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UCONN School of Medicine Dean's Newsletter, Spring 2010

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Student continuity practice: A win-win for students and community physicians
In the mid-90’s, the UConn School of Medicine made several innovative changes to its curriculum that emphasized the development of clinical skills and problem-based learning. One of the hallmarks of the curriculum is the Student Continuity Practice, a program that places students as early as the first month of their first year, in community-based primary care offices. For the next three years, students spend time in that office, observing and learning the nuances and art of primary care medicine.

This is part of UConn’s overall strategy to prepare graduates for all facets of medicine, including primary care. Through the years, the program has given students invaluable insights into medicine and a unique opportunity to get to know patients and their families. It has proven to be a success for students and preceptors alike. We have now gone through a complete generation – with UConn School of Medicine graduates mentoring students in their offices!

I hope you enjoy reading about this success story as well as the exciting news about some of our research endeavors and recent Challenge Grant awards. As always, I look forward to hearing from you.

Sincerely,

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Classifying Tumor Types for More Effective Therapies

Bruce Mayer, Ph.D., a professor in the Department of Genetics and Developmental Biology, is working on a better way to classify tumor types so that cancers can be more effectively treated. A $1 million National Institutes of Health Challenge Grant will help fund the research. “One of the most fundamental hurdles for the effective treatment of cancer is the heterogeneity of the disease,” explains Mayer. “Because of the differences in the molecular details responsible for the development and progression of a particular tumor, there can be profound differences in the course of disease even for tumors that appear similar or identical by standard pathological analysis.”

Mayer says the problem is becoming even more acute as new therapies target specific signaling pathways or molecules. Such targeted therapies may be successful for only a small percentage of tumors. Reliable methods to predict which tumors will respond are essential if such therapies are to be used effectively.

In his research, Mayer is focusing on tyrosine phosphorylation which controls many of a tumor’s key biological activities. However, current methods to analyze tyrosine phosphorylation are not amenable to the comprehensive analysis of large numbers of human cancer specimens. So Mayer is proposing using a novel diagnostic method, SH2 profiling, to analyze non-small cell lung carcinoma (NSCLC) samples from patients.

“If successful, these studies will set the stage for development of clinical tests that can be used to guide more effective treatment for lung cancer and other tumors,” adds Mayer, “while avoiding ineffective or unnecessary treatments that diminish the quality of life for patients and financially burden the healthcare system.”
Leslie Loew, Ph.D., director of the Center for Cell Analysis and Modeling, is part of a team of researchers who have received federal funding to systematically assemble functional human kidney tissue from tissue modeled on a computer. If successful, the research—which ties together several emerging technologies including virtual tissue modeling and nanofabrication—could lead to a more predictable way for researchers to engineer tissue outside the body and, consequently, to screen for new drugs.

The project, called Dynamics Underlying Tissue Integrity, has been awarded a five-year, $6 million grant from the National Institutes of Health’s Transformative Research Projects Program (R01). R01 is a new program designed to support exceptionally innovative research initiatives where anticipated outcomes have a major impact on broad, important problems in biomedical and/or behavioral research.

Loew, who pioneered the development of a computational modeling platform called the Virtual Cell, will develop computational models of how cells interact within kidney tissues. These computational models, or virtual tissue, will form the basis for designing the device for recreating kidney function. The hope is to learn the rules of tissue organization as the team refines the device through testing the computer models and imaging the flow of cell signals within the reassembled tissue from both mouse and human cells.

Using Stem Cells to Study Alcohol Addiction

About one in eight Americans is addicted to alcohol or will develop an alcohol use disorder, but the vast majority will never receive treatment. Studying brain disorders and potential treatments would require invasive surgery to obtain living neural tissue for experimentation, which is ethically out of the question.

Health Center scientists have discovered a way around this longstanding problem. For the first time, Henry Kranzler, M.A., M.D., professor of psychiatry and genetics and developmental biology, and associate professor of psychiatry Jonathan Covault, M.D., Ph.D., are testing the effects of alcohol and a number of pharmaceuticals on actual neurons generated from induced pluripotent stem (iPS) cells. “Our research focuses on the mechanism of alcohol’s effects,” explains Kranzler. “We are looking at the neural base of alcohol dependence risk and the mechanism of action of medications to treat the disorder.”

To initiate the stem cell applications for this work, Kranzler and Covault have obtained skin biopsies from more than 50 people and established a repository of skin cell cultures for further examination using stem cell technologies. Stormy Chamberlain, Ph.D., an assistant professor in genetics and developmental biology, helped establish the techniques for making iPS cells at UConn and created iPS cells for Kranzler and Covault.

