

Bio 351: Eukaryotic Genetics (Fall 1998)

Entrance Exam: Information Resources of the Library

The exam that follows is designed to introduce you to some resources (or wrinkles) you may be unfamiliar with. If you are already familiar with them, you should be able to whip through this in no time at all. If you find yourself spending an inordinate amount of time on a question, **please stop!** All of the questions should be answerable very readily, if you use the right resource in the right way. Ask a librarian, a classmate, or me for help.

You are encouraged to work together on the take-home exam -- it helps you pass the time. You may learn to navigate through the databases together. You may share secrets and amuse each other with the cleverness that is you. BUT the ultimate answers you give for the exam must be your own, the result of your own work. The questions are designed so that your answers are unlikely to be the same as those of others, but just in case, search for the unusual – it helps me pass the time.

Every answer should include the strategy used to find it. “Find an article” means provide a reference for the article. Any reasonable format is OK, so long as it includes the authors, title, year, journal, volume, and pages. Find ways to minimize your work. For example, E-mail yourself all the references and piece them together later. Answers are due by Thursday, September 3.

1. Which of the following articles can be found at U.R.? If the journal is not here, state why not. State also what your strategy was in answering these questions.
 - A. Watson JD, Crick FHC. Molecular structure of nucleic acids. Nature 171:737-739.
 - B. Anderson WF. Genetic engineering and our humanness. Hum Gene Therapy 5:755-759.
 - C. Heinemann JA. Genetics of gene transfer between species. Trends Genet 7:181-185.
 - D. Vogelstein B, Kinzler KW. Complete and specific eradication of human colorectal cancer after infusion of genetically modified Maloney Murine Leukemia Virus. New Engl J Med 365:29-47.
2. Find an article related to a form of gene therapy as a treatment for cystic fibrosis.
3. Give an article concerned with asthma and written in a journal held by UR.
4. Imagine yourself in 10 years, living in the place of your dreams, wherever that is. First you have to find a job. Your idea is to write to the head of an active laboratory in your favorite field of research in the hopes of landing a job. Choose a city and give a reference of an article that appeals to you from a lab that is in that city and is doing research in your chosen field. Also provide the address of the lab. By the way, why did you choose that city?
5. You are attending a meeting on algal taxonomy in a foreign country whose language you do not speak and whose alphabet is not related to ours. You plan to bring with you a sample of a revolutionary new species you have just discovered, but you realize to your horror that dried algae looks an awful lot like marijuana. You don't like your chances of passing it through a customs inspector whose knowledge of English probably does not extend to words like "algae" and "research". You hit upon the idea of bringing along a copy of a scientific article written in the language with the word "algae" prominently displayed. Choose a country to go to (recall the limitations of the first sentence of this paragraph) and find an appropriate article. By the way, why did you choose that country?
6. Find a list of articles about tumors in plants. I don't mean drugs produced by plants for therapy in humans nor tumors produced by pollutants from power plants. I mean actual tumors in actual plants, the

green kind. The list should be as long as possible but, more important, as free as possible from unwanted references. Send me the list by E-mail directly from the database you're using, and turn in along with the rest of the exam just the search strategy you used.

7. Find an article by an author whose name is related to the title. An example would be "The molecular basis of action by halothane anesthetics", by J.R. Payne. Bilingual connections are OK, if you explain them.

But, please, no articles about genetics by a guy named "Gene" or about heart disease by someone named "Hart", etc. Try something more out of the way.

8. Find an article in which one author has the same name as you or as close as possible (known relatives excluded). In case of tie, choose the author that does the strangest research.
9. You happen to run across an article by Antonio Lazcano and Stanley Miller [(1994) J Molec Evol] that puts forth the astonishing hypothesis that complex cyanobacteria (blue-green algae) could have arisen about 3.5 billion years ago from the postulated prebiotic soup in as little as several million years! You would very much like to learn how their idea fared. Find a later article that addresses the subject. (If you haven't discovered the often very useful reference *Science Citation Index*, it's time you did)

10. Go to the current journal section (not a computer) and find some article you're interested in (a research article, not a review).

- a. Give the reference for the article you chose.
- b. Find a review, not already in the list of references, on some topic related to the article.

Note that most articles you find by conventional searches are not reviews. Use the search engine to limit articles to reviews. Alternatively, use a database devoted exclusively to listing review articles, e.g. Index Medicus (Current Reviews).

- c. Identify a key older reference in the article, e.g. one that articulates a hypothesis or presents some interesting result. Give that reference.

The only way to find a reference in an article is by looking at the references in the article. Computers won't help. You may think it will be difficult to discern whether an article is "key", but there are generally ample clues. For example, the introduction of an article often puts special emphasis on certain references, perhaps citing previous work that first opened up the field or first set forth a hypothesis.

- d. Find an interesting recent reference, not already in the list of references, that cites the reference you found in 10.c.

In the past, some have answered this question by finding related article through a computer search and laboriously looking up each article in the stacks until one is found that cites the target article. Don't do it! Again, consider Science Citation Index.