# WWW.limr.org FALL 2006 "In Medicine, Hope Springs from Research."

## Training for the Future

#### SUMMER INTERNSHIP PROGRAM AT LIMR GIVES STUDENTS HANDS-ON EXPERIENCE

The summer of 2006 marked the 11th year of the Lankenau Institute for Medical Research's Summer Internship Program. This eight-week program is for academically gifted, undergraduate college students who are interested in pursuing careers in medicine and biomedical research. Each year, LIMR receives over a hundred applications from students attending leading colleges and universities around the country. Of those applicants, only seven were chosen this year.

Working on cancer research projects this summer were Nathan Bloom, a sophomore at the University of Chicago, Christine Feldmeier, a senior chemistry and biochemistry major at Villanova University, Tom Morris, a senior biology major also at Villanova, and Sean Wo, a sophomore biochemistry and cell biology major at Rice University in Houston, Texas.

Nathan worked in the laboratory of Dr. Thomas O'Brien studying the relationship between prostate cancer and two particular segments of DNA. Christine analyzed biopsies of lung tumor samples from women who have had baby boys searching for Y chromosome oligonucleotide sequences. This research was done in the laboratory of Dr. Janet Sawicki to determine if fetal stem cells are present in lung tumors. Tom's research project tested for the effect of polyamines and of c-myc expression on B23 promoter activity in the laboratory of Dr. Susan Gilmour. Sean worked in the laboratory of Dr. George Prendergast using restriction enzymes to insert mouse DNA into E. coli bacteria to pro-





Tom Morris and Megan Nichols (top to bottom)

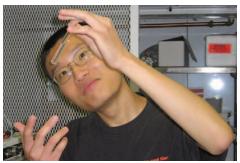
duce the mouse IDO enzyme and then testing the inhibitory effects of various drugs on the enzyme's ability to catabolize tryptophan.

Emily Hinchcliff and Megan Nichols, worked on two cardiovascular disease research projects. Emily, a junior at Haverford College majoring in biology worked with Dr. Lisa Laury-Kleintop on the development and use of monoclonal antibodies for immunofluorescence. She then used immunofluorescence to analyze the role of RhoB on the PDGF signaling pathway in smooth muscle cells. Megan, a junior at the University of Notre Dame spent her summer aiding Dr. Michael Ezekowitz and his fellows in a clinical trial examining the safety and efficacy of an experimental anti-coagulation drug that may prove to be a more beneficial treatment option than medicines currently on the market.

Casey Ling, a junior at Vassar College majoring in biochemistry, worked in the laboratory of Dr. Claudio Torres on aging research to determine if protein oxidative damage has correlations with longevity in mammals. She conducted experiments to measure protein oxidation, proteasome activity, as well as reactive oxygen species.

Our program allows students to learn first hand about the incredible research opportunities that exist here in the Philadelphia region, encouraging them to either stay after they graduate or attracting these talented students to move to the area. This program complements the student's other educational experiences and equips them with knowledge and skills that are useful when they enter the workplace. We hope that it also encourages the student's interest and enthusiasm in science and solidifies their decision to pursue a medical or research career.

For more information about LIMR's Summer Program visit: www.limr.org/html/intern\_summer.htm or contact Dr. Janet Sawicki, Program Director, at sawickij@mlhs.org











Sean Wo, Christine Feldmeier, Emily Hinchcliff, Nathan Bloom, and Casey Ling (top to bottom)

#### LIMR PRESIDENT



George C. Prendergast, Ph.D.
Professor, President and CEO
Lankenau Institute for Medical Research

#### LIMR's RIME Values Education

Throughout our almost 80 year history, education has played an integral role to the mission at LIMR. Today, our researchers continue that tradition by teaching and mentoring advanced postdoctoral students and medical fellows in the laboratory and classroom. Our commitment to education also extends beyond our laboratory walls, with additional outreach to our local community, including collaborations with the Annenberg Center for Medical Education at Lankenau Hospital.

