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## **The Jefferson Medical College Summer Research Program**

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## The Jefferson Medical College Summer Research Program

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For over 100 years Academic Medical Centers (AMCs) and biomedical research have enjoyed a synergistic partnership, summarized by the observation that "medical science instruction becomes history instruction in the absence of biomedical research."<sup>1</sup> However, recent legislative and market changes, combined with decreasing numbers of medical students and physicians entering research,<sup>2</sup> are challenging the structure of this partnership. In an effort to maintain the research arm of academic medicine's tri-partite mission during this restructuring, Jefferson Medical College (JMC) has implemented a joint federal-medical school interdisciplinary Summer Research Program linking students with a broad cross section of university researchers in such fields as orthopedics, medical informatics, ob/gyn, oncology, neurosurgery and health policy.

The primary goal of the Summer Research Program is to further students' understanding of translating research methodology to problems of patient care. By the end of their summer program, students are required to formulate testable hypotheses in their area of immersion. The program pairs qualified students with established mentors to expose them to the critical thought process and analytic techniques involved in planning, executing and presenting research. This approach, while traditional, is based on the fact that a physician's decision to enter research is made more often during medical school than at any other time.<sup>3</sup> The program also strives to identify and recruit under-represented undergraduate minorities. The Cancer-Related Basic Research program, in its outreach efforts, encourages individuals to consider careers in biomedical research. Despite the fact that Blacks, Native Americans, Mexican-Americans and mainland Puerto Ricans comprise 20% of the population, they account for only 6% of US physicians.<sup>4</sup> Such statistics have compelled the American Association of Medical Colleges (AAMC) to strongly promote entrance of minorities and underrepresented groups into medical schools through policies and advocating programs similar to JMC's Summer Research Program.

The Summer Research Program was originally supported by an NIH short-term training grant for medical students from 1980-1988. After eight successful years and 107 published abstracts and papers, Dr. Joseph Gonella, Dean of JMC, initiated the General and Computer Research programs in 1989 to continue the benefits of such training. The following year, in 1990, Dr. George Alexander, director of undergraduate medication education, Department of Radiation Therapy and Nuclear Medicine, received funding from the National Cancer Institute to found a Cancer-Related Basic Research program which, in addition to existing medical students, also included pre-matriculated medical students and under-represented undergraduate minority students. Finally, in 1996 and 1998, under the coordination of Ken Chepenik of Thomas Jefferson University's Office of Scientific Affairs, and under the direction of Dr. Scott Waldman of the Department of Medicine and Clinical Pharmacology and Dr. Allen Lefer of the Department of Physiology, the National Heart, Lung, and Blood program and the Translational Cancer Research program were funded. Support for these programs was obtained from the National Heart, Lung, and Blood Institute and the NCI, respectively.

This year, 100 applicants from among existing medical students, pre-matriculating medical students, and minority undergraduate students competed for the 36

supported summer research positions awarded across all five divisions. Upon acceptance to the program, students are matched with a preceptor and encouraged to meet before the summer to review pertinent literature and discuss project objectives, design and implementation. Working under an intense 10-week timeframe, participants meet frequently with preceptors in order to review progress and discuss findings. At the end of the summer, students are required to make an oral presentation to other program participants and submit a scientific abstract of their work. In addition to receiving a stipend, participants are eligible for a \$1,000 tuition rebate contingent upon submitting their project work in the form of a scientific publication to the JMC Selection and Education Committee.

Since the inception of the current program in 1989, summer student researchers have published and presented 76 abstracts and papers in established journals and national association conventions across the country. Several program participants have even transferred from the MD to the MD/PhD program, citing their summer research experience as impetus for such a move. Regarding the undergraduate minority participants, 10 of the past 20 participants have pursued higher education in the sciences, and three students with bachelor degrees are working as research technicians and plan to apply for MD, MD/PhD and DVM programs.

Only time will reveal how recent changes including the Balanced Budget Act of 1997<sup>5</sup> and managed care<sup>6</sup> will ultimately effect the ability of AMCs to promote their mission of education, patient care and research. Present limits on federal reimbursement for AMC administrative costs, salaries, awards and graduate student tuition have shifted costs to medical schools at a time when funding from clinical revenue, which historically covered these costs, has been decreasing.<sup>7</sup> To add to this burden, despite 1999 Congressional budget approval for the largest increase in NIH funding, declining numbers of first-time MD applicants for NIH research grants will trend out to zero by 2003.<sup>2</sup> In other words, research is threatened by both external and internal forces: the external force of cost restructuring, and by the internal force of low interest in research within the physician pool. In this milieu, JMC's Summer Research Program illustrates a means to foster renewed interest in the physician-scientist through strengthening the University's research arm as well as the quality of its medical education.

For further information on the JMC Summer Research Program, contact Dr. Catherine Calkins, Department of Microbiology and Immunology, 215-503-7950, or contact individual program directors as follows: Cancer-related Basic Research: Drs. Mahroo Haghbin and Ronald Coss; Translational Cancer Research: Drs. Scott Waldman and Laurence Eisenlohr; National Heart, Lung, and Blood Research: Dr. Allan Lefler; General Medical Research, administered through the Office of Scientific Affairs: Dr. Catherine Calkins; and the Computer Program, administered through the Office of Academic Computing: Dr. Rod Murray.

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### **About the Author**

Hanna Zafar is a member of the Jefferson Medical College Class of 2002, and is a General Summer Research Fellow.