



## Program Description and Call for Trainee Applications

The goal of the UCLA Biotechnology Training Program is to educate and to train the next generation of highly skilled scientists and engineers who will assume leadership roles in multidisciplinary biotechnology research. This goal will be achieved through a cohesive training program entailing cross-disciplinary research, a common curriculum composed of formal coursework in life science and engineering and of research seminars, and an industrial internship. An important aspect of the training program will be the promotion of meaningful research interaction between biomedical scientists and engineers. The interface between the life/health sciences and engineering is extraordinarily rich in its diversity. This biotechnology program focuses at the molecular and cellular level where engineers contribute expertise on, for example, the analysis of complex metabolic reaction networks, computational analysis of macromolecular structure, creation of biosensors and other research tools, and the invention of molecular scale devices and processes incorporating both biological and synthetic components. Trainees who complete The Program will appreciate the complementary roles of life scientists and engineering in biotechnology and will be equipped to function productively in the multidisciplinary teams prevalent in the industry. The Program is funded by National Institutes of Health (NIH) with 20% matching funds from the UCLA Graduate Division and administrative support provided by the UCLA HSSEAS.

**Program:** This prestigious two-year training program includes:

- Required coursework: Biological Chemistry CM253 (4 units); Chemical Engineering CM245 (4 units); Microbiology, Immunology & Molecular Genetics C234 (2 units); and enrollment in the Biotechnology Forum, Chemical Engineering/MIMG CM233 (2 units) each winter quarter
- Attendance at and participation in the monthly Biotechnology Training Program Student Seminar Series
- Cross-disciplinary biotechnology thesis research project co-advised by the home department faculty mentor and a collaborating faculty mentor chosen from the Program Faculty. One mentor should be from an engineering department and the other should be from a health/life sciences department.
- At least a 3-month laboratory rotation in the collaborating faculty mentor's laboratory
- Industrial internship
- Participation in the UCLA Biotechnology Annual Meeting
- Requirements of trainee's degree-granting program

**Program Faculty:** A total of 18 faculty, split between engineers and biomedical scientists, participate in the Training Program. All conduct research focused at the molecular and cellular level, and many have established cross-disciplinary collaborations. The Faculty hold appointments in a number of academic units in the HSSEAS, the College, and the School of Medicine including Bioengineering, Biomedical Engineering IDP, Biological Chemistry, Chemical & Biomolecular Engineering, Chemistry & Biochemistry, Human Genetics, Materials Science & Engineering, Mechanical & Aerospace Engineering, Microbiology, Immunology & Molecular Genetics, and Neuroscience (please see the Program Faculty Roster attached).

**Eligibility:** The NIH limits eligibility to US citizens or permanent residents. The applicant should be a PhD student, typically entering his/her second year of study, who has chosen a Program faculty member as research mentor.

**Awards:** Awards are for two years. A stipend is provided by The Program, which generally must be supplemented by the research mentor to the level of a typical Research Assistantship. Tuition and fees (including health coverage) and a travel allowance of up to \$300 per year also are provided.

**Selection:** Selection is based on applicant progress and achievement at UCLA; prior academic record; recommendations from the applicant's research mentor, the collaborating mentor described above, and one additional professional reference; and a statement of purpose prepared by the prospective trainee. The Training Committee selects and guides the trainees.

## Biotechnology Training Program Faculty Roster

Monbouquette, Harold G.	Chemical & Biomolecular Engin	Mentor, Director, PI
Chesselet, Marie-Françoise	Neurology	Mentor
Dunn, Bruce	Materials Science & Engin	Mentor
Eisenberg, David	Chemistry & Biochemistry	Mentor
Gunsalus, Robert	Microbiol, Immunol, & Mol Genet	Mentor, Exec Comm
Ho, Chih-Ming	Mechanical & Aerospace Engin	Mentor
Kamei, Daniel	Bioengineering	Mentor
Lee, Christopher	Chemistry & Biochemistry	Mentor
Liao, James	Chemical & Biomolecular Engin	Mentor, Exec Comm
Loo, Joseph	Chemistry & Biochemistry	Mentor
Maynard, Heather	Chemistry & Biochemistry	Mentor, Exec Comm
Montemagno, Carlo	Bioengineering	Mentor, Exec Comm
Rome, Leonard	Biological Chemistry	Mentor
Sabatti, Chiara	Human Genetics	Mentor
Schröder, Imke	Microbiol, Immunol, & Mol Genet	Mentor
Tamanoi, Fuyuhiko	Microbiol, Immunol, & Mol Genet	Mentor
Tang, Yi	Chemical & Biomolecular Engin	Mentor
Wu, Benjamin	Bioengineering	Mentor

