How to Guide Patients Through Health Exchange Open Enrollment

Redefining Early Detection: UConn Health Researchers Turn to Colon Cancer Prediction

Assessing Hearing Loss, Vertigo Via Blood Tests

TELL-TALE HEART:
‘Heart-in-a-Dish’ Helps Shed Light on Heart Disease Genetics
UConn to Establish Genetic Counseling Master’s Program

UConn has awarded $300,174 to seed a new Professional Science Master’s Program in Genetics, Genomics, and Counseling. Graduates of the program will work with doctors and patients to interpret the results of genetic testing, a rapidly growing area in health care that needs more trained personnel. Once accredited, the program will be the first in Connecticut and the only one in New England at a public institution.

“Our students are anxious. They want to do this,” says Judy Brown, director of the diagnostic genetic sciences program in UConn’s College of Agriculture, Health, and Natural Resources’ allied health sciences department. Brown is spearheading the push for the program along with Institute for Systems Genomics director Marc Lalande and UConn Health genetics counselor Ginger Nichols.

New genetics research and techniques have made it easy for the average person to get a read on their genome, or whole genetic code. Celebrities, including Angelina Jolie, who have openly discussed their genetic risk factors for cancer, and companies, such as 23andMe, that will provide a basic genetic profile have made it easy for the average person to get a read on their genome, or whole genetic code. Celebrities, including Angelina Jolie, who have openly discussed their genetic risk factors for cancer, and companies, such as 23andMe, that will provide a basic genetic profile have increased demand for genetic counseling.

As a result, genetic counseling is the fourth-fastest-growing occupation in Connecticut. Many UConn allied health sciences majors would like to enter the profession, Brown says, but there are only 34 training programs in the U.S., and the acceptance rate is below 8 percent. Institutions including Connecticut Children’s Medical Center and The Jackson Laboratory (JAX) have expressed support for the program. Kate Reed, director of the Clinical and Continuing Education Program at JAX, says JAX would combine its experience translating genetic discoveries into clinical applications with UConn’s experience in this area to give the PSM graduates a solid understanding of the research behind clinical treatments.

The exact roles of JAX Connecticut Children’s Hospital and the other institutions who support the new PSM have not yet been defined. The program’s applications with UConn’s experience in this area to give the PSM graduates a solid understanding of the research behind clinical treatments. The exact roles of JAX Connecticut Children’s Hospital and the other institutions who support the new PSM have not yet been defined. The program’s curriculum first needs to be approved and accredited. The first students are expected to start the program in fall 2018.

Once accredited, the program will be the first in Connecticut and the only one in New England at a public institution.
On the Ground for Breast Cancer Awareness

Rashea Banks’ first patient at Community Health Services, a federally qualified community health center in Hartford’s North End, was a woman who lost several family members to breast cancer.

“The woman, a Latina, said she wanted to get a mammogram, but did not know where to go. “This woman’s experience, and others, are fueling my determination, ambition, and passion to reach as many women as possible and navigate them through early detection in order to prevent diagnosis at a later stage of breast cancer,” Banks said shortly after she started as UConn Health’s Community Breast Navigator in September 2015.

Today, Banks has provided one-on-one counseling about breast cancer and the significance of early detection to more than 300 uninsured and underinsured women. She has referred 120 for breast screenings, resulting in 61 women receiving mammograms and/or ultrasounds at UConn Health.

Banks’ position with The Carole and Ray Neag Comprehensive Cancer Center is grant-funded by Susan G. Komen Southern New England to help raise awareness of early detection among high-risk African American and Latino women. According to the Centers for Disease Control and Prevention’s most recent data, from 2001-2013 white women in the U.S. have had the highest rate of breast cancer followed by black, Hispanic, Asian/Pacific Islander/AAPI, and American Indian/Alaska Native/AAN women. But for the same timeframe, black women have been consistently more likely to die from breast cancer than any other population. The CDC says “lack of medical coverage, barriers to early detection and screening, and unequal access to improvements in cancer treatment,” as well as higher rates of more aggressive, harder-to-treat breast tumors in “younger African American and Latin women living in low socioeconomic status areas” may contribute to higher mortality rates.

A lot of women are not aware that they may be at high risk for breast cancer. As a fellow African American woman who was raised in an inner-city community, I think it is so important to raise awareness of breast cancer directly in the community.”