The advanced training programs we offer in our laboratories are structured for a wide range of individuals in different parts of their careers. For undergraduate college students, we offer an eight-week summer internship program for those seeking to pursue a career in medicine or biomedical research. For master's and doctoral students, we participate in established programs at St. Joseph's University, Drexel University, and Thomas Jefferson University. While taking classroom-based courses, the graduate students perform their thesis work in one of our laboratories under the guidance of a LIMR Professor. For medical residents and fellows, we offer a variety of opportunities to participate in basic, translational, and clinical research, allowing an outlet for publication of their investigations in peer-reviewed research journals.

Collaborations with the new Annenberg Center have expanded the way our faculty is involved with medical education. In one program, called the "Dynamic Duos", a physician at Lankenau Hospital is paired with a faculty researcher from LIMR to teach in small group seminars. This outstanding program has also brought clinicians and researchers together to create productive new research relationships. In addition to deepening the training of medical residents and fellows, Annenberg has also provided LIMR faculty with opportunities to share their ground-breaking research with physicians, nurses, and staff at the hospital, further leveraging our educational value.

LIMR continues to reach out to our local community by coordinating and conducting seminars about health related issues for neighborhood organizations. An important aspect of our mission is to make members of our community aware of the incredible research that is happening right here on the Lankenau campus, right in our own backyard.

Research goes hand-in-hand with continuous education. For this reason, our educational programs are essential to the continued growth and success of LIMR and to realizing our responsibility to help train the scientists and physicians of tomorrow. This dedication to education is one of the reasons LIMR continues to be a valuable resource for Main Line Health and the local community.

For more information about our educational programs, visit: www.limr.org

# LIMR President Becomes Member of the American Association for Cancer Research Leadership Council

George C. Prendergast, Ph.D., Professor, President and CEO, of the Lankenau Institute for Medical Research became a member of the American Association for Cancer Research (AACR) President's Circle and an invited member of its Leadership Council. The President's Circle is a distinguished group of individuals who are committed to the forward progress of cancer science and the continuing leadership role of the AACR. The Leadership Council is a select group of the President's Circle members who help guide its growth by nominating appropriate candidates and providing important advice and direction.

Founded in 1907, the AACR's mission is to prevent and cure cancer through research, education, and communication. It is one of the oldest and largest scientific organizations in the world focused on every aspect of high-quality, innovative cancer research. Its reputation for scientific breadth and excellence attract the premier researchers in the field.

For more information visit: www.aacr.org

#### **Sharing Our Research on Ovarian Cancer**



Dr. Sawicki

Dr. Janet Sawicki, Professor at LIMR, was an invited lecturer at the First International Conference on Ovarian Cancer: State of the Art and Future Directions in Crete, Greece. The conference, which took place from June 26 to July 1, 2006, was designed to bring together international experts interested in the development of novel diagnostic, prognostic, and therapeutic tools for ovarian cancer. Dr. Sawicki's talk entitled: "Nanoparticle-Delivery of Diphtheria Toxin DNA

*Inhibits Ovarian Tumor Growth"* focused on her research that is working to develop effective therapies for advanced-stage ovarian cancer patients.

In 2006, it is estimated that there will be over 20,000 new cases of ovarian cancer and over 15,000 ovarian cancer deaths in the United States alone. Ovarian cancer has the highest mortality rate of any other cancer of the female reproductive system, mainly due to lack of early diagnostic symptoms as well as effective screening tests. Dr. Sawicki is currently working on developing a new therapy to target the expression of the diphtheria toxin (DT-A) gene to ovarian tumor cells.

#### **Cancer Research Reaches International Community**

Dr. Alexander J. Muller, Assistant Professor at the LIMR, was invited to speak at the 11th Meeting of the International Study Group of Tryptophan Research (ISTRY) held in Tokyo, Japan from July 3 to 7, 2006. His talk entitled: "Inhibition of IDO, an Immunoregulatory Target of the Cancer Suppression Gene Bin1, Potentiates Cancer Therapy," discussed his ongoing cancer research on the enzyme Indoleamine 2,3-dioxygenase (IDO), which has



Dr. Muller

been show to suppress T cell activation by breaking down the essential amino acid tryptophan. Trytophan is one of the most important amino acids in nature and is involved in many different processes and disorders.

