

AMDeC, LLC Member Institutions

Albert Einstein College of Medicine
American Museum of Natural History
Beth Israel Medical Center
Cold Spring Harbor Laboratory
Columbia-Presbyterian Campus of New York
Presbyterian Hospital
Columbia University College of Physicians and
Surgeons
Greater New York Hospital Association
Hospital for Special Surgery
Joan & Sanford I. Weill Medical College of
Cornell University
Lenox Hill Hospital
Maimonides Medical Center
Memorial Sloan-Kettering Cancer Center
Montefiore Medical Center
Mount Sinai-NYU Medical Center and Health
System
Mount Sinai School of Medicine
Nassau County Medical Center
New York Blood Center
New York-Cornell Campus of New York
Presbyterian Hospital
New York Eye and Ear Infirmary
New York Hospital Medical Center of Queens
New York Medical College
New York University School of Medicine
North Shore-Long Island Jewish Health
System
Our Lady of Mercy Medical Center
Rockefeller University
Roswell Park Cancer Institute
Saint Vincents Catholic Medical Centers of
New York, Manhattan Region
Saint Vincents Catholic Medical Centers of
New York, Staten Island Region
St. Luke's-Roosevelt Hospital Center
State University of New York
SUNY Health Science Center at Brooklyn
SUNY at Buffalo, School of Medicine &
Biomedical Sciences
SUNY at Stony Brook, University Hospital and
Medical Center
SUNY Upstate Medical University at Syracuse
Strang Cancer Prevention Center
University of Rochester School of Medicine
Wadsworth Center, New York State
Department of Health
Westchester County Medical Center
Winthrop-University Hospital

Editor's note: For our non-scientist readers, "BIO SNPs" is a play on the acronym SNPs (pronounced 'snips'), single nucleotide polymorphisms, which are DNA sequence variations that occur when one of the structural components of DNA in the genome sequence is altered.

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Special Insert:
AMDeC's Public Opinion Poll
on Genetics Research



Maurice R. Greenberg, Chairman
Maria K. Mitchell, Ph.D., President

BIO SNPs

GOVERNOR PATAKI ANNOUNCES \$5 MILLION GRANT FOR AMDeC'S GENOMICS CORES

Governor Pataki pledged \$5 million in support for AMDeC Foundation, Inc.'s genomics cores, matching a \$5 million grant received from the Starr Foundation that contributed to the start-up of the Bioinformatics Core. This commitment from the Governor represents the sea change occurring in government funding toward collaborative research initiatives. With this funding secured, AMDeC can advance the genomics cores by expanding the computational tools provided to bioinformatics core users, implementing the Microarray Core, and designing the Statistical Genetics and Genotyping Cores. The cornerstone to AMDeC's strategic initiative for human genetics research, these core facilities should accelerate the pace of research, eliminate costly duplication of technologies, and provide a forum for collaboration both within academia and between New York's scientists and private industry; a forum that will help to propel the growth of New York's biotechnology sector.

Guided by some of the best scientific thinking in the State, AMDeC's Core Facility Advisory Committees set each Core's objectives with the goal of ensuring that individual scientists and investigators will gain access to a vast array of the latest genomics technologies and services. For example, the Microarray Core will produce and analyze gene profiling data, produce customized microarray technologies, and assist institutions in developing the capacity to produce their own microarrays. Through the Statistical Genetics Core, expert statistical geneticists can guide prospective investigators in study design before expensive collection and analyses occur. The Genotyping Core will offer substantially discounted access to technologies that permit the comparisons of DNA sequences in order to identify genetic variations. For more information on AMDeC's Genomics Cores, please contact Ms. Ashley Williams, Vice President, Program Development, (212) 218-5637 or email williams@amdec.org.



Dear Colleague:

AMDeC is now embarking on its fifth year working with medical schools, academic health centers, and research institutions to advance biomedical research and institutional development in New York State. Over the past five years biomedical research and technology has grown exponentially, making our mission more relevant today than when we set out to accomplish it back in 1997.

AMDeC, through its institutional collaborations and activities, plays a vital role in assisting New York's biomedical research community in addressing these opportunities. A recent article in *Crain's New*

York Business commented on AMDeC's accomplishments despite the few skeptics along the way who questioned AMDeC's goals. Some believed it would be impossible to foster large-scale biomedical research collaborations among world class research institutions throughout New York State. AMDeC's New York Cancer Project (NYCP) and New York Early Lung Cancer Action Project (NY-ELCAP) have proven that such groundbreaking research studies are possible.