“We will compare neurons derived from healthy subjects with those from alcohol-dependent patients,” says Covault. “We’ll be evaluating their ability to support electrical signaling and form neuron-to-neuron connections, as well as their pattern of chemical and gene expression responses to single and repeated exposures to alcohol.”

Beyond that, the researchers will explore the response of the neurons to treatment with topiramate, a promising medication for the treatment of alcohol dependence as well as a host of other potential therapies.

“The development of this technology has important potential applications to other psychiatric and neurological disorders,” says Kranzler. “The capacity to characterize neural tissue derived from patients with these disorders could substantially enhance our understanding of their causes and treatments.”

Using Stem Cells to Study Alcohol Addiction

Researchers Jonathan Covault, M.D., Ph.D.; Henry Kranzler, M.A., M.D.; and Stormy Chamberlain, Ph.D.
In 1995 the University of Connecticut School of Medicine became the first medical school in the country to provide students with a unique learning experience: working side-by-side with a community-based primary care physician for a half-day each week during the first three years of medical school. Today, the Student Continuity Practice (SCP) is going strong and remains a model of its kind.

“Since it was implemented, a number of schools have tried to emulate the experience, but even today I know of no experience that is as extensive,” says Bruce Koeppen, M.D., Ph.D., the school’s dean of academic affairs and education, who was instrumental in creating the program.
Matching Students to Preceptors
Every student participates in SCP, which is part of the curriculum’s Clinical Medical Course. Participation is mandatory during the first three years, and students can elect SCP during the fourth year. This year, about 270 students are involved in SCP, and 231 community physicians at 167 sites are serving as preceptors.

During the summer before the student’s first year, SCP director Karen Harrington interviews incoming students to get a sense of what they’re interested in. She then links each student with the preceptor who seems to be the best match.

“We’re lucky that so many of our preceptors participate year after year,” says Harrington. “Many of them now have their fourth or fifth student. Some take multiple students. And some of our graduates who had SCP are back in the area and are now preceptors themselves.”

Real-World Education
Lynn Kosowicz, M.D., director of the Clinical Medical Course and medical director of the SCP, says the program provides learning opportunities students just can’t get in a classroom setting. One of the most important is “to have experience with undifferentiated patients—with seeing patients and having to come up with a diagnosis. They get practice in using the clinical reasoning that goes with diagnosing a new problem.”

The student works with the same preceptor for all three years, so he or she sees many of the same patients over time. This provides experience in building patient relationships and dealing with chronic illnesses. Eventually, students have their own panel of patients they see regularly.

The opportunity to observe experienced physicians and deal one-on-one with patients is “an invaluable learning tool,” says second-year student Rishi Chugh, who works with Daniel Huber, M.D., at Bolton Family & Sports Medicine. “It’s one thing to learn medicine in the classroom, but another thing entirely to practice in person.”

Amy Amin is a fourth-year student who elected to continue SCP in the Meriden office of pediatrician Susan Lelko, M.D.

“SCP is one of the most valuable experiences of the medical school curriculum,” Amin says. “I’ve been able to integrate basic science with my experience in SCP and gain an appreciation for applying medical knowledge in a clinical setting.”

Third-year student Molly Brady, who works with East Hartford internist Lillian Overman, M.D., has had several memorable moments during her SCP experience. One occurred as she was performing the basic neurologic exam she’d been taught in class. The exam revealed that the patient had lost half of her visual field. Dr. Overman immediately ordered follow-up testing, which revealed that the patient had a brain tumor.

“It was so striking to me to see how helpful the skills we were learning could be,” Brady says.

A Win for Everyone
Precepting physicians are as enthusiastic about the program as the students. Southington internist Joseph Babiarz, M.D., says that the students are beneficial to him and his practice.

“A student is a breath of fresh air,” Dr. Babiarz says. “They stimulate and challenge you, because you have to explain what you’re doing and justify it.”

His patients appreciate the fact that the student can spend extra time with them, discussing issues such as diet, exercise and smoking cessation.

Internist Richard Wein, M.D., of Wallingford, says, “I love to have students in the office. You get in the habit of doing things a certain way, and they make you think about things in a new way. And I like learning the basic science that they’re learning. It’s intellectually stimulating.”

Dr. Wein notes that his patients are so fond of his current student, Mona Shahriari, they always ask about her when she’s not in the office.

“All of us students are fortunate to have this program,” Rishi Chugh says. “We’ll all be better physicians because of it.”

Fast Fact

2819 number of medical degrees awarded by the UConn School of Medicine since the first class graduated in 1972.
Can a visit to the dentist help reduce your cancer risk? That’s one of the questions Health Center researchers will be exploring thanks to a $1 million Challenge Grant from the National Institutes of Health’s National Institute of Dental and Craniofacial Research.