— Rashea Banks, UConn Health’s Community Breast Navigator

For more information on UConn Health’s Breast Cancer Program, visit bit.ly/UCHBreastCancer

Black Women Have Higher Breast Cancer Mortality Rate

UConn Health’s Community Breast Navigator is grant-funded by Susan G. Komen Southern New England to help raise awareness of early detection among high-risk African American and Latino women. According to the Centers for Disease Control and Prevention’s most recent data, from 2001-2013 white women in the U.S. have had the highest rate of breast cancer followed by black, Hispanic, Asian/Pacific Islander/AAPI, and American Indian/Alaska Native/AAN women. But for the same timeframe, black women have been consistently more likely to die from breast cancer than any other population. The CDC says “lack of medical coverage, barriers to early detection and screening, and unequal access to improvements in cancer treatment,” as well as higher rates of more aggressive, harder-to-treat breast tumors in “younger African American and Latin women living in low socioeconomic status areas” may contribute to higher mortality rates.
The class of 2020 is not only the largest in UConn School of Medicine history, it’s also the first to experience a newly launched, innovative curriculum to better prepare doctors for the rapidly changing health care landscape.

The new curriculum, known as MDelta — Making a Difference in Education, Learning, and Teaching Across the curriculum — is based on the principles of lifelong learning, patient-centered care, and collaborative teamwork.

“Medicine and the health care landscape is changing rapidly, with the explosion of clinical information technology, the development of complex health care systems, a move from inpatient to outpatient care settings, and the rise of health care systems, a move from inpatient to outpatient care settings,” says Dr. Bruce T. Liang, dean of the UConn School of Medicine. “Our new curriculum is a platform to make our students the best possible future doctors and prepare them to be health care leaders,” he says.

Rather than traditional classroom lectures, the new curriculum relies heavily on team-based learning, in addition to anatomy dissection, virtual laboratory experiences (including the use of four Anatomage virtual anatomy tables), clinical practice, and simulation.

“A novel course called VITALS — Vertically Integrated Teams Aligned in Learning and Scholarship — brings together teams of students from across all years of the medical school and professional schools, such as the UConn School of Dental Medicine, to learn together about health care policy, population health, ethics, and current events affecting local and global communities.”

— Dr. Suzanne Rose, Senior Associate Dean for Education, UConn School of Medicine

PRP LIMITS ILL EFFECTS OF OSTEOARTHRITIS TREATMENT

Giving platelet-rich plasma (PRP) to patients undergoing treatment for osteoarthritis may limit the negative effects of the drugs used to manage their symptoms, according to a new study led by Dr. Augustus Mazzocca, director of the UConn Musculoskeletal Institute, and the University of Pittsburgh Medical Center. Osteoarthritis is the most common chronic condition of the joints, causing pain, stiffness, and swelling in approximately 27 million Americans. Powerful anti-inflammatory medicines and local anesthetics relieve pain and improve range of motion, but can also lead to tissue degeneration. In the study, published in the August issue of The American Journal of Sports Medicine, researchers found combining PRP with these treatments significantly reduced their toxic effect on the cells and even improved their proliferation.

Researchers have discovered a potential therapeutic target for inflammatory disorders that are characterized by abnormal myeloid cell lifespan, such as asthma, Churg-Strauss syndrome, and hypereosinophilic syndrome. Investigators including Adam Williams of UConn Health and The Jackson Laboratory named the novel long non-coding RNA ‘Morbid’ (Myeloid RNA Regulator of Bim-Induced Death). They discovered that Morbid tightly controls how long circulating myeloid cells live — which is key to maintaining the balance between fighting infection and exacerbating inflammation — by overriding a signaling mechanism that prevents premature immune cell death. In mice, deleting the gene helped protect them against inflammation and immunopathology. The findings were published online in Nature, Aug. 15, 2016.

PARENTS LIVING LONGER IS GOOD NEWS FOR OFFSPRING, STUDY SAYS

A new study led by the University of Exeter and co-authored by the UConn Center on Aging, among other international contributors, shows that how long a person’s parents live can help predict how long the offspring will live, and how healthy the child will be as he or she ages. The study of 186,000 participants, aged 55 to 73 years and followed for up to eight years, is the largest of its kind. It found that a person’s chance of survival increased by 17 percent for each decade that at least one parent lived beyond age 70, and that those with longer-lived parents had lower rates of heart disease and other circulatory conditions, as well as cancer. The study was published in the Journal of the American College of Cardiology, Aug. 15, 2016.

