

The background of the entire page is a dark blue field filled with a dense pattern of small, multi-colored dots in shades of red, white, blue, green, and yellow. In the upper left, a purple, textured model of a DNA double helix is shown. In the upper center, a white baby is visible, partially obscured by the DNA model. In the lower right, a Black baby is shown from the chest up, looking towards the camera.

# GENE CENTER REPORT AND COMMEMORATIVE PROGRAM OF THE 20TH INTERNATIONAL SYMPOSIUM

Center for Study of Gene Structure & Function, Hunter College, City University of New York





## FROM THE DIRECTOR



This special commemorative report celebrates the 21st anniversary of the Center for Study of Gene Structure and Function (Gene Center) at Hunter College and the 20th Anniversary of its International Symposium. It highlights the activities of the Gene Center and its impact on science research.

The Gene Center, was established in 1985 with funding from the National Center for Research Resources (NCRR) of the National Institutes of Health (NIH). We are indebted to James Wyche and Richard Mawe for their vision in developing this enterprise. It is a consortium of researchers within Hunter College of The City University of New York – one of the largest public universities in the nation.

At the heart of the Gene Center's mission is an imperative to build unique collaborations among biologists, chemists, biopsychologists, biophysicists, and bioanthropologists; to recruit and equip outstanding faculty, including minorities underrepresented in science research; to develop core research facilities; and to enhance strategies for networking among scientists. Addressing health afflictions and redressing health disparities are important goals of the Gene Center.

Our benchmarks of success include the growing number of papers published in peer-reviewed journals and increased external grant funding obtained by the faculty. Our frequent research colloquia by guest scientists and our annual international symposia are major events of the scientific calendar of metropolitan New York.

Our symposia have attracted outstanding scientists from many parts of the world. The 2007 symposium entitled Evolution, Health, and Disease challenged medical practitioners and scientists to understand the yin and yang of pathogen and host evolution, and to view health from an evolutionary perspective. These important annual symposia are also highlighted in the commemorative report.

The Gene Center also develops bright undergraduate scientists in its Summer Program for Undergraduate Research (SPUR), and supports the most qualified American nationals/permanent residents to conduct graduate research as Gene Center Fellows. It fosters nationwide networking and professional development of junior and senior scientists through the JustGarciaHill science website.

We appreciate the leadership of Jennifer Raab, Principal Investigator and President of Hunter College, the guidance of Vita Rabinowitz, Provost, and John Rose, Acting Dean of Diversity. We benefit from the fiscal expertise of Robert Buckley, Director of Research Administration and the network expertise of Franklin Steen, Chief Information Officer & Assistant Vice President for ICIT. We value the contributions of all the members of the Gene Center, as well as Ellis Rubinstein, Rashid Shaikh, Bill Silberg, Chris Williams and Angela Lin of the New York Academy of Sciences. We are indebted to the vision and assistance of Barbara Alving, Director of NCRR, Sidney McNairy, Jr. Director of Research Infrastructure, NCRR, and Shelia McClure of Research Centers in Minority Institutions Program (RCMI) of NCRR.

We thank Matthew Goldstein, Chancellor of The City University of New York and Ernesto Malave, Vice Chancellor for Budget and Finance, Selma Botman, Executive Vice Chancellor and University Provost and the City University of New York for matching funds and support.

We hope that this report will enhance your understanding of our goals, achievements and collaborations, as well as our interactions with the national agencies that support our mission.

We appreciate your support for our continued success.

