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UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE AMONG FIRST IN U.S. TO ESTABLISH COMPUTATIONAL BIOLOGY DEPARTMENT

Discipline aims to simulate biomolecular machinery and accelerate drug discovery

PITTSBURGH, Nov. 11, 2004 – The University of Pittsburgh School of Medicine has established a department of computational biology, making it one of the first U.S. medical schools to assign this newest of disciplines the same status as more traditional clinical and basic science departments. Taking advantage of a growing body of knowledge about the human genome and protein structure, the department's primary mission is the creation of efficient computational models that aim to identify more rational approaches to our understanding of human biology and disease processes, and to the development of new therapies, including drugs and vaccines.

Computational biology brings together disparate fields of study – computer science and biological science, as well as physical and mathematical sciences – by developing physically inspired computational models and methods to address key biological questions, and assist in gaining better understanding of the molecular basis of complex cellular events. Such insight can help pinpoint the specific flaws in biomolecular structure and dynamics that are associated with genetic disorders and disease so that more effective therapies can be designed.

Ivet Bahar, Ph.D., who was recruited to the University of Pittsburgh four years ago to direct the Center for Computational Biology and Bioinformatics (CCBB), has been named the chairman of the new department as well as professor of computational biology. Until now, Dr. Bahar has been a professor in the department of molecular genetics and biochemistry, and the founding director of the CCBB.

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Jane Duffield, *Director*

"Dr. Bahar has made outstanding contributions to the field and she is ideally suited to be the inaugural chair of the department of computational biology, which I see as an essential complement to our other core departments within the School of Medicine. It is a field that will take us steps closer to important biomedical discoveries. Indeed, last year the National Institutes of Health, in its Roadmap for Medical Research, identified computational biology as one of the innovative approaches needed to accelerate fundamental discovery and its translation into effective prevention strategies and treatments. Toward this end, I am pleased that Pitt is serving a leadership role among schools of medicine," said Arthur S. Levine, M.D., senior vice chancellor for the Health Sciences and dean, School of Medicine.

The department will focus on three areas of research that will become increasingly important and promising with advances in molecular biology and computational technology. These are computational structural biology, computational genomics and systems biology with applications to cell signaling and regulation.

"Our goal is to focus on the structure and interactions of proteins and their complexes in cellular environments, and to build multi-scale models and theories that will permit us to simulate, understand and control biological mechanisms of action. Close coordination between experiments and computations emerges as a key requirement for accelerated progress in biomedical sciences, as the complexity of biological events becomes clear with the rapid accumulation of biological data," explained Dr. Bahar.

"Indeed, experimental studies can provide us with feedback for building more realistic computational models and methods, and computations, in turn, can provide guidance on the features and systems that should be targeted by experiments. Computational models can provide essential information more rapidly than traditional scientific approaches, enabling our colleagues to conduct more effective clinical investigations of the most promising treatments. Our goal is to promote and establish such collaborative research efforts and train a new generation of scientists with multidisciplinary research skills," she continued.

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The department has seven core faculty and more than 30 associate and affiliate faculty members who collaborate on research and educational projects.

"Just as we did when we were a center, as a department we will work collaboratively with other research groups from within the university and from outside institutions. Only by creating bridges across different disciplines can we hope to make progress in the present post-genomic era," Dr. Bahar added.

Last year, the National Institute of General Medical Sciences, one of the National Institutes of Health (NIH), awarded funding to Dr. Bahar to plan the Pittsburgh Center for Biomedical Computation. The center includes the University of Pittsburgh School of Medicine, the Pittsburgh Supercomputing Center, Carnegie Mellon University and Duquesne University, and brings together their collective expertise in biological sciences, computer science, mathematics, engineering, physics and chemistry.

Working with other departments at the University of Pittsburgh, as well as Carnegie Mellon University's School of Computer Science and Mellon College of Science, Pitt's School of Medicine is planning to soon establish a doctoral program in computational biology.

More information about the University of Pittsburgh School of Medicine is available at http://www.medschool.pitt.edu/ , and the CCBB at http://www.ccbb.pitt.edu .

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