

M E R C K • A A A S

Undergraduate Science Research

P R O G R A M

••• PROGRAM PURPOSE

The purpose of the Merck/AAAS Undergraduate Science Research Program (USRP) is to enhance undergraduate science education in the areas of biology and chemistry and, in particular, to encourage programs that foster understanding of the interrelationship of these sciences. Specifically, the objectives of the Merck/AAAS USRP are to encourage students to pursue graduate education in biology and chemistry through undergraduate research experiences that emphasize the relationship between these scientific fields. Projects that include an interdisciplinary collaboration with other departments will also be considered as long as the collaboration includes the biology and chemistry departments.

An ancillary objective is to facilitate interactions between Merck and award recipient institutions. During the course of the award, Merck representatives will plan to visit award recipient institutions to meet with students to learn about their research and related interests, and to become acquainted with the departmental facilities and faculty approaches to science education and training. Biology and chemistry students at award recipient institutions may apply for summer internships at Merck Research Laboratories to complement research experiences at their home institution.

Sponsored by The Merck Institute
for Science Education

Administered by the American Association
for the Advancement of Science (AAAS).

••• AWARD DESCRIPTION

Up to 15 awards will be made in 2007, with each award providing **\$20,000 annually for up to three years** for the period 2007 to 2009.

- Awards will be made for **joint** use by the biology and chemistry departments at the institution.
- Award expenditures must begin by summer 2007.
- No less than **\$17,000** of the annual award is for the **direct support of interdisciplinary student research** that focuses on the interrelationship of the biological and chemical sciences. A minimum of four students should be supported in each award year. The funds may be used for student stipends, laboratory supplies, travel to scientific meetings, and modest stipends for faculty mentors (not to exceed \$500 per faculty mentor).
- No more than **\$3,000** of the annual award is to support **ancillary program initiatives and activities** which bridge biology and chemistry (i.e., lectures, seminar series, workshops, journal clubs, special topics forums, student research symposia/colloquia).
- Continuation of support in 2008 and 2009 is contingent upon demonstration through a written report of satisfactory progress toward the stated objectives in the previous funding period.
- Equipment purchases over \$500 and indirect costs are not eligible for support.
- The award is intended to supplement, not supplant, other sources of undergraduate research support in the biology and chemistry departments.

ELIGIBILITY CRITERIA

Public and private primarily undergraduate colleges and universities, which meet all of the following criteria, are eligible to compete. To be eligible, an institution must:

- not be a 2004, 2005, or 2006 Merck/AAAS USRP award recipient;
- be located in one of the 50 states, the District of Columbia, or Puerto Rico;
- be a not-for-profit entity as defined by the U.S. Internal Revenue Service Tax Code under section 501(c)(3);
- offer an American Chemical Society-approved BA/BS chemistry program; and
- confer an average of ten or fewer graduate degrees annually over the past five years in biology and chemistry combined.

To make this program more accessible to institutions within the applicant pool, institutions receiving awards are ineligible to compete for one year following the completion of the three-year award period. (For example, a 2004 award winner may not compete again until the 2008 awards competition.)

QUESTIONS

Questions about the program should be directed via e-mail to: merck@aaas.org. Learn more about the program and refer to "Insights for Successful Proposals" at our Web site: www.merckaaasusrp.org



••• APPLICATION PROCEDURE

To apply, biology and chemistry departments at eligible institutions must submit a **joint** application as described in Sections A through E. Beginning with Section C, the application materials should be numbered consecutively at the bottom of each page.

A. Application Cover Page

Complete the **enclosed Application Cover Page**, including all **required signatures**.

B. Eligibility Form

Complete the **enclosed Eligibility Form** and include a copy of the school's 501(c)(3) Certification Letter from the U.S. Internal Revenue Service.

C. Departmental Profiles

Provide separate tabular listings for the biology and chemistry departments with the following information for each of the past five academic years (2001–2002 through 2005–06):

- number of BA/BS graduates;
- number of full-time regular faculty;
- number of BA/BS graduates entering graduate science programs within two years of graduation and examples of the schools attended; and
- number of BA/BS graduates entering professional degree programs (MD, MD/PhD, DVM, etc.) within two years of graduation and examples of the schools attended.

Please note: Use a format similar to this for each department:

	2001–2002	2002–03	2003–04	2004–05	2005–06
Total Undergraduate Enrollment (declared majors)					
Number of BA/BS Graduates					
Number of Full-Time Regular Faculty					
Number of Undergraduate Student Summer Research Participants					
Number of Academic Year Undergraduate Student Research Participants					
Number of Students Entering Graduate Programs in Science					
Example of Graduate Schools Attended					
Number of Students Entering Professional Schools					
Example of Professional Schools Attended					

DEADLINE FOR RECEIPT: 5:00PM, FRIDAY, 3 NOVEMBER 2006

D. Proposal Narrative

If you have received prior Merck/AAAS USRP award(s), complete Section D Parts I and II. If you have never received a Merck/AAAS USRP award, complete only Section D Part II.