Sincerely,

Robert P Dottin  
Professor of Biology  
Director, Center for Study of Gene Structure and Function.  
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## INTERNET2 DISTANCE COLLABORATION AND VIDEO CONFERENCING FACILITY

1. Main control system: Rack and Servers
2. High resolution projector
3. Wireless Auto tracking camera for speaker
4. 42" Plasma TV for speaker's view of remote location
5. Manager's office
6. Sound panels
7. Internet2 and workstations node
8. Crestron central control unit
9. High quality sound system
10. Sound proof windows with air bubble between 2 windows
11. Audience camera



### Internet2 Facility at Hunter College Advances Research and Teaching

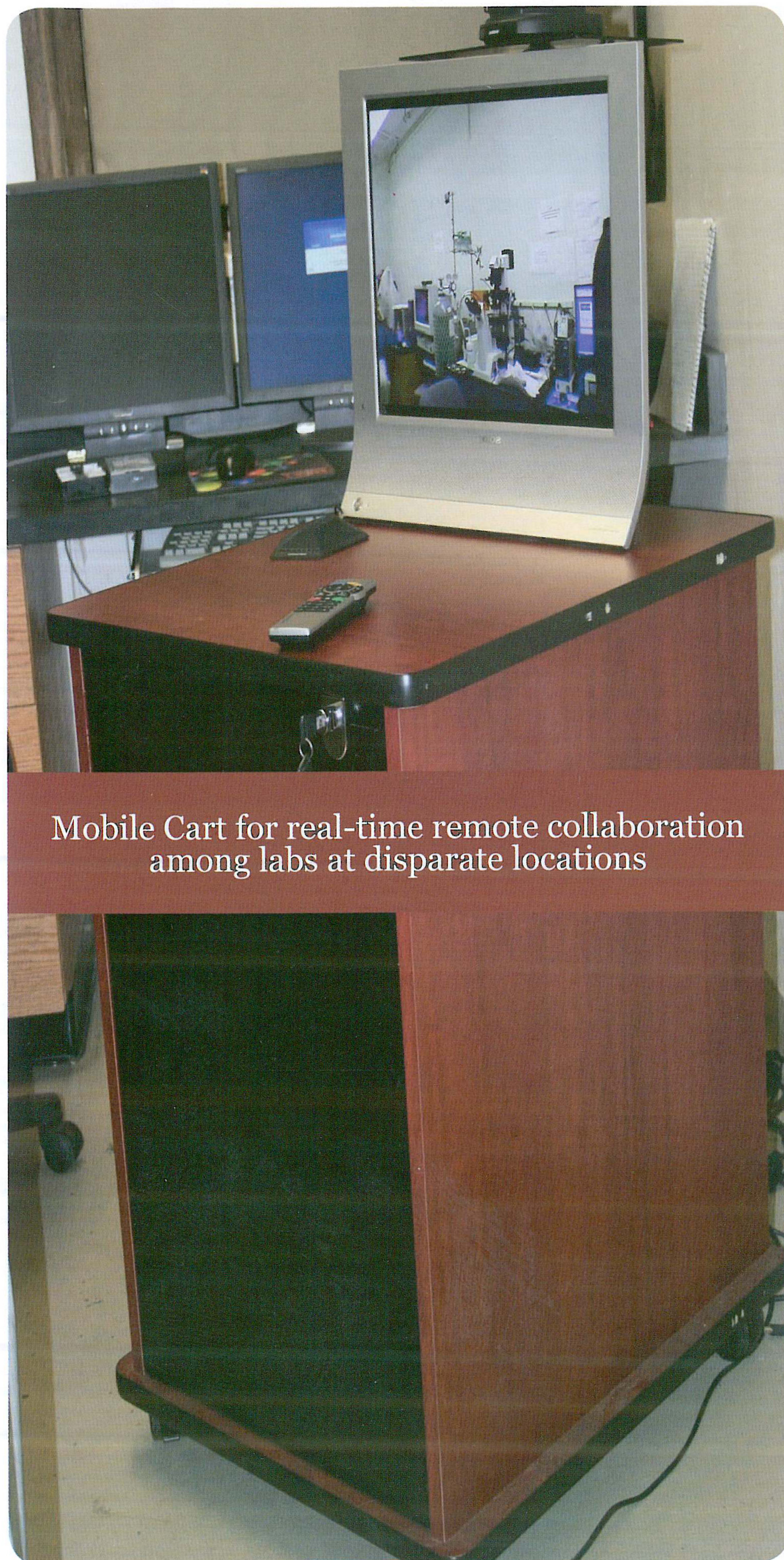
By Farooq Ahmed

The Gene Center at New York City's Hunter College has recently finished construction on an Internet2 Distance Research & Learning Facility, designed by the renowned Walters-Storyk Design Group whose previous clients include Jazz at Lincoln Center. The facility will provide novel ways for scientists to collaborate on biomedical research and will also help to develop new modalities for teaching and learning.

With the explosion of computing power, computer-intensive research, and advancements in research techniques in the last quarter of the twentieth century, universities and other research institutions quickly outgrew the bandwidth provided by the traditional internet. To overcome this limitation, in the mid-1990s a consortium of universities and businesses formed Internet2, a suite of advanced network applications and technologies with high-throughput data transfer for use in research and education.

The state-of-the-art Internet2 complex at Hunter features two conference rooms, an office, and an equipment room that supports input from many media sources: high-speed fiber-optic lines provided by the City University of New York, digital television, DVD, and CD. It provides output through video cameras, one with robotic tracking, a separate document camera, 42" flat panel monitors, several projectors, a retractable projection screen, and a sound system. Even the furniture in the room is 'smart,' wired for full-function computer, phone, noise cancellation microphones, and video. The entire complex can be controlled by a single Crestron touch screen mounted on the lectern in the main conference room or by a computer in the





Mobile Cart for real-time remote collaboration among labs at disparate locations

adjacent office. An important feature of the facility is the sophisticated 'mobile cart' that provides full audio, video, and high-speed internet connections to individual labs within the Gene Center.