OSTEOARTHRITIS TREATMENT

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BATH SALTS 101: PHARMACIST EXPLAINS PARTY DRUGS

Synthetic party drugs with dangerous hallucinogenic properties, such as those sold commercially as “bath salts,” continue to pose a significant public health risk around the country. C. Michael White — head of the Department of Pharmacy Practice in UConn’s School of Pharmacy — published a comprehensive review of synthetic cathinones in the June 2016 issue of The Journal of Clinical Pharmacology to help clinicians recognize signs of abuse and properly treat patients with adverse events, ranging from psychosis to heart disease, from the drugs. This is the third in a series of articles on drugs including molly/ecstasy and GHB that he wrote to support clinicians. He is currently working on an assessment of synthetic marijuan.

"MORBID' RNA COULD BE KEY TO ASTHMA TREATMENT

OSTEOARTHRITIS TREATMENT

PRP LIMITS ILL EFFECTS OF

The Pulse

UConn Health News

HONOR ROLL

Dr. Cheryl Oncken has been appointed Chair of UConn Health’s Department of Medicine. Oncken, an internationally known tobacco researcher who joined UConn’s faculty in 1994, brings to the position considerable administrative experience as the program director of the Lowell P. Weicker Clinical Research Center and director of Cancer Prevention and Control at the New England Comprehensive Cancer Center.

UConn Writes New Prescription for Medical Education

A cutting-edge holistic assessment program provides time for students to evaluate their competencies as they reach milestones in their development.

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Detecting Hearing Loss, Vertigo via Blood Tests

A UConn Health physician-scientist has developed the first-ever blood tests for hearing loss and vertigo, and is currently testing their promise.

Dr. Kourosh Parham, associate professor and director of research in the Division of Otolaryngology—Head and Neck Surgery in the Department of Surgery at UConn Health, has discovered that two recently identified unique inner ear proteins can be detected in minute quantities in the blood, and that their levels correlate with hearing loss or vertigo. This means that these proteins could serve as blood biomarkers, which may help improve the early detection and diagnosis of hearing loss or vertigo.

Accelerating Vertigo Diagnoses

Parham’s investigations first led him to discover a unique blood biomarker for benign paroxysmal positional vertigo (BPPV), a common condition that can cause severe dizziness due to inner ear abnormalities.

Vertigo symptoms can include sudden onset of extreme dizziness that can become nauseating and cause loss of balance, often leading to falls and bone fractures. It can have a debilitating impact on a person’s daily function and quality of life, with episodes lasting from two weeks to as long as six months.

While it can strike at any age, BPPV is by far the most common cause of vertigo in the elderly. It’s challenging for primary care and emergency medicine specialists to diagnose, often leading to costly, unnecessary imaging tests.

The inner ear has crystals, called otocinia, that act as gravity detectors to help the human body balance. Normally, they don’t move. But as people age, the crystals loosen, allowing them to enter the inner ear’s sensitive canals. Loose ear crystals, jostled by a simple head turn or movement, are the culprit behind BPPV.

The inner ear secretes a number of unique proteins including Otolin-1, which is one of the building blocks of the crystals. In his 2014 study findings, published in Otolaryngology—Head and Neck Surgery, Parham reported that these crystals eventually dissolve and their derivatives are released into the body’s blood stream, where they can be detected. His study showed Otolin-1 was released when the OHC are injured. The OHC’s inner cellular membranes and protein — prestin — that is located in the OHC’s inner cellular membranes and released when the OHC are injured. The simple blood test detects inner ear damage and also helps quantify the extent of the hearing loss by measuring the level of the protein in the blood.

An inner ear, small, snail-shaped structure called the cochlea helps the body process sound. The cochlea has a series of small fluid-filled canals containing outer hair cells (OHC) that manage the cochlea’s ability to tune sound and increase its sensitivity to sound.

OHC are known to show the first damage from excessive noise or toxicity injury. Parham’s new blood test traces the specific protein — prestin — that is located in the OHC’s inner cellular membranes and released when the OHC are injured. The simple blood test detects inner ear damage and also helps quantify the extent of the hearing loss, before the loss can measured by hearing tests.

