

2004-2005 Hope Scholars

AT THE SEVENTH ANNUAL BSCP EVENING of Hope, on April 15, seven BSCP students were awarded Hope Scholarships. Each of the students will receive \$5,000 over two years, to be used for academic purposes. Funding for the scholarships came from AstraZeneca R&D Boston, Biogen Idec, Boston Scientific Corporation, The Fleming Family Foundation, Inc. and MassMEDIC, Genzyme Corporation, Millennium Pharmaceuticals, Inc., and Pfizer Inc.

Natalie M. Brathwaite, of Cambridge, received her scholarship from The Fleming Family Foundation and MassMEDIC. Natalie graduated from Cambridge Rindge and Latin High School in June and currently attends the University of Massachusetts at Amherst. Throughout elementary and high school, she participated in citywide science fairs. In the summer of 2002, Natalie participated in the Community Laboratory at Biogen Idec, where she studied biomedicine and conducted laboratory experiments on genetic structure. Her dream is to become an obstetrician/gynecologist.

Sherry-Ann Brown, a resident of Jamaica who is presently an M.D./Ph.D. candidate at University of Connecticut, received her award from Genzyme Corporation. She graduated with a B.S. in physics with high honors, and a Master's in physics with a concentration in biotechnology, from Wesleyan University. During the last two academic years, Sherry-Ann carried out biotechnological research at Wesleyan with the Center for Neurologic Diseases of Brigham and Women's Hospital and Harvard Medical School. Ultimately, she hopes to pursue a dual career in medical genetics and genomics, and plans to provide health care to people in remote rural areas for a period of time every year.

Bruno Chazaro Cavero, an M.D./Ph.D. candidate at Stanford Medical School, received his award from Pfizer Inc. A native of Mexico,

Bruno graduated summa cum laude from the University of New Hampshire in 2002. He was awarded the Cogswell Scholarship, the UNH Class of 1937 Memorial Endowment



HOPE SCHOLARS, L TO R: SHERRY-ANN BROWN, NATALIE BRATHWAITE, SASHA MCGEE, ROBERT GRAY, ANTOINNE MACHAL-CAJIGAS, WAYNE DEBEATHAM AND BRUNO CHAZARO CAVERO

Scholarship, and a training scholarship at the Summer Institute in Statistical Genetics at North Carolina State University. He was involved with the completion of the Human Genome Project. Bruno is particularly interested in studying genetic factors linked to problems of obesity and diabetes, and plans to use his knowledge to treat diabetes in minority patient populations.

Wayne Lloyd DeBeatham, an M.D. candidate at the University of Connecticut School of Medicine, received his award from Millennium Pharmaceuticals. A first-generation Jamaican-American, Wayne graduated from Dartmouth College in 1999, where he was a member of the Nathan Smith Pre-Medical Society, the Marching Band, and the Wind Symphony. An active participant in Surgical Scholars and the Student National Medical Association, he serves as a volunteer at numerous medical clinics. He is a member of the New England Board of Higher Education Science Network and is a student teacher for the Hartford Health Education Program. Wayne plans on pursuing a career in surgery, with ongoing involvement in public health, academia and community service.

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SPECIAL THANKS TO

Mintz, Levin, Cohn, Ferris,
Glovsky and Popeo, P.C. and the
Massachusetts Medical Society
for their support of this newsletter.

SAVE THE DATES

EXPLORATIONS FOR MIDDLE SCHOOL STUDENTS

Tuesday, October 26, 2004

This program (by invitation only), designed for middle school students, exposes them to research laboratories, science career paths and discussions about the importance of academic preparation.

Harvard Medical School and Harvard-affiliated hospitals

SKILLS WORKSHOPS FOR COLLEGE AND HIGH SCHOOL STUDENTS

Saturday, November 20, 2004

8:15 AM to 3:30 PM

The Conference Center at Harvard Medical School, 77 Avenue Louis Pasteur, Boston

Audience: College students and high school seniors, juniors and sophomores

Pre-registration is required.

To obtain an application, or for further information, please contact Lise D. Kaye at 617.432.0552 or lise_kaye@hms.harvard.edu.

EVENING OF HOPE

Thursday, April 14, 2005

Reception: 6:00 PM

Dinner and Awards Ceremony: 7:00 PM

Evening of Hope is BSCP's annual fundraising dinner, where Hope Scholarships are awarded.

The Boston Park Plaza Hotel, 64 Arlington Street, Boston

Dental Career Options

by Kathleen O'Loughlin, D.M.D., M.P.H., President and Chief Executive Officer, Delta Dental Plan of Massachusetts, BSCP Executive Board Member and BSCP Student Advisor

TWENTY-FIVE YEARS OF PRIVATE DENTAL practice provided me with many wonderful gifts. I enjoyed the privilege of taking care of patients every day, and had the flexibility in my schedule to raise four children, teach at a local dental school part-time, and earn a very good income.

