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Cancer Center

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basic scientists, clinical researchers, and physicians. Discoveries can be moved swiftly and effectively from the laboratory to the patient care setting, while observations made in the course of patient care offer a rich source of data and inquiry for laboratory science, helping researchers to devise further refinements in therapies and technique.

The research complex will accommodate approximately 100 researchers and their growing teams—providing 16 floors that house many of the Center's laboratories and offers the space needed for the recruitment of 68 new investigators and the expansion of a number of existing programs within the Sloan Kettering Institute (SKI), such as:

**Immunology** - Utilizing expertise in both basic and translational science, immunology research focuses on areas such as cell signaling; T cell selection; antigen processing and presentation; genetic approaches to transplantation and active immunization; cancer immunology; infection and immunity; transplantation immunology; and adoptive cellular therapies.

**Computational Biology** - Using sophisticated software and powerful computers, MSKCC computational biologists build virtual models that simulate biological processes in order to make useful predictions and assist in the development of better diagnostics, prognostics, and improved therapies. This program—which will eventually be housed in the seven-story addition that will be completed in the second phase of construction—helps interpret detailed molecular profiles of cancerous and noncancerous cells, molecular response profiles of therapeutic agents, and an individual's genetic profile.

**Molecular Pharmacology and Chemistry** - The largest program in MSKCC, it functions as the conduit for bringing discoveries in the basic biological sciences to preclinical and clinical evaluation. This program seeks to conceive, design, and synthesize new anticancer and antiviral agents; elucidate the mechanisms of action and resistance of anticancer agents; evaluate and determine the toxicology of promising new agents; and conduct translational research bearing on radiation and chemotherapy.

**Cancer Biology and Genetics** - Drawing upon the fundamental mechanisms of cell and tissue development, animal

models of disease, and clinical samples and studies, this program pursues research that bridges basic and clinical aspects of the genesis, progression, prognosis, prevention, and treatment of cancer. It focuses on molecular and genetic determinants of cancer predisposition, tumor development and metastasis, and the nature of therapeutic targets and the basis for their response to therapy.

Some laboratories were transferred from other research facilities on the MSKCC campus to the new research building, creating additional space in those facilities to accommodate the growth of other SKI programs such as Molecular Biology, Developmental Biology, Cell Biology, and Structural Biology.

The new Human Oncology and Pathogenesis Program (HOPP) is also located in the new research complex. HOPP is a translational research program at MSKCC that allows researchers to focus on moving scientific laboratory findings into clinical investigations and patient care applications. The program is expected to greatly increase the institution's research strength in a number of areas that are important to translational research, including molecular pathology, genetic epidemiology, cancer prevention, pharmacodynamics of anticancer agents, pharmacogenomics, and imaging.

The Louis V. Gerstner, Jr. Graduate School of Biomedical Sciences is temporarily housed in the 23-story building, and will ultimately move to its permanent location in the seven-story addition that is to be completed in a second phase of construction. Established in 2005, the Gerstner Sloan Kettering Graduate School offers a novel PhD program that trains basic laboratory scientists to work in a multidisciplinary setting, leading to careers in which they can apply their laboratory findings to human disease, particularly cancer.

The new building also houses many core laboratory facilities shared by research groups in both SKI and Memorial Hospital, including:

High-Throughput Screening Core Facility - Features cutting-edge robotics and custom-built databases that provide investigators with access to rapid, cost-effective screening methods for genes and biologically active chemicals, and allows them to store, query, and manage molecular data obtained from screening. This resource assists researchers in the discovery and development of novel drug candidates in the area of oncology.

Molecular Cytology Core Facility - Utilizes state-of-the art technologies for the detection and analysis of molecules in their natural environment (in cells, tissues, organs, and tumors).

Molecular Cytogenetics Core Facility - Provides comprehensive support for the chromosomal analysis of cells from human and research animal sources.

Nuclear Magnetic Resonance Analytical Core Facility - Offers sophisticated instruments that aid researchers in determining the structure of small molecular compounds, with emphasis on supporting the drug discovery effort at MSKCC.

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