Early Hearing Loss Identification, Early Intervention

Further, Parham has demonstrated that changes in the levels of a protein called prestin in the blood are linked to hearing loss, before the loss can be measured by hearing tests.

Hearing loss can be inherited, but is most often acquired through acoustic trauma, prolonged exposure to loud noise, or toxicity from medications including chemotherapy, which lead to damage of intricate cellular components of the inner ear.

Acquired hearing loss is widespread. Nearly 50 million Americans live with some type of hearing loss or tinnitus (ringing in the ears) that not only impacts their daily lives, but also has been shown to put them at higher risk of experiencing poor health outcomes and makes them twice as likely to develop dementia.

Currently, hearing loss can only be diagnosed through hearing tests such as audiograms. There is no way to detect hearing loss at its earliest stages, leaving patients vulnerable and their doctors frustrated with limited prevention and intervention options.

“Detecting early warning signs of hearing loss is critical to ease the burden and disability from this condition and to better manage the future overall health of those affected,” Parham says.

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Parham’s blood tests have already proven successful in the laboratory, and he plans to conduct human clinical trials soon. He has filed a patent for the biomarker blood tests he developed.

“Our research into these biomarkers and blood tests aims to establish new clinical norms when detecting early hearing loss, vertigo, and other inner ear disorders,” says Parham. “Early identification of at-risk people will allow for intervention before disabling hearing loss or tinnitus develops, and will hopefully reduce other health complications and financial burdens linked to these conditions.”
Tell-Tale Heart

‘Heart-In-A-Dish’ Sheds Light on Heart Disease Genetics

When a patient shows symptoms of cancer, a biopsy is taken. Scientists study the tissue, examining it under a microscope to determine exactly what’s going on.

But the same can’t be done for heart disease, the leading cause of death among Americans. Until now.

Dr. J. Travis Hinson, a physician-scientist who joined the faculties of UConn Health and The Jackson Laboratory for Genomic Medicine (JAX) in January, uses a novel system he pioneered to study heart tissue.

Hinson engineers heart-like structures with cells containing specific genetic mutations in order to study the genetics of cardiomyopathies, the diseases of the heart muscle that can lead to heart failure and, ultimately, death.

“We basically try to rebuild a little piece of a patient’s heart in a dish,” says Hinson, who developed the technique during his postdoctoral fellowship.

He combines cardiac muscle cells with support cells, such as fibroblasts, and other key factors, including extracellular matrix proteins. Although these tiny, three-dimensional structures do not pump blood, they do contract rhythmically, and their beating strength can be studied.

Making a Difference

Hinson is applauded for his ability to move seamlessly between research, clinical practice, and teaching — the
three prongs of an academic medical center’s mission. He’s able to do so, perhaps, because his own career began at the intersection of multiple scientific specialties.

As a University of Pennsylvania undergraduate, Hinson interned at DuPont in New Jersey to explore interests in chemistry and engineering. But he soon realized his passion for science needed a real-word focus. “I wanted to do science that made a difference in people’s health,” he says.

The same summer, he volunteered in the emergency department of a local hospital. Impressed by a cardiologist’s calm and collected manner in a crisis, and gaining interest in the heart, Hinson changed his career trajectory from engineering to medical school.

Hinson joined the laboratory of Dr. Robert J. Levy, a pediatric cardiologist and researcher at The Children’s Hospital of Philadelphia, working to harness gene therapy techniques to make artificial heart valves and other cardiovascular devices more durable. Through this early foray into biomedical research, Hinson deepened his interest in biomedical science and gained an appreciation of the work of a physician-scientist.

In Dr. Christine Seidman’s lab at Harvard Medical School, Hinson chose to lead a project on Björnstad syndrome, a rare, inherited cardiomyopathy (CM) syndrome characterized by heart disease in multiple family members. Hinson worked to catalog the genetic mutations and genetic counseling for both patients and family members to help inform disease prevention and genetic counseling.

Hinson and colleagues can isolate skin or blood cells directly from cardiomyopathy patients and coax them to form heart muscle cells, making it possible to study the biological effects of patients’ own mutations.

In addition to casting light on disease biology, he glimpsed the power of genomic information. “I was fascinated by the potential of understanding new genes that cause human diseases, and how important that was to society,” Hinson says.