Beyond our large-scale research collaboratives, AMDeC has begun to assemble highly sophisticated genomic core facilities to be shared by scientists in our affiliated institutions. Based on discussions, planning sessions, and numerous working groups with scientists and administrators from around the State, AMDeC's Bioinformatics Core at the Columbia University Genome Center – now a reality – and the Microarray Core under development at

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NOVEL ROBOTIC SYSTEM DEVELOPED FOR AMDeC's NEW YORK CANCER PROJECT SETS STANDARD FOR STORING AND HANDLING DNA SAMPLES

AMDeC Foundation, Inc.'s New York Cancer Project (NYCP) has been cited frequently as a prime example of the type of large-scale scientific collaboration that AMDeC was intended to foster. Developed with the involvement of more than a dozen major academic medical centers, the Project currently operates out of a number of enrollment sites at medical centers, community hospitals, and community health centers throughout New York City. With 17,000-plus New Yorkers enrolled to date, the NYCP highlights AMDeC's ability to develop and manage large-scale research projects.

"This project, having now exceeded the pilot recruitment goal of 17,000 participants, is generating an extremely valuable database, reflecting the racial, ethnic and socioeconomic diversity of New York City," points out Ashley Williams, AMDeC's Vice President for Program Development. "This diversity has not been traditionally represented in biomedical research studies."

The NYCP will also produce a vast repository of genetic material (DNA and plasma) from blood samples. The combination of personal information and blood samples from underrepresented populations will provide researchers with an extraordinary opportunity to learn about the genetic and environmental factors that cause cancer and other diseases in different groups.

The database results from face-to-face interviews completed at each enrollment site, covering personal and family medical history, health behaviors, reproductive history, demographics and other information, which are then archived at the Medical Informatics Department at the College of Physicians and Surgeons, Columbia University (P&S). When an NYCP participant is enrolled, the detailed interview data are collected on a laptop, and sent via a secure Internet line to the archival database at P&S, along with a unique bar code. Then a blood sample is drawn. The samples, in Vacutainer™ tubes carrying the participants' bar code, are delivered to the AMDeC Biorepository, the pioneering lab which lies at the heart of the New York Cancer Project, where DNA is isolated and the blood samples are stored.

Peter Gregersen, MD, director of the AMDeC Biorepository and Chief of the Division of Biology and Human Genetics at North Shore University Hospital in Great Neck, NY, describes how the DNA samples are stored and how researchers will gain access to them. "We receive a large volume of samples, up to 100 blood samples

each day from NYCP enrollment sites," says Dr. Gregersen, who began his association with AMDeC more than 3 years ago. "The volume of blood per sample is about 60 milliliters, from which about 1.5 milligrams of DNA is extracted. This biorepository has the capacity to handle an extremely large volume of samples that must be kept for a long period of time, ready to be retrieved at any moment."

"As we begin the data access phase of the NYCP," continues Dr. Gregersen, "purified genomic DNA samples are necessary for investigators, so we designed a facility which could maximize use of robotics to integrate a number of automated laboratory operations." These operations include the analysis, dilution, archival storage, and retrieval of human genomic DNA specimens. A schematic of the NYCP data-gathering process appears on this page.

Since very small amounts of DNA are used in individual tests, each patient enrolled in the study has enough DNA stored in the Biorepository for 500,000 genetic tests, and Dr. Gregersen has

calculated that there is enough DNA for each NYCP participant to last approximately 100 years at expected rates of utilization.

The DNA is then distributed into a number of "master plates," which are placed in electronically monitored freezers at minus 80 degrees Centigrade for long-term storage. Next, a "daughter plate" is stored in a special robotically accessible refrigeration unit at plus 4 degrees Centigrade. Called a MolBank™, this unit features a doorway that allows the robotic arm to extract and insert daughter plates as they are required. The MolBank is capable of storing up to a quarter of a million DNA samples.

To supply, say, 500 DNA specimens of NYCP participants fitting a particular demographic and/or other criteria for use by a researcher in a study, a robotic arm transports a plate to the Robotic Sample Processor, where small amounts of DNA are taken from the daughter