### Industrial Affiliates

BioCatalytics, Pasadena, CA  
SkyePharma, San Diego, CA  
Merck, West Point, PA  
Amgen, Thousand Oaks, CA  
Metabolix, Cambridge, MA  
Cargill, Minneapolis, MN  
Dow, San Diego, CA  
DuPont, Wilmington, DE  
Genencor, Palo Alto, CA



# Biotechnology Training in Biomedical Sciences and Engineering Program

## Trainee Application 2005-2006

Please return completed application to:  
Victoria Corrin, Administrative Assistant  
Chemical & Biomolecular Engineering Department  
5531 Boelter Hall  
Mailcode 159210  
email: vcorrin@ea.ucla.edu  
Application Deadline: October 13, 2005

Applicant's Name: \_\_\_\_\_  
(last, first, middle initial)

Home Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dept. Address: \_\_\_\_\_  
(include mail code)

Home Phone: \_\_\_\_\_ Lab Phone: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Student I.D. Number: \_\_\_\_\_

Your Dept. Accountant (name, tel#, email): \_\_\_\_\_

Citizenship Status (US citizenship or permanent residence status required)

U.S. Citizen       Permanent Resident

California Resident:       Yes       No

Have you previously received a National Research Service Award:       Yes       No

If "Yes":       Institutional       Individual

Grant Name

Total Months Support

Appointment Dates

Education (College/University, beginning with most recent)

Institution, Department and Location	Major	Minor	Dates Attended	Degree/ GPA	Date Received or Expected

List all academic honors, including fellowships and scholarships:

List your publications, including the titles of all research papers published, in press, submitted for publication or in preparation.

Faculty Mentor: \_\_\_\_\_ Email Address: \_\_\_\_\_

Campus Address: \_\_\_\_\_

Collaborating Faculty Mentor: \_\_\_\_\_ Email Address: \_\_\_\_\_

Campus Address: \_\_\_\_\_

Tentative Thesis Title:

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Please summarize, in 250 words or less, 1) your proposed research activities and their relevance to your biotechnology training, and 2) your tentative plans for your industrial internship. These plans should be formulated in consultation with your faculty research mentors and approved below.

I approve the proposed research activities described above.

\_\_\_\_\_  
Faculty Mentor's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Faculty Collaborator's Signature

\_\_\_\_\_  
Date

Provide the name, title, department, institutional address, and phone number of a professional reference (other than your mentors) from whom you are requesting a Reference Form:

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Applicant's Checklist: Please submit the following with your application.

- Copy of undergraduate college transcripts.
- Graduate school transcript.
- GRE scores showing percentile ratings. These need not be original records; copies are acceptable.
- Proposed research activities signed by research sponsor (page three of application).

AND remember to:

Give one Reference Form each to your mentor, to your faculty collaborator and to your professional reference.

If the two-year predoctoral institutional award for which I am applying is granted, I agree to complete the formal classes and to participate in the activities required by the program.

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Applicant's Signature

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Date



# Biotechnology Training in Biomedical Sciences and Engineering Program

## Reference Form

Please return completed form to:  
Victoria Corrin, Administrative Assistant  
Chemical & Biomolecular Engineering Department  
5531 Boelter Hall  
Mailcode 159210  
email: vcorrin@ea.ucla.edu  
Application Deadline: October 13, 2005

Applicant's Name: \_\_\_\_\_  
(last, first, middle initial)

**Instructions for References:** On the line below, please rate the trainee applicant's overall promise as a PhD student and trainee with respect to a specified comparison group (e.g., "top student in this year's entering class" or "top 10% of students that I have mentored in the past 20 years"). Please continue in the space below (and on additional sheets as necessary) with your recommendation, which should include a description of your acquaintance with the applicant and evidence to support your rating of overall promise.

Overall Promise Rating: \_\_\_\_\_

\_\_\_\_\_  
Reference Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Reference Name, Title

\_\_\_\_\_  
Email Address

\_\_\_\_\_  
Address

\_\_\_\_\_  
Telephone Number