**Matters of the Heart**

Throughout his medical training, Hinson noticed there were some significant stumbling blocks to gaining a deep knowledge of heart disease, particularly cardiomyopathies.

Cardiac muscle has essentially two paths to dysfunction and ultimate failure. It can either dilate — become abnormally large and distended — or it can thicken. Both routes severely impair how well the heart performs as a pump. These conditions, known as dilated cardiomyopathy (DCM) and hypertrophic cardiomyopathy (HCM), can stem from pre-existing disorders of the heart, such as a previous heart attack or long-standing hypertension, or from DNA mutations.

Fueled by advances in genomics over the last two decades, more than 40 genes have been identified that underlie cardiomyopathy. But unlike diseases such as cystic fibrosis or sickle cell anemia, where it is fairly common for affected individuals from different families to carry the exact same genetic type, it is exceedingly rare for unrelated patients with cardiomyopathy to share the same mutation. With such a complex genetic architecture, figuring out how the different genes and gene mutations contribute to heart disease has been an enormous challenge.

Because of this formidable hurdle, drug discovery for the cardiomyopathies has languished. “There really has not been a paradigm-shifting drug developed for heart failure in the last 20 years,” says Hinson.

Moreover, the few treatments that do exist for heart failure are primarily aimed at controlling the patient’s symptoms, not slowing or halting their disease.

Hinson aims to improve this picture. With his “heart-in-a-dish” technique, he and his team are now unraveling the effects of genetic mutations on cardiac biology.

The system harnesses multiple recent advances in both stem cell and genetic mapping technologies. With these capabilities, Hinson and his colleagues can isolate skin or blood cells directly from cardiomyopathy patients and coax them to form heart muscle cells, making it possible to study the biological effects of patients’ own mutations. Moreover, he can correct those mutations, or create additional ones, to further probe how genetic differences influence heart biology.

Part of the allure of Hinson’s approach is that it can be readily applied to study other forms of heart disease. It can also be leveraged for drug discovery, providing a platform to screen and test compounds with therapeutic potential in a wide range of cardiovascular diseases.

In addition to his research lab based at JAX, Hinson continues to practice cardiology at UConn Health. He helps run a specialized clinic focused on genetic forms of heart disease, as well as arrhythmias, connective tissue disorders, and other conditions.

“We have an exciting opportunity to provide clinical services in cardiac genetics in the corridor between New York and Boston,” he says. That means state-of-the-art genetic testing, including gene panels and genome sequencing, as well as genetic counseling for both patients and family members to help inform disease diagnosis and guide treatment. Although there are only a handful of treatments now available, Hinson believes this clinic will be uniquely poised to take advantage of a new generation of personalized treatments that are precisely tailored to patients’ specific gene mutations.

“Travis really is a quintessential physician-scientist,” says Dr. Bruce Liang, dean of UConn School of Medicine and director of the Pat and Jim Calhoun Cardiovascular Research Translation and Therapy (CVRR) program, who recently received an award from the NIH’s SMARTT (Science Moving towards Translation and Therapy) program, and has received further funding from Connecticut Innovation and private support from Carolie and Kay Neag to move into first-in-human testing.

“Travis always wants to know what new treatment or new drug has been approved for patients,” Liang says. “He’s always curious about that. And I think that’s one of the reasons why he’s successful in what he’s doing.”

**New Medication, Moving Into Clinical Trial, May Reverse Heart Failure**

Dr. Bruce T. Liang and colleagues, in collaboration with the National Institutes of Health (NIH), are currently testing a medication to treat heart failure, which currently affects 6 million Americans and is projected to triple in prevalence by 2030 due to increased survival of heart attack patients.

Liang and his team are investigating the power of the molecule methanocarba, a derivative of 2-Cl-AMP and its cardioprotective effects against heart failure. The debilitating and ultimately fatal condition can stem from a heart attack, virus, long-standing high blood pressure, or genetics.

While heart failure can be managed with medication, diet restrictions, and lifestyle modifications, severe cases lead to patients needing a risky heart transplant, ventricular assist device (VAD), or even a total heart replacement. But despite advances in both the United States and the European Union, the team hopes to conduct the first-in-human tests in the U.S. in the near future, following approval by the FDA.

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Liang says, “There is a pressing need to find new treatment for these patients.”