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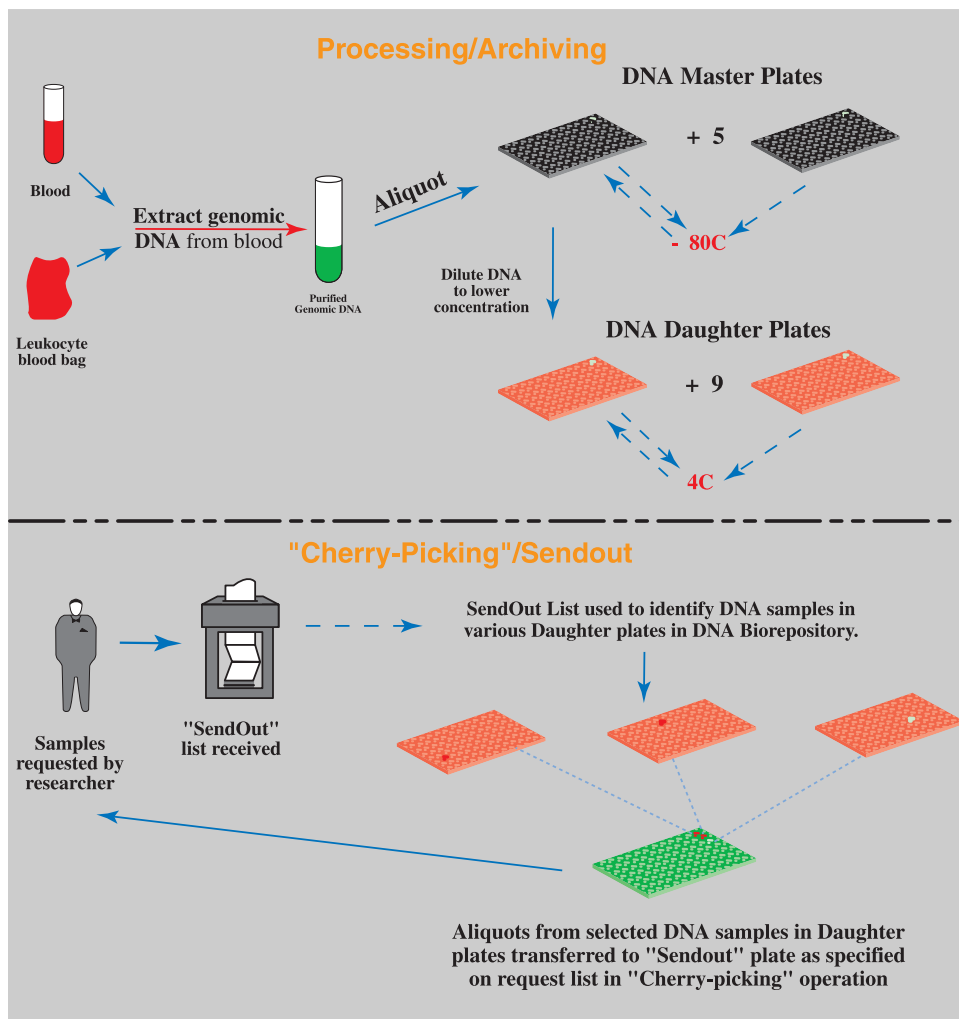




plate and placed in what are known as "send out plates" for use by the researcher.

A number of factors had to be considered when creating the NYCP Biorepository including the variety of automated instrumentation, type of robotic automation, speed of system, number of samples processed/year, format for

Dr. Peter Gregersen (second from right), and staff of the NYCP Biorepository, located at the North Shore Long Island Jewish Research Institute

distribution of samples, etc. To achieve this, another significant scientific collaboration took place, this time with The University of Virginia Medical Automation Research Center (MARC), in Charlottesville, VA. Together, AMDeC and MARC worked for over one year on the project, which required thousands of lines of computer code to be written so that the various machines could communicate with each other. After this, there were months of work involved in testing the system to ensure its effectiveness.

AMDEC'S MICROARRAY RESOURCE CENTER RETREAT

AMDeC's Microarray Advisory Committee held a retreat at the Cold Spring Harbor Genome Center on February 7, 2002, to review DNA Microarray Standard Operating Procedures and establish a set of protocols that will be implemented in all AMDeC Microarray Resource Center (MRC) core facilities. By standardizing protocols and reagents across all institutions, the ability to combine data sets and foster collaboration in many fields will become a reality. This process is expected to be dynamic and, as technologies are developed and validated, the Advisory Committee will evaluate and implement new protocols in a uniform manner.



At the close of the retreat, AMDeC's Microarray Advisory Committee posed for a group photo. Pictured above: **Back Row** (left to right): Jiri Zavadil (AECOM), Vivek Mittal (CSH), Anthony Pirro (CSH), Dumutri Iacobas (AECOM), Greg Khitrov (Rockefeller), Andy Brooks (URMC), Erwin Bottinger (AECOM), Brian Kirk (Weill Medical College), Allan Peda (Rockefeller) **Front Row** (left to right): Leslie (North Shore), Ophelia Morris (CSH), Jenny X (Weill Medical College), Agnes Viale (MSKCC), Kimberly Lavine (CSH).