Every person has an immune system that is critical in helping the body fight disease. Tumors, however, often grow because they are able to escape an immune response rejection. Increased IDO activity has been associated with a broad spectrum of cancers and is implicated in the process of immune escape in tumors. Dr. Muller's research has shown that the expression of the IDO gene product is negatively regulated by Bin1, an anti-cancer gene that is lost during tumor growth. Currently, Dr. Muller has identified a number of structurally distinct IDO inhibitory compounds that combined with chemotherapy may assist in tumor regression.

#### **Brook J. Lenfest Foundation Supports Graduate Education at LIMR**



Sonja Skrovanek, First Graduate of the LIMR and SJU Program

This June, LIMR received a two-year grant totaling \$30,142 from the **Brook J. Lenfest Foundation** to support a graduate research assistantship. The assistantship program was created in 2004 in conjunction with **St. Joseph's University** (SJU). Through this program, the Lenfest Fellow will take coursework at SJU but will conduct their research training in cancer or cardiovascular disease under the direction and guidance of a leading scientist in LIMR's state-of-the-art laboratory facilities.

LIMR and SJU currently have two students enrolled in the assistantship program and celebrated our first graduate, Sonja Skrovanek this May. Sonja completed her thesis work entitled: "The Effect of Restricting Sulfur-Containing Amino Acids on Epithelial Barrier Function Using Cell Culture Model" in the laboratory of Dr. James Mullin.

Students eligible for the Lenfest Fellow position need to be enrolled in the Master of Science in Biology Program at SJU and must be from an underrepresented minority, with demonstrated financial need. A stipend and partial tuition remission are included in the fellowship. We are actively seeking candidates for the Lenfest Fellow position. Prospective applicants can apply through SJU.

For further information, visit: www.sju.edu/biology/ksweb/LIMR/annou.html or contact Dr. Janet Sawicki, LIMR's Director of Training Programs, at sawickij@mlhs.org

# LIMR Partners with Ten Others to Form the BioLaunch 611+ Keystone Innovation Zone

In 2004, Governor Rendell created the **Keystone Innovation Zone** or KIZ program to encourage new start-up businesses, groundbreaking technologies and new jobs in the life sciences and technology industries right here in Pennsylvania. On Thursday, July 20, 2006, the commonwealth announced the creation of two new Keystone Innovation Zones that included the **BioLaunch 611+ KIZ**.

LIMR is a member of this new KIZ along with academic and business partners, BioStrategy Partners, Bucks County Community College, Citizens Bank, Fox Chase Cancer Center, LaSalle University, Montgomery County Community College, Montgomery County Industrial Development Corporation, Pennsylvania College of Optometry, Temple University, and Trinity Capital Advisors.

The main goal of the BioLaunch 611+ is to stimulate growth in the life sciences industry. Its territory consists of parts of an area that runs from Philadelphia north into Bucks County and from the Delaware River west to Chester County. BioStrategy Partners, a Philadelphia organization that works with young life-sciences companies, is coordinating this KIZ and Karen J. Hanson, Ph.D., will serve as its Executive Director.

The BioLaunch 611+ KIZ will receive \$250,000 in first-year funding. The state provides the partnerships with funding, which they must match, and gives tax credits to companies in the zones that meet specified conditions. As an academic partner, LIMR has the capacity to provide needed facilities and services to start-up companies as well as our founding partners. LIMR will also benefit through this membership by having access to trained personnel, business planning services, and new research collaborations.