After retiring from my practice three years ago, I moved into the business sector, and am now employed by a dental insurance company.

With more than 153,000 dentists practicing in the US today, entry into the profession is highly competitive. One out of approximately eight to 10 applicants for admission to dental school is accepted. Candidates must graduate from college with excellent grades (B+ or better), although they need not major in the sciences in college.

The vast majority of graduating dentists in the US enter private practice, where they are both clinicians taking care of patients, but are also "CEOs" running a small business. Recent survey data collected by the American Dental Association revealed that the average income for dentists in private practice is \$158,000. But dentistry offers several alternatives to traditional private practice.

Dental public health focuses on the general population, rather than individual patients. Dental public health specialists create programs, analyze data, assess the community's needs for dental care, and focus on health promotion and prevention of dental disease.

The U.S. Public Health Service Commissioned Corps employs salaried dentists and offers many career opportunities, especially in federal government agencies such as the Centers for Disease Control, the Food and Drug Administration, and the National Institutes of Health. Military careers are also an option. Dentists usually enter the service at the rank of Captain, with all the benefits that rank brings, and provide care to active duty military personnel and their families.

Dentistry is often not associated with careers in research, but dental research advances knowledge and patient care technology, which is vital

to providing patients with the best possible care. Dental researchers produce ground-breaking research that crosses the boundaries between medical and dental specialties, especially in the areas of microbiology, neuroscience, collagen and non-collagen biochemistry, and immunology.

Clinical research also seeks cures for dental decay, which is the most common infectious disease of childhood today; and periodontal disease, the leading cause of tooth loss

and resultant disfigurement, especially among the elderly. Boston is home to three premier private dental schools, at Harvard, Tufts and Boston University, all of which are actively engaged in basic and clinical research.



KATHLEEN O'LOUGHLIN,
D.M.D., M.P.H.

Academic careers also exist for graduates attracted to teaching and research. The demand for teachers in dental schools is at an all-time high, with more than 300 faculty positions currently available. The pay scale is lower than private practice, but the hours are predictable and the opportunity to interact with students is extremely rewarding.

Industry also seeks talented dentists. Companies such as Procter and Gamble, Colgate, and Gillette see the tremendous profit potential in the oral care market and employ dentists as consultants, researchers, product developers, and members of marketing and sales teams. Dental materials and supply distributors also offer an array of employment opportunities to dentists, with salaries that are more in the range of private practice than public health and academic positions.

There is a lot you can do with a dental degree. In my case, it led to a career that makes me proud to be both a dentist's daughter and a dentist myself. ■



Bioinformatics in the Post-Genome Era

by Rainer Fuchs, Ph.D., Vice President of Research Informatics, Biogen Idec

THE COMPLETION OF THE SEQUENCING of the human genome signified one of the most remarkable scientific milestones ever. The genome sequence provides us with a blueprint on which our future understanding of biological systems, as defined at the molecular level, will rest. The end of the genome project is the beginning of an even more formidable endeavor — the determination of each protein's molecular and biological function and the networks they participate in. This work falls into the field of bioinformatics, the application of information processing techniques to biological problems.

Over the last two decades, bioinformatics has established itself as an essential component of modern biology. Bioinformaticians are still learning how to best represent complex, often qualitative, data types — such as behavioral

changes — in database systems. Ideally, these representations would not be merely simple, static descriptions, but would also allow us to compute on the data. What we are seeing here is the beginning of an exciting journey toward what is arguably the “holy grail” of computational biology — the ability to formulate realistic, high-resolution in silico models of complex biological systems.

What does this mean for the bioinformatician of the future and how schools train the next generation of researchers? The current algorithm-heavy education offered by many graduate programs is likely to produce the wrong output. A basic understanding of algorithms and programming expertise will continue to be essential for any bioinformatics student. But it is also

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2004-2005 HOPE SCHOLARS

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Robert L. Gray, an M.D./M.M.S. candidate in Brown University's eight-year combined program in Liberal Medical Education, received his award from AstraZeneca. As an undergraduate, Robert majored in English literature and received the Shearer Award for creative non-fiction. After a semester abroad in the Science and Technology Studies Department of the University College London, he took a position in the cellular biology research laboratory of the Department of Orthopaedics at Brown, and began learning the techniques for his current research in osteoarthritis and inflammation. Robert received an AMA Foundation Excellence in Medicine Leadership Award, and a foundation grant for his work promoting health literacy among Latinos in Rhode Island. Robert is planning a career in orthopaedic surgery.