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Predicting Colon Cancer:

UConn Health Researchers Redefine ‘Early Detection’

By Chris DeFrancesco

Find cancer early enough and you can treat it. Predict it before it develops and you can prevent it altogether.

Thanks to volumes of epidemiological data they have amassed, UConn Health researchers believe they are closing in on ways to identify who’s most at risk for colorectal cancer by analyzing cells from lesions that, if they are to become cancerous, are years away from doing so.

Once this can be figured out, doctors and patients would have a larger window of time to take steps to stop the cancer before it starts.

In the laboratory of Daniel W. Rosenberg in UConn Health’s Center for Molecular Medicine, concurrent studies — epidemiological, genomic, and molecular — are ongoing and are expected to yield a series of published papers this year and next. One, which describes how the Rosenberg lab uncovered evidence of the origins of colorectal cancer that historically have been poorly understood, was published in the June edition of Molecular Cancer Research, a major scientific journal of the American Association for Cancer Research.

Cancer evolves from what is known as neoplasia — or new, abnormal growth of tissue. Not all neoplasias become malignant tumors, but they are considered an early warning sign of possible cancer.

“Understanding early neoplasia has become such a major focus at the National Cancer Institute — how do we characterize these early changes so we can prevent cancer,” says Rosenberg, HealthNet Inc. Endowed Chair in Cancer Biology and professor of medicine, “and I believe we’re at the forefront of answering this question.”

MD/Ph.D. candidate Allen Mo, first author on the Molecular Cancer Research paper, says colon cancer is thought to be an epithelial disease, meaning that it starts with a mutation in the tissue that lines the surface of the colon (the epithelium), and grows and then invades the underlying support tissue.

“People historically believed these are separate compartments, that there is no interaction between the epithelium and the support tissue until the cells become cancerous and break through the membrane,” Mo says. “We’ve been able to demonstrate that, even at the very early stage, prior to the polyp stage, the supportive tissue is actually influencing how these epithelial initiate cells are evolving.”

That’s important because it provides another potential early intervention
We believe identifying early molecular changes may uncover new targets that could be used for preventing early neoplasia from progressing.

— Daniel W. Rosenberg, Ph.D.
UConn Health’s Center for Molecular Medicine

point — if scientists can figure out a reliable way to make alterations to the signaling pathways between the two tissue types, perhaps they could influence how the mutated cells progress.

The Devers Data

The work includes collaborators from both within and outside the institution, but central to all of it is Dr. Thomas Devers, a UConn Health gastroenterologist whose volume of consecutive colonoscopies over the past five-and-a-half years has yielded data from 5,000 patients. Devers’ high, two-dimensional database has been powering the engine driving the research that has helped substantiate epidemiological findings, such as how smoking completely cancels the protective properties of aspirin, how consumption of diets rich in Omega-3 fatty acids appear to reduce risk of early neoplasia in the colon, and how walnuts may have protective properties, as described in a study recently published in Cancer Prevention Research.

“Dr. Devers routinely screens patients at a resolution that only a handful of clinicians are doing,” Rosenberg says.

Devers uses a high-definition endoscope with a contrast dye-spray that enables him to detect tiny — less than 5 mm — lesions that are scattered throughout the colon.

“Many of the subjects have already returned for follow-up [surveillance] colonoscopy, so we actually have genomic data from three and five years ago that we can use to predict the possibility they may develop advanced adenomas or even cancer,” Rosenberg says. “We’re actually at the point now where we can follow the impact of these early changes over time.”

The work involves the intensive application of bioinformatics, the collection and analysis of complex biochemical and biological information.

What the Earliest Changes Can Reveal

Among the tiny lesions of particular interest are those known as aberrant crypt foci (ACF), which represent the earliest detectable precancerous change in the human colon. ACF tend to be detected less frequently during conventional colonoscopy, occur throughout the colon, and are the source of tissue that the Rosenberg lab uses for many of its analyses.

“We’re one of the only places in the country that actually look for these very early lesions,” says Mo, whose work has been instrumental to a number of ongoing studies in the Rosenberg lab.

“Most people study colon cancer development in the context of polyplas as the earliest lesion,” Rosenberg says. “But we’re going one step earlier, with our focus on ACF. ACF present a unique opportunity to study the risk factors that may predispose the development of colon neoplasia, and may help to guide us toward potential interventions that may actually eliminate neoplasia prior to the appearance of polyplas.”