SECTION D PART I

- Clearly describe in no more than two double spaced pages:
 1. The key results achieved with the preceding Merck/AAAS USRP award(s) in promoting interdisciplinary research experiences for undergraduate students in joint research projects of the departments of biology and chemistry including how the preceding award effected institutional change.
 2. How the current proposal advances the program goals compared to the preceding award.
- List on a separate page manuscripts published or submitted for publication, published abstracts, and student/faculty presentations resulting from the previous award(s).

SECTION D PART II

Be sure to refer to the award selection criteria in composing your narrative.

- Describe the interdisciplinary research projects to be undertaken by undergraduate student researchers working with faculty within the biology and chemistry departments. For each project, clearly identify the participating faculty members, and describe the research design including objectives, hypotheses, methodology, background, significance, and other relevant information. Describe how the proposed research projects will be implemented.
- Describe the approach the biology and chemistry departments will jointly undertake to promote the related nature of these two scientific fields.
- Describe how the proposed interdisciplinary projects will jointly engage biology and chemistry faculty and students in the research process, and how these projects will be incorporated into and complement existing undergraduate research projects.
- Describe the laboratory facilities, instrumentation, and equipment (including computers) regularly available to undergraduates who conduct research in the biology and chemistry departments.

- Describe the institutional support for the proposed program and the commitment to sustain an interdisciplinary approach to chemistry and biology beyond the period of the award.
- Describe ancillary program initiatives and activities that the biology and chemistry departments will endeavor to implement to bridge the departments, and how it is envisioned these activities will reinforce interdisciplinary studies and foster interactions between the two disciplines (e.g., lectures, seminar series, workshops, journal clubs, special topics forums, student research symposia/colloquia).
- Indicate approximately how award funds will be allocated among the various categories that will receive support.

Note:

- Limit Section D Part II to a maximum of eight double-spaced pages: no more than two should deal with ancillary program initiatives and activities, and no more than one should list references cited in the proposal narrative.
- Use 12-point font size or larger.
- Do not send materials such as CVs, school catalogs/brochures, or course listings.

E. Faculty Profiles

Provide faculty profiles for every full-time tenured and tenure-track faculty member in the biology and chemistry departments. Please include the Faculty Profile Form preceding the profiles. For each faculty profile please format in the following order:

- **Faculty Name:**
- **Title:**
- **Department:**
- **Brief description of academic background:** (This should include length of service at the institution.)
- Citations in peer-reviewed journals or publications co-authored with an undergraduate student(s) from 2001 to the present, with names of the undergraduate student co-author(s) underlined. List them under a heading of: **Citations for Peer-Reviewed Publications with Undergraduate Co-authors.**
- Citations in non-peer-reviewed journals or publications co-authored with an undergraduate student(s) from 2001 to the present, with names of the undergraduate student co-author(s) underlined. List them under a heading of: **Citations for Non-Peer-Reviewed publications with Undergraduate Co-authors.**

- Citations for presentations at national or international professional scientific meetings made with or by an undergraduate student(s) from 2001 to present with names of the undergraduate co-presenters underlined. List them under a heading of: **Citations for National and International Presentations with Undergraduate co-presenters.**
- Citations for presentations at local or regional professional scientific meetings made with or by an undergraduate student(s) from 2001 to present with names of the undergraduate co-presenters underlined. List them under a heading of: **Citations for Local and Regional Presentations with Undergraduate co-presenters.**
- Citations for up to five representative, significant publications without undergraduate co-authors in peer-reviewed publications. List them under a heading of: **Citations for Publications w/o Undergraduate Co-Authors.**
- Current research funding including the source, project title, duration, and funding amount. List under a heading of: **Research Funding.**

Only include citations for articles or presentations published or accepted for publication at the time of this application. Submitted publications or presentations that have not been accepted should not be included in the citations.

••• DEADLINE

Applications must be received by 5:00PM on Friday, 3 November 2006. The deadline is not flexible; late and/or incomplete applications will not be considered.

