

BUFFALO CENTER OF EXCELLENCE IN BIOINFORMATICS



Pataki Announces New Funding for Bioinformatics

Gov. George Pataki has announced that New York State will provide \$110 million from this year's state budget toward construction of the Life Sciences Complex in Buffalo, which will include the Center of Excellence in Bioinformatics. The complex will feature three buildings—one housing the Center of Excellence, a new building for Hauptman-Woodward Medical Research Institute and a new research building for Roswell Park Cancer Institute. The Roswell Park and Hauptman-Woodward buildings will replace current outmoded facilities.

The 150,000-square-foot bioinformatics building will house 200 people, mostly new hires. Construction is expected to begin this summer and be completed within two to three years. The building will be located on the Buffalo Niagara

Medical Campus on Virginia Street, between Ellicott and Elm streets. The bioinformatics building will be connected by a footbridge to the Roswell Park building, and by a second bridge to the Hauptman-Woodward facility.

Pataki's announcement came during a news conference held on June 5 in Buffalo and attended by officials from the center's research partners and community leaders. The governor said he is confident that Western New York can compete with such high-tech corridors as North Carolina's Research Triangle, Boston's Route 128 and California's Silicon Valley. "It's a lot nicer here in upstate New York and Buffalo than it is in the Silicon Valley," he noted. "It's hot there, it's dry and they have earthquakes."

World-Class Scientist to Direct Bioinformatics Center



Jeffrey Skolnick

The Buffalo Center of Excellence in Bioinformatics has taken a giant leap forward with the hiring of internationally renowned bioinformatician Jeffrey Skolnick, Ph.D.

Skolnick, who holds a doctorate in chemistry from Yale University, currently is director of computational and structural genomics at the Danforth Plant Science Center and an adjunct professor of biochemistry at Washington University in St. Louis. He will bring with him to Buffalo approximately 17 people and also plans to hire 10 top researchers over the next four or five years. Skolnick will hold an appointment as a professor of structural biology at UB.

"Dr. Skolnick possesses a unique combination of terrific scientific talent and entrepreneurial ability in this new field," said Provost Elizabeth D. Capaldi of the University at Buffalo, the lead institution in the center of excellence. "He will work with the deans and our academic partners to hire the very best talent available for these faculty positions. UB will take a huge step forward with the infusion of new faculty in this very important field."

The bioinformatics center will merge high-end technology, including supercomputing and visualization, with expertise in genomics, proteomics and bioimaging to foster advances in science and health care.

Skolnick, a pioneer in bioinformatics with his research in computational biology, said he is delighted to be heading the new center. "My goal is to create the premier bioinformatics center in the world, and I've been given the tools to do it, thanks to the efforts of Gov. George Pataki, Sen. Hillary Rodham Clinton, Congressman Thomas Reynolds, our legislators and Provost Capaldi," Skolnick said. "We're going to hire the best people in the world that we can possibly get."

The Buffalo Center's Irish Connection

The University at Buffalo has entered into a high-technology partnership with Biopharma Ireland—Ireland's new national institute for biopharmaceutical research and development—giving the Buffalo Center of Excellence in Bioinformatics an important international link.

Biopharma Ireland—established by Dublin City University and Athlone Institute of Technology—named UB and Columbia University as its first U.S. partners at an announcement in March hosted by Sen. Hillary Rodham Clinton in Athlone, Ireland. Biopharma will undertake basic and applied research designed to lead to the discovery of new pharmaceuticals. These new products will result in new investments in both Ireland and New York State. Biopharma also is devoting resources to developing spin-off biotech companies in both Ireland and New York.

“As a true center of excellence, we need not only national, but international connections and recognition,” said UB Provost Elizabeth D. Capaldi. “Ireland has strong computer and pharmaceutical industries and is an ideal partner for our bioinformatics effort.”

UB and Columbia have been partnering on the \$25 million Northeast Structural Genomics Consortium, a National Institutes of Health-funded project involving nine institutions. Structural genomics entails the determination of gene function by defining the protein structure encoded in a gene's DNA sequence. UB's Center for Computational Research—one of the world's leading academic supercomputing centers—is providing the computational backbone for the project.

UB Senior Vice Provost Bruce A. Holm, UB's representative at the March announcement, noted that it makes sense that as a center of excellence, Buffalo's bioinformatics center should be linked with other centers. “Ireland, in particular, has made substantially more of an investment in pharmaceutical research than most other places in the European community,” he pointed out. “With our partners in Ireland, as well as with Columbia, this is a natural, complementary partnership for UB.”

UB's partnership with Biopharma Ireland originated with previous research collaborations with Irish institutions that were facilitated by the Atlantic Corridor USA, a Buffalo-based, non-profit alliance to link the North American Free Trade Agreement (NAFTA) and European Union markets.

Dell Computer to Establish Linux PC Cluster at Bioinformatics Center

The Buffalo Center of Excellence in Bioinformatics and Dell Computer Corporation have signed an agreement to establish one of the world's largest Linux PC clusters dedicated to cutting-edge research in bioinformatics. This 4,120-processor cluster—to be devoted entirely to the research of Jeffrey Skolnick, director, and Andrzej Kolinski, senior principal investigator, both at the bioinformatics center—will have the capacity to perform more than 5 trillion calculations per second. It will be housed in the UB Center for Computational Research on the university's North Campus. The cluster will have more than 2 trillion bytes (TB) of RAM and 160 TB of disk storage, as well as a 10 TB Raid Array for data storage. Weighing in at more than 80,000 lbs., the cluster will enable state-of-the-art bioinformatics calculations to get under way at the center.

In One Year, A Quantum Leap Forward

During the past year, the Buffalo Center of Excellence in Bioinformatics has made significant progress on several fronts: funding from government and private sources, agreements with corporate research partners and community support.

Committed Funding

More than \$273 million has been committed to the center, including New York State's commitment of \$61 million from Gov. George Pataki; \$3.1 million from Congressman Reynolds and Sen. Clinton; \$53 million in competitive, peer-reviewed research grants from the National Science Foundation and National Institutes of Health in fields supporting bioinformatics; \$2 million in foundation support from the Sloan Foundation, AT&T and the John R. Oishei Foundation, and \$154 million from corporate partners, including Amersham Pharmacia, the Buffalo business community, Hewlett-Packard, Dell, InforMax, Q-Chem, SGI, Stryker, Sun and Veridian.

Major Corporate Research Partners

In addition to corporate funding partners, a number of companies are banking on research relationships to lead to new discoveries, products and processes. Among them are Amersham Pharmacia, Bristol-Myers Squibb, Hewlett-Packard, Human Genome Sciences, Immco, InforMax, Invitrogen, Omnipharm, Pfizer Pharmaceutical, Wyeth Lederle and Zeptomatrix. Promising discussions about new partnerships with pharmaceutical, biotechnology and imaging instrumentation and diagnostics companies also are under way. An NIH collaborative grant has been submitted with colleagues from General Electric, a new research partner in imaging bioinformatics. Program development also is under way with 3M in a joint biodefense collaboration with the center. In addition, work has begun with Beckman-Coulter to explore commercialization of new Buffalo technologies for use in drug discovery and diagnostics.

Community Support

The Buffalo Center of Excellence in Bioinformatics has become the top priority of the Buffalo business community and government and community leaders. Private-sector volunteer groups are in place to facilitate the development of the life sciences economy in the Buffalo Niagara region.

