

AWIC Tips for Searching for Alternatives to Animal Research and Testing

Policy No: 102.06
Revision No: New
Effective Date: July 16, 2002
Category: Animal Welfare

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The first step of any search involves communication between the investigator and the information specialist. The specialist cannot effectively search for alternatives without a basic understanding of the type of research the investigator is conducting. The most efficient means of communicating is a direct dialogue between the investigator and the information specialist. A third party should not be used to convey information.

Investigators can assist information specialists by being prepared to give precise and specific information about their research or testing procedures. The following may serve as a guideline for the type of information the investigator may be asked to provide:

1. What is your general area of study (e.g., cardiology, neurology, toxicology, etc.)?
2. What species are you currently working with (e.g., rats, dogs, swine, etc.)?
3. Briefly describe your experimental protocol.
4. What specific systems or parts of the anatomy are involved (e.g., central nervous system, brain stem, parabrachial nucleus)?
5. Please give correct spellings of these structures and any acronyms (e.g., CNS, PBN). European spellings are important as well.
6. If you are studying the effects of a particular hormone, enzyme, or chemical agent, please give the complete spelling of the compound as well as its trade name and acronym (e.g., bovine somatotropin, BST).
7. Do you know of any prominent authors in your area of research? Have you published any previous literature that relates to your current study?
8. What makes your study unique from previous studies (e.g., testing a new technique, investigating a new compound, further understanding of a biochemical pathway)?
9. Are you aware of any possible alternatives to your research, such as experiments conducted on alternative species, cell culture, or in vitro studies?
10. Have you had any other searches conducted for you? If so, what databases were used (e.g., MEDLINE, AGRICOLA, BIOSIS)?
 - a. What keywords were used (e.g., kidney, parathyroid hormone)?
 - b. What years were searched (e.g., 1985-present)?

Search Strategy

Once the initial exchange of information has taken place between the investigator and the information specialist, the information specialist can begin to formulate a search strategy. Search strategies for alternatives can be divided into two phases, reduction and refinement, and replacement.

Phase I (Reduction and Refinement)

Phase I consists of a generalized database search used to retrieve citations pertinent to the investigator's field of study. Citations retrieved during this phase of searching may prevent the investigator from performing duplicative studies or provide information on refining experimental techniques. Phase I also serves to familiarize the information specialist with the research area. The information specialist should read several abstracts from citations retrieved during Phase I. Reading abstracts provides the information specialist with an increased understanding of the terminology used to describe the research. During Phase I the information specialist may find it helpful to develop search strategies using databases available on Compact Disc Read Only Memory (CD-ROM). Several databases are available on CD-ROM (e.g., AGRICOLA, MEDLINE, TOXLINE, and LIFE SCIENCES). Searching on CD-ROM allows the information specialist the freedom to experiment with keywords, explore indexes, and read abstracts without the pressure of being charged for online time. Searching on CD-ROM should provide the information specialist with a general idea of how much literature exists on a specific topic. If few relevant citations are found, the information specialist may need to broaden the search strategy or use the expanded capabilities of online database searching.

Phase II (Replacement)

Upon completion of Phase I, the information specialist should have a basic understanding of the research area including: 1) the literature published in the particular field, 2) the techniques used, and 3) the commonly used species. The information specialist is now ready to search for possible alternatives. The following questions may be used to assist in the search for alternatives:

1. Can the product, enzyme, or tissue be tested or raised in culture?
2. Are there any other in vitro techniques that may reduce or replace the number of animals used?
3. Are there any alternative animal models (e.g., invertebrates, fish, protozoa, etc.)?
4. Have any computer simulation models or statistical models been developed that relate to the study?
5. Is there literature on proper experimental design that may assist the researcher in utilizing animals more effectively or in reducing the number of animals?

Information specialists should search multiple databases. AWIC provides a factsheet entitled Databases for Biomedical, Veterinary and Animal Science Resources. The sheet describes several databases that may be useful when searching for alternatives.

"Animal testing alternatives" is a phrase used to index citations regarding alternatives in the MEDLINE, AGRICOLA, and TOXLINE databases only. It is not used to index alternative studies in other databases such as BIOSIS, LIFE SCIENCES, and AGRIS. Although useful, this phrase should never be the only strategy used to retrieve information on alternatives. The information specialist may wish to use other terms such as tissue culture, cell culture, in vitro, simulation, and alternative.

General Comments

Searching for alternatives is not an easy task. A perfect strategy to retrieve literature regarding reduction, refinement, and replacement does not exist. Many factors may affect the outcome of a literature search, including the area of research, species involved, procedures used, chemical(s) tested, experimental design, and whether or not articles have been indexed. Additional factors include: 1) the degree of communication between the information specialist and the investigator, 2) the knowledge and educational background of the information specialist, and 3) time and money constraints.

Additional References:

** Bielenberg, K. and D. Berry. **Databases for Biomedical, Veterinary and Animal Science Resources** AWIC Fact Sheet. December 1990.

Clingerman, K., C. Dowling, and J. Swanson. **Searching AGRICOLA for Animal Welfare STS-03. June 1990. 20 p.

Snow, B. "Online Searching for Alternatives to Animal Testing" **Online** July 1990. p. 94-97.

** Available from AWIC

January 1992