Other people in attendance not in the picture include: Norma Nowak (Buffalo/RPC), Jeffrey Conroy (Buffalo/RPC), Edward Shillitoe (Upstate), and John Schwedes (Stony Brook).

ENTREPRENEURSHIP IS THE FIRST TOPIC OF MONTHLY BREAKFAST SERIES

With the assistance of a generous grant from the Alfred P. Sloan Foundation, AMDeC Foundation, Inc. is teaming up with the New York Biotechnology Association (NYBA) to host an innovative six-part breakfast series, "From Concept to Company." A distinguished lineup of experts will speak with scientists/investigators on a number of topics of vital importance in bringing scientific developments out of the laboratory and toward commercialization.

The first two sessions were held on January 8 and February 12, 2002. Stephen Davis, shareholder, Heller Ehrman White McAuliffe LLP, outlined the "Seven Steps to Success for Start-Ups" to a packed room of 45 scientists, tech transfer officers and venture capitalists during the first session. During the second session, a lively roundtable discussion, moderated by Dr. Kathleen Denis, Director of Technology Transfer at the Rockefeller University, addressed ways to build productive relationships with institutional Technology Transfer Offices. Opportunities for networking during the program added to the significance of the event.

"From Concept to Company" Series will be held every second Tuesday of the month, beginning with an 8:00am networking breakfast, at the New York Academy of Sciences, 2 E. 63rd Street, (just east of Fifth Ave.). Registration is open to anyone, and the fee is \$25.00 in advance, \$35.00 at the door.

Subsequent sessions are:

March 12

What You Need to Know About Intellectual Property, Paul Fehlner, Partner, Darby & Darby P.C

April 9

Starting the Company — Management, Materials and, of course Money, Richard Shanley, Partner, Deloitte and Touche LLP

May 14

How to Write a Killer Business Plan, Melissa Krinzman, President and CEO, Venture Architects, Inc.

June 11

Venture Capital, and How to Get It, Barbara Dalton, Euclid SR Partners

For more information and to register, visit www.nyba.org.



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AMDEC BIOINFORMATICS CORE OPENS: 12 INSTITUTIONS ACCESS DATABASES AND TOOLS

Building a statewide technology infrastructure comprised of several "core" facilities shared by investigators is part of AMDeC Foundation, Inc.'s strategic initiative for human genetics research. The first of AMDeC's core facilities, the Bioinformatics Core, is housed at Columbia University's Genome Center, and has opened on a pilot basis to twelve AMDeC affiliated institutions.

The AMDeC Bioinformatics Core will help integrate bioinformatics (information science applied to make life sciences data more understandable) and computational biology (mathematics used to answer theoretical and experimental biology questions) into biomedical research being conducted at AMDeC-affiliated institutions. The Core also promotes the development of new analytical tools, databases and methods for research.

The pilot phase – providing access to the Paracel GeneMatcher 2, the machine used by Celera in sequencing the human genome – will help determine what kinds of projects the Core will best be able to support, how much computing time each will require, and how Core staff and investigators will work together most productively. It is anticipated that the Core will open to the entire AMDeC consortium by April 2002.

Workshop Pre-registration AMDeC's Bioinformatics Core Users Workshop

- Open to all AMDeC-affiliated Institution Scientists
- Wanting Access to Genomic Databases,
- Computational Support on Large-scale Research Projects,
- Research Development and Technology Assessment

Tuesday, April 23, 2002

Columbia University Genome Center

Reserve Space Now by Calling

212-218-5640

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the University of Rochester, are testimony to the desirability and practicality of shared facilities.

At the urging of AMDeC-affiliated scientists, AMDeC set out to obtain discounted pricing for databases, genechips and other biotechnology-related supplies. Our purchasing agreements with Celera and Affymetrix show what can be done with the collective purchasing power of the world's top 39 medical and research centers, and we see it only as a beginning for AMDeC group purchasing.

These revolutionary developments may have been spearheaded by AMDeC over the past five years, but they are realities because of the untiring work of a dedicated board of directors, talented, motivated scientists and courageous administrators. In 1997, AMDeC was conceived with the mission of restoring New York State to national and international prominence as a center for biomedical research and biotechnology. We continue to make significant progress toward that end as we plan exciting new initiatives in 2002 and beyond.

I look forward to working with you and your organizations in the months and years ahead.

Sincerely,

Maria K. Mitchell, PhD
 President