Devers says the ACF he’s been finding in one particular area of the colon can be very telling when it comes to predicting future cancer risk.

“Part of our hypothesis is, we’re going to find these tiny lesions on the right side of the colon that have a lot meaning, that are only present in a small percentage of the population compared to the people who have tiny lesions in the rectosigmoid (the lower part of the colon), which everybody has,” Devers says. “And by finding these tiny lesions in the right side of the colon, you may want to screen those people more frequently.”

Biopsies and data from about 300 patient research volunteers have been the basis of several studies including a collaboration with scientists at the Van Andel Institute in Grand Rapids, Mich., and The City of Hope in Duarte, Calif.

“We’ve done a complete genome-wide analysis of the epigenetic changes present within these tiny lesions, something that has never been done before,” Rosenberg says. “We’re uncovering all these interesting changes that occur to a person’s epigenetic profile years before they may develop a more advanced neoplasia. Much of this transformative epigenetic work was performed by Matthew Hanley, a fifth-year graduate fellow in my lab. The question is, why are we interested in this ‘predictive’ profile? We believe identifying early molecular changes may uncover new targets that could be used for preventing early neoplasia from progressing.”

Often Hidden, Likely Telling

Another finding: some people seem to have a higher likelihood of forming what are known as sessile serrated adenomas (SSA) in the upper part of their colon. SSA, which also tend to be harder to detect, carry a strong likelihood of progressing, and may contribute to 20 to 30 percent of colorectal cancers.

“We believe that missed right colon cancers, or interval colon cancers, are related to these serrated adenomas,” Devers says.

SSA are larger than ACF but are also very difficult to catch during colonoscopy because of their flat shape and their tendency to be camouflaged in mucus along the colon wall. It takes a high-definition scope and experience — Devers has both — to find them.

“We’re able to actually identify people who form this lesion, then go back to the epidemiological database and develop risk profiles as to which people are more likely to form that type of lesion,” Rosenberg says.

On the molecular level, Rosenberg’s lab routinely uses laser capture microdissection, which enables scientists to select and retrieve small groups of cells from a single biopsy. From there, they can apply genomic technologies to particular cells and screen for cancer-related mutations and genome-wide alterations. This technique was used in the research behind the Molecular Cancer Research paper.

“Early neoplasia has become a very hot area, and because of Dr. Devers, here we probably have accumulated the largest repository of human early neoplasic lesions anywhere in the world,” Rosenberg says. “With this amazing resource, we can now begin to define many of the key changes that are happening at this very early stage. It’s never been done before.”

UConn Health has built a strong following for a treatment with a high success rate, and is now researching why it works so well. The thing is, it’s not something many people want to talk about.

UConn Health gastroenterologist Dr. Tom Devers (above) and nurse Lynn Baccaro have been treating patients with life-threatening gut infections since 2012 using fecal transplants. They take the bacteriainfected intestinal contents from a healthy person (otherwise known as anexcrement) and put them in the colon of someone who’s sick with C. difficile, a terrible bacteria that ravages the gut. And 95 percent of the time, the person is cured within days.

UConn Health is the go-to place in the area for those afflicted with C. diff. Other nearby hospitals have done a handful of procedures. UConn Health has treated more than 100 patients in four years.

“We’ve been able to establish this program because it’s a unique niche,” Devers says. “We have a good track record; it works.”

Referrals come from providers all over Connecticut. Sometimes people with conditions including irritable bowel syndrome call, but the procedure is only approved for those with C. diff. Although the bacteria was once known as something people picked up in hospitals or nursing homes, most cases now come from people taking antibiotics, according to Devers.

“The severity is extremely variable. Some people die from it or have a colostomy,” Devers says. “For others, it’s more of a nuisance, and they keep getting it back and back again.”

UConn Health, microbiologist George Weinstock at the Jackson Laboratory for Genomic Medicine, and Dr. Zev Davidsen, microbiologist at Connecticut Children’s Medical Center have been approved to study patients to figure out why the procedure works. They also plan to study whether an extract of pure bacterial strains that a patient could swallow, instead of undergoing a fecal transplant, will cure the illness in humans (it’s already working in mice).
How to Guide Patients Through Health Exchange Open Enrollment

Q&A with Dr. Victor Villagra, Associate Director Of UConn’s Health Disparities Institute

Open enrollment for health insurance plans runs from Nov. 1, 2016 to Jan. 31, 2017. UConn Health Journal sat down with Dr. Victor Villagra to get the latest information on Connecticut’s health insurance exchange marketplace. Read on to learn more about navigating the exchange and guiding patients.

