

Facility Takes City to Top in Structural Biology; Equipment Anchors NYC in New Field

Judith Messina

A tour of the New York Structural Biology Center can seem like a visit to NASA. Its hangar-sized spaces house seven huge cylinders used to plumb the structure of proteins that are the building blocks of life.

The \$60 million center, on the campus of City College in Harlem, is the most advanced facility of its type in this hemisphere. Its presence has made New York a clear leader in the arcane but revolutionary science of structural biology, and it has spawned critical discoveries about HIV, SARS, diabetes and cancer.

Some 75 scientists and their research teams, including two Nobel Prize winners, are now using the eight-year-old center's facilities. The cylinders--nuclear magnetic resonance spectrometers--use powerful magnets to immobilize protein molecules and then bombard them with radio waves to form detailed pictures of their structures. The center also houses an advanced electron microscope; at Long Island's Brookhaven National Laboratory, it operates an electron accelerator for X-ray crystallography, another technology for imaging proteins.

Such imaging is a key first step in developing new drugs. Ann McDermott is using NMRs to understand the relationship between proteins' structures and the functions they carry out. Her work is part of a larger project, funded by a National Institutes of Health grant, to study proteins that act as gatekeepers to cells.

"The goal is to connect [the function] to the inner workings of a cell," says Ms. McDermott, a professor of biological chemistry at Columbia University. "The closer you get to that, the closer you get to good ideas for new medicines."

The NYSBC grew out of an initiative by the Partnership for New York City, which feared that the city was losing talent to better-equipped venues, like San Diego and Boston.

"Many investigators were being recruited and in danger of leaving because they didn't have the latest equipment," says Willa Appel, chief operating officer of the NYSBC.

To establish the center, government and private donors ponied up more than \$45 million; 10 member institutions came up with \$10.5 million. The NYSBC employs about 25 people and has an operating budget of \$10 million, underwritten by the members and by grants.

"We are reducing the barriers in certain areas of science and empowering individuals to do good science faster," says David Cowburn, chief executive of the NYSBC.

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