Hunter College President Jennifer Raab contributed a 1,100 square foot sector of the third floor of the campus at Park Avenue and 69th Street, and the National Institutes of Health's National Center for Research Resources provided primary funding for the installation.

Dr. Robert Dottin, the director of the Gene Center at Hunter, reports that the new facility presents formidable interactive communication advances, enabling scientists to exchange, observe, and discuss complex data with high visual and audio quality in real-time. "Internet2 speed, reliability, and clarity will enable us to virtually share the same laboratory with colleagues at over 200 research institutions and universities in this country, and with similarly equipped international institutions," he says.

The facility will be used to support ongoing research in AIDS, neurological diseases, cancer, and behavioral disorders. The ability to collaborate with investigators around the world will allow researchers to use unique and often expensive equipment such as scanning probe microscopes with nano-manipulators without physically being on site. Using the Gene Center's mobile cart, for example, Hunter's scientists can transmit from their labs, observations of mice responding to drugs that affect memory or access functional MRIs for psychophysiological studies, all interactively and in real-time.

"The future," says Dottin, "involves a kind of experimentation where you don't necessarily have to have the multi-million dollar equipment in front of you to do the most sophisticated experiments."

The Internet2 facility will also have a tremendous impact on education. Enhanced distance learning allows bicoastal classes to share materials and conduct live multimedia presentations that can be archived online with voice and synchronized slides. Dottin calls it "collaborative learning at a distance, which gives students ownership of their own creations. They can share them with peers, family, even potential employers." Teaching, he believes, has more impact this way.

An additional pedagogical benefit of the new technology is the ability to help underserved students in the United States and throughout the world. "This small classroom can host a world of budding scientists," Dottin explains. Students from Puerto Rico, Hawaii, or California with Internet2 facilities can pose questions to a professor at Hunter as if they were sitting in the same classroom, helping to bridge the education gap in all directions. These 'budding scientists' can look through microscopes and slides simultaneously and manipulate them as well. Dottin feels that "undergraduates at Hunter will have partners in other parts of the world who are learning the same material and contributing at the same time. This is not possible with the standard form of the internet, and this facility is unique, even in New York."