

Web alert

Protocols and procedures

Chemistry & Biology November 1998, 5:R305

© Current Biology Ltd ISSN 1074-5521

Sharing protocols and discussing problems associated with methods are important for the advance of research. Lack of access to, or lack of awareness of, the appropriate protocol or its pitfalls can delay progress. Many protocols or advice services are now available online, for example, through specialist websites, manufacturers' websites or individual research group home pages. Most of the specialist sites focus on molecular biology techniques and protocols, presumably because many people want to use them, and methods are numerous, change rapidly and are often prone to problems.

Perhaps one of the best things about protocols associated with individual labs on the web is that the methods have been tried and tested in the lab, so they often contain the little details required to make the procedure work. For example, Douglas Crawford's lab page at the University of Missouri Kansas City, which describes the group's research on gene expression and metabolic control, has a section on protocols (<http://sgi.bls.umkc.edu/funnylab/DLCprotocols.html>) where we are advised to "dry but don't over dry" or told "immediately, and I mean immediately". These are the words of someone who has learnt the hard way.

Many other academic labs have put their protocols online. The Laboratory of Molecular Neurobiology at the Karolinska Institute has a protocols page (<http://cajal.mbb.ki.se/Protocols>) that includes site-directed mutagenesis methods and a chemical cross-linking assay. The Clemson University Genomics Institute

protocols page (<http://www.genome.clemson.edu/protocols.html>) contains an extensive list of solution recipes, and the Mitchison lab page (Harvard Medical School) has a selection of protocols concerning tubulin and the cytoskeleton (<http://skye.med.harvard.edu/Pages/protocols.html>).

For graduates, and undergraduates, starting out in organic synthesis, Dr Cal's Guide to Good Laboratory Practices and WWW Chemistry Information for Students (http://www.uic.edu/~magyar/Lab_Help/lghome.html) could be a helpful place to learn the basics about working in a lab and handling organic chemicals. Alternatively, try the Virtual Classroom from the chemistry department at the University of Akron (http://ull.chemistry.uakron.edu/organic_lab/), where courses aimed at undergraduates or graduates explain the basics in the form of a slide show. A laboratory survival manual from the University of Virginia (<http://www.virginia.edu/~enhealth/guide.html>) presents the health and safety issues of working in a lab and could be a useful reference site.

For the more advanced, Rolf Claessen's chemistry index (<http://www.claessen.net/chemistry/>) might be a helpful place to start finding out about a particular reaction, through either direct links or the references associated with the reaction description. The site also has links to chemical and instrumentation companies on the web.

Even the experienced researcher needs help sometimes. Technical Tips Online (<http://tto.trends.com>) is a service from the Elsevier Trends journals devoted entirely to helping researchers with their practical problems. It is searchable, but you can also browse through protocols in a number of categories, including gene expression, microscopy, and cloning and sequencing. The articles, submitted by scientists, have been peer-reviewed. Alternatively, application notes are submitted, and paid for, by companies; generally these describe use of a single product.

Any question or comment, along with a response from the original author, can be added to a commentary page associated with each article, if it is deemed appropriate. Product News provides company press releases on new products or events and you can also find a list of company links. You have to register to use Technical Tips Online, but it is free.

A particularly useful molecular biology site is the Molecular Biology Protocols page that forms part of the Northwest Fisheries Science Center website (<http://listeria.nwfsc.noaa.gov/protocols.html>). The site is well-presented and easy to navigate. There is also a Molecular Biology Techniques Forum, where readers submit techniques, tips and questions. Asking a question might be worth a try as the site is very up to date.

Although they may be seen by their sponsors as advertising, company-specific sites can be very useful too. The Perkin-Elmer web pages (<http://www.perkin-elmer.com/>) can help you find out about analytical techniques, what to use them for and how to use them. For example, if you want to use fluorescence spectroscopy or Fourier transform infrared, this might be a place to look. The site also contains tips about techniques and information on reagent preparation. Luckily, the site is searchable — browsing the site is difficult.

The Promega site (<http://www.promega.com/>) is well-organised and includes detailed product information as well as links to procedures also published in the Promega Notes magazine. Sigma-Aldrich (<http://www.sigmaaldrich.com/>) have detailed technical libraries for both parts of the companies at their web site. The Sigma technical library includes technical bulletins, product information sheets and enzymatic assays associated with their products.

As the availability of protocols and technical advice increases, it is to be hoped that more labs will follow the example of others and make their favourite and proven protocols available online.