What is the state of our health exchange marketplace?

Health insurance exchanges across the country are facing challenges because large insurance companies like Aetna and United Healthcare are pulling out, reducing the number of choices. Premium costs are also a major concern. Thanks to the Affordable Care Act (ACA), nine out of 10 individuals in Connecticut now have health insurance, with more than 100,000 enrolled in commercial plans (called Qualified Health Plans) and many more in Medicaid. Through the exchange, many people can get premium subsidies. The state is in its fourth year of offering state-based health insurance coverage plans through its exchange, Access Health CT. It makes health care and coverage more accessible and affordable for our state’s lower-income and uninsured residents.

What’s new for 2017 for the exchange?

During open enrollment, qualifying residents can purchase an insurance plan, and current participants can change their plan to better fit their medical needs or budget. This year, the landscape is limited, with some participating companies dropping out, forcing people to choose new plans. Also, our state recently lowered the income-level eligibility for adult Medicaid coverage, which could leave thousands without insurance and seeking coverage under the exchange. As a result, doctors’ offices may have to deal with some of their Medicaid patients now lacking insurance.

How can we better navigate health insurance complexities?

Among the most common question physicians and their staffs receive is: “Will my insurance plan pay for this?” Health insurance literacy is generally low and a big problem for patients, especially when it comes to calculating their out-of-pocket costs. This is especially difficult for those with limited English language proficiency and the newly insured. Even though they now have health insurance coverage, patients don’t always know how to use it. Complicated terminology and rules about what is and is not covered are challenging for the majority of people to understand, even medical professionals.

Doctors, and especially their office staff, need to familiarize themselves as much as possible with the jargon and each insurance plan’s elements, so they don’t prescribe something that is not covered by their patient’s plan. It is important for office staff to remain up to date on the latest insurance data to answer patient questions and to confirm coverage with the insurance company. Doctors’ offices want to avoid, at all costs, a patient being hit with a large, non-covered medical bill, because it could not only harm the patient-doctor relationship, but also financially injure, leading to the patient’s non-payment. For example, last year more than 12,000 medical providers had to go to small claims court to try to collect payments from their patients. With more health insurance plans having high deductibles, bill collection is becoming even more challenging for physicians’ offices. Health care is the leading cause of personal bankruptcy.

Because we’re training the next generation of neurologists, we’re focused on … doing research and developing new treatments.

— Dr. L. John Greenfield, Chair, UConn Health Neurology

Dr. L. John Greenfield looks forward to helping push UConn Health’s Department of Neurology to the next level as its new chair by providing more robust services for area patients.

Greenfield, a nationally known epilepsy expert, came to UConn Health in early September from the University of Arkansas for Medical Sciences College of Medicine, where he also served as chair of neurology. He will also serve as the academic chair of neurology at Hartford Hospital.

“I see a lot of possibilities at UConn,” Greenfield says.

These include goals of establishing an epilepsy monitoring unit, developing a high-density electroencephalography (EEG) facility, and continuing to expand the stroke and movement disorders programs.

Greenfield’s arrival as UConn Health’s third epilepsy specialist puts the department at a “critical mass for moving things to the next level,” he says.

Previously, UConn Health has collaborated with Hartford Hospital to diagnose, monitor, and treat epilepsy patients. Greenfield hopes UConn can establish its own unit for all steps of the process.

UConn Health is also moving toward a high-density EEG facility, which would be a resource for the region, he says. Traditional EEGs monitor brainwaves using 15-20 electrodes. A high-density EEG involves a special cap with more than 200 contact points, providing more detailed information on where seizures are coming from, along with other potential uses.

The department also plans to hire more doctors to support its successful movement disorders and stroke programs, according to Greenfield, while continuing to provide top-quality care in more “bread and butter” neurological disorders, such as chronic headaches.

“The fact that we’re accessible, very highly trained and patient focused, and an academic medical center gives us an edge against our competitors,” Greenfield says. “Because we’re training the next generation of neurologists, we’re focused on not only using the latest techniques and information so we can teach them, but also doing research and developing new treatments.”
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