The prestigious grant was awarded to Thomas Babor, Ph.D., M.P.H., professor and chairman of the Department of Community Medicine and Health Care. Babor’s grant supports a two-year research project exploring whether screening and brief interventions conducted in dental practice settings can change patients’ substance use behaviors so as to reduce their risk of oral cancers and a variety of other health conditions.

“Smoking, alcohol use and illicit drug use are major risk factors for oral pathologies,” says Babor, “and the combination of two or three dramatically increases the risk. Our goal is to collect preliminary data to find out whether people will cut back on using these substances if dentists offer nicotine replacement therapy, counsel patients about their risks and, if necessary, refer the patient to more formal, intensive treatment.”

This type of screening and brief intervention has been used in emergency departments and primary care practices for about 10 years, and evidence shows that the approach can be very effective. “Dental clinics could definitely be the next step,” Babor says, “but there has been virtually no research on this until now.” If the results of the study are positive, researchers will explore ways to incorporate the approach into the training of residents in UConn’s School of Dental Medicine.

Josephine Hawke, Ph.D., an assistant professor in the Department of Psychiatry, has secured a three-year, $300,000 federal grant from the U.S. Department of Health and Human Services to establish a mentoring program for children with a parent in prison or on parole.

The Mentoring Futures Together program is a collaboration between the Health Center, the Hartford family advocacy group African Caribbean American Parents of Children with Disabilities (AFCAMP), and the Judah House, a halfway house for women leaving prison in Hartford.

“A hero is the power of one – one caring adult to who commits one hour per week for a minimum of one year to mentor a child.”

With the program’s establishment comes a call to work together to inspire children to realize their full potential, and to see mentoring as a wise investment in the future. Hawke refers to mentors as heroes and says “a hero is the power of one – one caring adult to who commits one hour per week for a minimum of one year to mentor a child.”

“Our goal is to find as many caring, wonderful adults to step up and help us help kids,” Hawke says. This commitment can make a big difference in the life of a child, a family, and a community ravaged by the effects of incarceration.

**Fast Fact**

$90.4 million received for biomedical research at the UConn Health Center last fiscal year.
The UConn School of Medicine recently celebrated the start of its chapter of the Gold Humanism Honor Society (GHHS), during a ceremony that inducted 11 fourth-year students and honored all previous faculty and student winners of the Tow Humanism in Medicine Award. The GHHS honors senior medical students, residents and physician-teachers by recognizing their excellence in clinical care, leadership, compassion and dedication to serve.

“We are committed to spread the culture of humanism and to help our students remain active with its GHHS chapter,” said Paula Algranati, M.D., professor of pediatrics and chapter advisor.

Leo Lefrançois, Ph.D., a professor of immunology, has been elected as a Fellow of the American Association for the Advancement of Science (AAAS). Lefrançois who is the director of both the Center for Integrated Immunology and Vaccine Research and the Flow Cytometry Facility at the Health Center, was recognized for his distinguished contributions to the understanding of T cell memory responses, trafficking, and development.

Lefrançois’ lab studies the immune response to infection and in particular is interested in how long-term immunological memory is generated and maintained, since producing memory is a goal for successful vaccination.

His lab has published a number of pioneering studies, including one in which laser scanning microscopy was used to reveal for the first time the anatomy of an ongoing immune response to infection. Lefrançois’ findings could ultimately be used to help develop better therapies for enhancing the fight against infection, or for blocking the response in autoimmune disorders.

Gail M. Sullivan, M.D., M.P.H., associate director for education at the UConn Center on Aging, and program director of the Geriatric Medicine Fellowship for the UConn School of Medicine, was recently named editor of the Journal of Graduate Medical Education (JGME), the first peer-reviewed journal focused on all aspects of the education of medical residents and fellows. The announcement was made by the Accreditation Council for Graduate Medical Education (ACGME).

The Journal is of interest to members of the GME community, including program directors, graduate medical education leaders, faculty, and researchers. It serves as a vehicle for the dissemination of research, innovation and scholarship in graduate medical education. To learn more, visit www.jgme.org.

Elizabeth Swallow, M.D. ’83, made a $3-million planned gift to support the UConn School of Medicine and School of Fine Arts. It would be the largest gift ever received from a graduate of the School of Medicine.

Swallow applied to medical school at the unconventional age of 35 and learned to play piano at 60. Her gift reflects those dual interests, supporting faculty and students in the School of Medicine and the development of an “All-Steinway School” at the School of Fine Arts.

Swallow is newly retired from a long and distinguished practice as a community OB/GYN in rural Virginia and says that life experience gained before medical school made a tremendous difference throughout her career.
Medical student, Christine Shapter, center, and a volunteer were among 1,200 volunteers at a one-day free clinic in Hartford, organized by the National Association of Free Clinics. Bruce Gould, M.D., associate dean for primary care at the Health Center was medical director of the event.