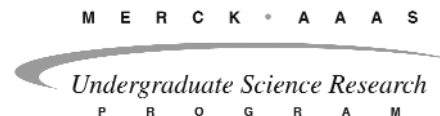


The Merck/AAAS Undergraduate Science Research Program: Insights for a Successful Proposal

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The purpose of the Merck/AAAS Undergraduate Science Research Program (USRP) is to enhance undergraduate science education in biology and chemistry by funding interdisciplinary research opportunities in these areas and to encourage programs that foster this goal. Our belief is that many undergraduates who experience the thrill of conducting basic research will want to become scientists.

Fifteen awards are made annually and provide \$60,000 over three years to support undergraduate research stipends (usually during the summer) and ancillary programs, which build bridges between the biology and chemistry departments (i.e., lectures, seminar series, workshops, journal clubs, special topics forums, student research symposia/colloquia).

Applications for the 2003 awards were mailed in April 2002 to the Presidents and Department Chairs of biology and chemistry at all public and private primarily undergraduate colleges and universities that meet the following criteria:

- are located in one of the 50 states, the District of Columbia, or Puerto Rico;
- offer an American Chemical Society approved BA/BS chemistry program; and
- confer an average of ten or fewer graduate degrees annually for the past five years in biology and chemistry combined.

The success rate of the USRP ranges from about 25 to 33% (we receive about 45 to 65 proposals per year.) The review and award selection is done by an AAAS selected committee of scientist-educators who have proven track records of conducting research with undergraduates. The committee is composed of four biologists and four chemists. Two positions are held by faculty from Research I universities and six positions are held by faculty from primarily undergraduate institutions. Each proposal is read by one biologist and one chemist, at the minimum.

I sit on the committee as a non-voting observer along with colleagues from the AAAS and The Merck Company Foundation, and I am always impressed by the rigor of the review. Here is what I observe, distilled into a few helpful tips for writing a successful proposal.

Pretend You are a Reviewer

Each reviewer for the USRP gets a stack of proposals right before Thanksgiving and has the pleasure of reading them over the winter break. Holiday cheer goes only so far if the

reviewer has to go through information that is not clear or was not requested, which does not reflect well on the overall proposal.

Faculty Profiles: Listing Citations

Do not forget to list peer-reviewed and non-peer-reviewed publications separately and underline the names of the undergraduate co-authors (the reviewers do not know your students). Do follow the date limits strictly (our reviewers do).

Proposal Narrative

Do describe your research project in detail; any reviewer should be able to judge the feasibility and value of the proposed research (a vague proposal appears to be not well thought out). Do include supporting literature citations.

Do make it clear in the proposal narrative which faculty member will be working on which project (reviewers do not like to constantly refer back to the Faculty Profiles and guess).

A stumbling block for some applicants is the interpretation of what we mean by "interdisciplinary between biology and chemistry." If you are a biochemist, you may think you have it covered. Not so. The purpose of the interdisciplinary focus is to ensure that biology students practice speaking chemistry and that chemistry students practice speaking biology and that the students learn to collaborate. It is the way of life for a scientist in an industrial setting and increasingly so in academia.

To address the interdisciplinary question, evaluate the research environment in terms of the collaborative atmosphere created. A biochemistry project limited to one department and one lab does not fulfill the spirit of interdisciplinary collaboration fostered by the USRP. The chasm between departments can be wide, but every year I hear from faculty who are grant recipients about the positive impact the award has made on their departments. One chemist wrote, "We even have biology students roaming the halls of the chemistry department."

Linda Akli, Sr. Program Associate at the AAAS, is the new program administrator responsible for all aspects of the competition. Questions regarding the application process can be sent to Ms. Akli at Merck@AAAS.org. You can obtain application materials and additional information from the program web site at www.merckaaasusrp.org.