Antoine Y. Machal-Cajigas, an undergraduate at the Massachusetts Institute of Technology (MIT), received his award from Boston Scientific Corporation. A 2003 graduate of Newton North High School, he was recognized by the National Hispanic Recognition Program and received the Advancement Placement Scholar

with Honors Award. As a member of the Science Team, he built a robot, “Mission Possible,” and won the 2003 New England Science Bowl Championship. He represented Massachusetts at the 2003 National Youth Leadership Forum on Technology and the 2004 National Youth Leadership Conference. His long-term goal is to be an academic and corporate liaison between Puerto Rico and mainland United States.

Sasha McGee, a Ph.D. candidate at the Massachusetts Institute of Technology, received her award from Biogen Idec. In 2001, she graduated magna cum laude from the University of Maryland, Baltimore County with a Bachelor's degree in chemistry. As an undergraduate, she conducted summer research in Lancaster, England with the Minority International Research Training (MIRT) program of the Fogarty International Center at the National Institutes of Health. During her first year at MIT, she worked on the use of spectroscopy as a non-invasive means for early cancer detection. In her second year, she was admitted into the Harvard-MIT Division of Health Sciences and Technology in the Medical Engineering and Medical Physics Program. Sasha looks forward to a career in biomedical research. ■

NEW ENGLAND SCIENCE SYMPOSIUM

Friday, March 4, 2005

8:30 AM to 5:00 PM

The Conference Center at
Harvard Medical School, 77
Avenue Louis Pasteur, Boston

AUDIENCE:

Postdoctoral fellows, medical/dental, graduate and college students.

The aim of the symposium is to encourage fellows and students, particularly underrepresented minority individuals, involved in post-doctoral, graduate and undergraduate biomedical or health-related scientific research, to present their research projects through oral presentations or at a poster session.

The fellows and students interested in presenting at the symposium must submit their abstract electronically to Jabbar R. Bennett, Ph.D. at: jabbar_bennett@hms.harvard.edu by December 6, 2004.

The abstract must include:

- Name of the author(s)
- Contact information: mailing and e-mail addresses and phone numbers
- Institution, academic level and expected year of graduation
- Research title and research sponsor(s)
- Statement summarizing the work to be presented (not to exceed 400 words).

Pre-registration is required.

For further information, please contact Lise D. Kaye at 617.432.0552 or lise_kaye@hms.harvard.edu.

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SAVE THE DATES!

CAREER DEVELOPMENT SERIES: FEDERAL FUNDING OPPORTUNITIES

AGENCY FOR HEALTH CARE RESEARCH AND QUALITY – NATIONAL INSTITUTES OF HEALTH – NATIONAL SCIENCE FOUNDATION

Tuesday, October 12, 2004 ■ Program: 3:00 to 6:00 PM ■ Dinner/Networking: 6:00 to 7:00 PM
The Longwood Galleria Conference Center, 342 Longwood Avenue, Boston

AUDIENCE:

Physicians in postdoctoral training, residents, fellows and junior faculty, particularly underrepresented minority individuals.

MODERATOR:

Joan Y. Reede, M.D., M.P.H., M.S. Dean for Diversity and Community Partnership, Harvard Medical School; President and Chair, Biomedical Science Careers Program

REGISTRATION FEE: \$10

Please register by calling the Massachusetts Medical Society at 800.843.6356.

For more information, please call Lise D. Kaye at 617.432.0552 or lise_kaye@hms.harvard.edu. ■

The Massachusetts Medical Society (MMS) designates this educational activity for a maximum of three category 1 credits toward the AMA Physician's Recognition Award.

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BIOINFORMATICS

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vitally important for students to have more than a deep and thorough understanding of database methodologies and modeling techniques. They need hands-on experience with complex data representation, database integration, knowledge management, and simulations, and schools must provide the opportunities for this experience. Also, as the data types that bioinformatics practitioners will have to deal with become increasingly more complex than simple strings of As, Cs, Gs, and Ts, thorough biological training beyond molecular biology will be necessary.

One thing is certain: good bioinformaticians will continue to be a rare, and highly sought,

breed. And the educational programs that produce them should be adapting their programs to meet the evolving needs of the field. ■

FUNDING OPPORTUNITIES

Office of Minority Health Resource Center (OMHRC)

DID YOU KNOW THAT THE OMHRC website contains information about federal (including OMH) and non-federal funding opportunities? Check it out!

- Go to: <http://www.omhrc.gov>
- Click on "What's New."
- Click on "Funding Opportunities."

Select from various funding categories: Research, Community, Education and Private. ■