Representatives from the BioLaunch 611+ KIZ at the July 20th announcement

#### LIMR DEVELOPMENT



Donna Morrow (I), Director of Development and Investor Relations, CureDM, and Loraine V. Upham (r), President and CEO, CureDM, with J. Todd Abrams, Ph.D., Director of Philanthropy and Business Development, LIMR

#### **Technology Incubator Opens**

In our efforts to bring new medicines to the Main Line community we are inviting small companies to LIMR to begin their operations here as well as to take advantage of our outstanding investigators. Our approach is to strengthen these companies by providing access to our facilities, scientists, and partners in the newly established BioLaunch 611+KIZ (see story on this page).

The first company to arrive was Onconova Therapeutics, Inc., which opened a research site within LIMR facilities this past January. The Princeton-based pharmaceutical company is conducting medicinal chemistry research and is developing new drugs for cancer treatment and prevention. The second company to arrive is CureDM, Inc. CureDM is a biopharmaceutical company established to develop new therapies that may prevent, ameliorate or reverse diabetes and allow for the discontinuation of insulin. The research team at CureDM has discovered a novel human peptide (small protein) associated with islet regeneration. Islets are clusters of cells in the pancreas that make a number of hormones, one of which is insulin. In people with Type 1 diabetes, islets are damaged or destroyed so that they no longer produce enough insulin. CureDM's approach is to restore functioning islets through the natural regeneration process.

In true incubator fashion we are providing CureDM access to LIMR investigators, more specifically, the expertise of Dr. Lisa Laury-Kleintop. Together they will collaborate to expand their knowledge of how their peptide works which will both accelerate the development of their discovery and strengthen CureDM through basic and applied research.

LIMR is committed to helping these and other companies continue their success by providing needed resources, support, and collaborative partners. This is just one of the important ways we are working to improve human health in our local community. ③

Friday, October 6, 2006 at 10:00 a.m.

#### THE NEXT LEVEL: FUNDING FOR YOUNG LIFE SCIENCE COMPANIES

This seminar is geared towards discovery and pre-seed companies interested in learning how to successfully obtain funding for their business as well as barriers to obtaining funding. The program is intended to address this issue from a variety of perspectives including, grant writing professionals, Angel investors, an expert on the NIH STTR/SBIR grant review process, and specific start-up companies at various stage of maturity. These panel discussions will be followed by a lunch discussion featuring Karen Hanson, Executive Director of the BioLaunch 611+ KIZ as well as a networking session.





This event is sponsored by Bio Strategy Partners and the BioLaunch 611+ Keystone Innovation Zone and will be hosted by LIMR at the Annenberg Center for Medical Education at Lankenau Hospital.

Visit www.biosp.com for more details

Opening Reception, Thursday, October 19, 2006 from 5:00 p.m. to 8:00 p.m.

#### LIMR ART GALLERY FALL SHOW

The Natural World Unveiled - An Evening of Art and Science

This exhibition will be up from October 19, 2006 to January 5, 2007. Our gallery hours are, Monday through Friday 9:00 a.m. to 4:00 p.m. or by appointment (610) 645-3429.

The LIMR Art Gallery's Mission is to recognize that scientists and artists explore similar, fundamental questions with respect to what we see and understand about living forms.







Featuring work by artists (I to r), David Foss, Michelle Marcuse, and Cynthia Back

Wednesday, November 15, 2006 from 9:30 a.m. to 12:30 p.m.

### PREPARING FOR SUCCESSFUL AGING II: MAKING DECISIONS

Where will I live? Who will take care of me? What will it cost?





ElderNet of Lower Merion & Narberth, LIMR. and The Home Care Network, Jefferson Health System are partnering to present this seminar that will give individuals the information and the tools they need to make those all-important decisions as they begin to age. The speakers include Shari VanderGast, Executive Director of Intervention Associates, Elizabeth Keech, Ph.D., Assistant Professor at Villanova University School of Nursing, and John McKeever, Executive Vice-President of DVFG Advisors. Additionally, representatives of local organizations specializing in providing residential and homecare services will be available following the seminar. The seminar is free and open to the public, however you must register because seating is limited.

> To register call Robin Russell at (610) 645-8144 or e-mail russellro@mlhs.org



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