded to include life forms resulting from genetic engineering. U.S. law also allows patenting of new varieties of asexually produced plants, other than tuber-propagated plants or plants found in an uncultivated state. Sexually reproduced plants are not patentable but may be eligible for Plant Variety Protection Certificates from the U.S. Department of Agriculture.

What cannot be patented?

The following cannot be patented in the United States:

- Theories
- Ideas
- Plans of action
- Discoveries of laws of nature or scientific principles
- Things immoral or injurious to health and the good of society
- Works eligible for protection under copyright laws
- Sexually reproduced plants

Can research contracts affect patent rights?

Patent rights under sponsored research agreements are generally negotiated before the agreement takes effect. It is important that these agreements reserve patent rights for the university. The Office of Technology Development shall work with the appropriate offices to insure that such rights are reserved for the University and the Inventors. Inventions arising from federally sponsored research are governed by Public Law 96-517 as amended by Public Law 98-620, which allows universities to retain rights to these inventions while reserving certain rights for the government. These laws are issued as 37 Code of Federal Regulations, Chapter IV, Part 401, referred to as 37 C.F.R. 401, commonly known as the Bayh-Dole Act.

Publications and Presentations

Can I patent an invention if I have already published it?

Patents and publications are closely related, and both represent means of disseminating the results of research. A patent, however, is a specialized form of publication that describes an invention to the world at large in return for a limited period during which others can be excluded from using the patented information. However, care must be taken against premature disclosure of an invention (by publication in a scientific or technical journal or through public use) in order to avoid placing the invention in the public domain and thus losing the right to obtain a patent.

In the United States, a patent may be obtained if a patent application is filed within one year of the first public disclosure through publication, sale or public use. This one-year deadline is referred to as a *publication bar*. In most other countries, any publication made prior to the filing of a patent application bars a patent.

How is the publication date determined?

In the past, the date of a journal publication was determined by the date the journal was released or mailed from the journal's mailing department. Some journals, however, make articles available over their Web sites almost immediately following acceptance of the galley proofs. The date used to determine the publication bar date is the date that the article first becomes available to the public, regardless of the vehicle.

How can a presentation affect patentability?

If an oral presentation contains information that would help another person reproduce the invention, that presentation may create a publication bar. This is especially true if detailed handouts are provided, although it can occur in the absence of handouts. In general, the same care exercised with publications should be exercised with any public discussion or display of the invention.

Practices of Selected Journals

- The American Chemical Society posts articles on its Web site within 48 hours of receipt of the galley proof. Because publication will not be delayed once the galley proof is received at the editorial office, ACS warns authors to make sure that all patent issues are taken care of prior to the return of the proof. The policy is available at pubs.acs.org/instruct/jacsat.pdf and covers all journals published by ACS.
- *The Journal of the American Medical Association* restricts authors from discussing submitted research before the article is published. While studies may still be presented at scientific meetings prior to publication, authors should not write press releases, grant interviews or otherwise discuss their research with the media. According to the policy, "Authors … should not distribute complete

reports (i.e., copies of manuscripts) or data presented as tables and figures to conference attendees or journalists." This policy holds for submissions under consideration as well as articles that have been accepted. The policy appeared in the *Journal*'s Dec. 13, 2000 issue and is available at jama.ama-assn.org/issues/v284n22/ffull/jed00090.html.