••• AWARD SELECTION

Applications for the Merck/AAAS USRP awards will be reviewed and rated by a panel of scientists and educators chosen by the AAAS. The panel will make award selections based on the following criteria:

- scientific merit of the proposed research project;
- combined departments' proposed approach to implementing a program of interdisciplinary undergraduate research opportunities that interrelate biology and chemistry;
- combined departments' ability to engage undergraduate students and to provide interdisciplinary research opportunities with faculty members;
- evidence of institutional support and commitment to sustain an inter-disciplinary approach to chemistry and biology.
- combined departments' plans for ancillary programs and activities to enhance inter-departmental interactions between biology and chemistry and encourage cross-fertilization of these two disciplines; and

Applicant institutions will be notified jointly by Merck and the AAAS of award decisions, including declinations, in **February 2007**. An announcement of award winners will be made coincident with the 2007 AAAS Annual Meeting.

••• SUBMISSION

Submit the original and four copies of completed application Sections A through E assembled in this order and stapled in the upper left-hand corner. Do not bind or put covers on the applications. Put the 501(c)(3) Certification Letter on top of the original application, but do not attach them. **Applications may not be submitted electronically or via facsimile machine.** Send the original and four copies in a single package to:

Merck/AAAS Undergraduate Science Research Program
 AAAS Education and Human Resources Programs
 1200 New York Avenue, N.W.
 Washington, DC 20005-3920
 Tel: 202-326-6670

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THE MERCK INSTITUTE FOR SCIENCE EDUCATION (MISE) is a tax-exempt private foundation established in 1993 to improve science education in the public schools. Now expanded to include college and graduate-level education, MISE works to build capacity in the biomedical sciences through partnerships with educational institutions.

MERCK & CO., INC. is a global research-driven pharmaceutical company dedicated to putting patients first. Established in 1891, Merck discovers, develops, manufactures and markets vaccines and medicines in more than 20 therapeutic categories. The company also devotes extensive efforts to increase access to medicines through far-reaching programs that not only donate Merck medicines but help deliver them to the people who need them. Merck also publishes unbiased health information as a not-for-profit service.



ADVANCING SCIENCE. SERVING SOCIETY

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE (AAAS) is the world's largest general scientific society, and publisher of the journal, *Science* (www.sciencemag.org). AAAS was founded in 1848, and serves 262 affiliated societies and academies of science, reaching 10 million individuals. *Science* has the largest paid circulation of any peer-reviewed general science journal in the world, with an estimated total readership of 1 million. The non-profit AAAS (www.aaas.org) is open to all and fulfills its mission to "advance science and serve society" through initiatives in science policy; international programs; science education; and more. For the latest research news, log onto EurekaAlert!, www.eurekaalert.org, the premier science-news Web site, a service of AAAS.

AAAS Education and Human Resources Programs seeks to improve the quality of science, mathematics, and technology education at all educational levels, to foster equal access to these fields for women, minorities, and people with disabilities, and to enhance the public's understanding of science.

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P R O G R A M

Please complete (type or print) this application. Application Submission Date (MM/DD/YY) / /

Institution

Contact Person

Title

Department

Address

.....

City State Zip Code

Telephone (.....) Fax (.....)

E-mail

Signature

CONTACT PERSON: The Contact Person is defined as the individual who will be the point of contact for the Merck Institute for Science Education and AAAS. The Contact Person will submit the annual progress reports and will receive all correspondence and payments from Merck and AAAS.

President

Address

.....

City State Zip Code

Telephone (.....) Fax (.....)

E-mail

I hereby certify that all information contained herein is true and complete to the best of my knowledge.

Signature

President

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Biology Department Chair (or Equivalent)

Name

Address

.....

City State Zip Code

Telephone (.....) Fax (.....)

E-mail

Signature

Biology Department Chair

Chemistry Department Chair (or Equivalent)

Name

Address

.....

City State Zip Code

Telephone (.....) Fax (.....)

E-mail

Signature

Chemistry Department Chair

Where did you hear about Merck/AAAS USRP?

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Undergraduate Science Research

P R O G R A M

Name of Institution: _____

- This Institution is not a 2004, 2005, or 2006 Merck/AAAS USRP award winner. True Not True
- This Institution is located in one of the 50 states, the District of Columbia, or Puerto Rico. Yes No
- This Institution is a not-for-profit entity as defined by the U.S. Internal Revenue Service Tax Code under Section 501(c)(3). **Include a copy of your 501(c)(3) Certification Letter with the application (required).** Yes No
- This Institution offers an American Chemical Society-approved BA/BS chemistry program. Yes No

In the table below, enter the total number of masters and doctoral degrees conferred by the following departments at this Institution in each of the five most recent academic years:

Academic Year	Chemistry Department		Biology Department	
	Number of Master's Degrees	Number of Doctoral Degrees	Number of Master's Degrees	Number of Doctoral Degrees
2001–2002				
2002–03				
2003–04				
2004–05				
2005–06				

Subtotals: _____

The average number of graduate degrees conferred annually by this Institution over the past five years in biology and chemistry combined is: _____

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