Heat Shock Protein 90 Inhibitors Investigated as Therapeutic Agents

Based on research at Fox Chase that has illuminated heat shock protein 90 (HSP90) as a potentially important therapeutic target in several diseases, translational researchers are launching clinical studies to test the efficacy of therapies that inhibit this protein. HSP90 mediates activity for numerous cell-signaling pathways and transcription factors, and is over-expressed in cancerous cells.

One promising area is recurrent epithelial ovarian cancer (EOC) — a condition particularly resistant to chemotherapy because of its genetic instability and overexpression of multiple growth factors.

As part of the NCI Specialized Programs of Research Excellence (SPORE) in ovarian cancer, Fox Chase researchers Denise C. Connolly, PhD, Erica A. Golemis, PhD, and Lainie P. Martin, MD, along with several colleagues, conducted a meta-analysis of siRNA screens, which systematically eliminate cellular proteins, one by one, in order to assess the consequences for cellular growth properties in different contexts. Their goal was to identify proteins which, when inhibited, made tumors more sensitive to therapeutic drugs. They found that a number of proteins interacted with HSP90, suggesting that inhibiting the heat shock protein might disrupt several pathways involved in tumorigenesis.

Researchers assessed the effects of HSP90 inhibitor ganetespib on cultured ovarian carcinoma cells and then in xenograft and transgenic mouse models. As reported in Clinical Cancer Research in July 2013, ganetespib significantly depressed tumor growth and induced cell death in tumor cells, with no overt evidence of detrimental side effects in vivo; it also made cancerous cells more sensitive to standard chemotherapy agents such as cisplatin and paclitaxel.

continued on page 4
A Season of Growth and Collaboration

Summer is a time of change in the medical world—a season when new physicians and scientists, fresh out of medical and doctoral programs, take up their posts at new institutions, bringing fresh ideas and creativity. Exciting changes are afoot here at Fox Chase, and we are pleased to share the highlights in this second issue of Fox Chase NOW.

In the inaugural issue, we introduced you to Henry C. Fung, MD, leader of a newly expanded hematologic oncology program. The growth continues as Fung is joined by several new colleagues with expertise in HIV-related lymphomas, myelodysplasia, bone marrow transplant, and more.

Equally exciting is expansion of another key clinical program, gynecologic oncology. In March we welcomed Stephen C. Rubin, MD, new chief of gynecologic oncology. A nationally known expert in the treatment of ovarian cancer, Rubin comes to Fox Chase with his colleague Christina S. Chu, MD, whose interests include clinical trials for ovarian, endometrial, and cervical cancers.

New grants and collaborations are also underway this summer at Fox Chase. A particularly exciting partnership featured in these pages involves the investigation of racial disparities in patients with head and neck cancers by Fox Chase epidemiologist Camille Ragin, MPH, PhD, and colleagues from Temple University School of Medicine and Temple’s department of biology. The trio of investigators recently garnered a $1.75 million grant from the American Cancer Society for their project—one of many at Fox Chase that continue to make promising inroads into some of the toughest questions in cancer science and medicine.

What is the connection between inflammation and cancer? How can we predict how a tumor will respond with its kinome—the group of 518 enzymes that are key to cancer cell signaling—in order to design more effective therapies? These are some of the questions being asked by four young scientists who recently joined our ranks. We sat down with them and asked them what their labs are working on.

As the summer continues, we look forward to seeing the fruits of the work and collaborations among our faculty, both new and seasoned—and finding the next important question to ask.
On the Cutting Edge with New Principal Investigators

Attracting and cultivating talented early-career scientists has long been a hallmark of the culture at Fox Chase. Glenn F. Rall, associate chief academic officer and co-leader of the Immune Cell Development and Host Defense Program, sat down with four recently hired researchers — James S. Duncan, Sergei Grivennikov, Neil Johnson, and Stephen M. Sykes — to talk about what’s exciting at the bench.

Glenn F. Rall, PhD: Steve, let’s start with you. What’s the focus of your work in acute myeloid leukemia (AML)?

Stephen M. Sykes, PhD: We’re interested in determining the molecular mechanisms that distinguish malignant cells from normal cells as well as the methods that malignant cells use to resist chemotherapy.

James S. Duncan, PhD: Isn’t AML really diverse genetically?

Sykes: Very genetically diverse — this is one of the great problems within the disease. For many targeted therapies, the general approach is to identify a mutation that’s common within a cancer and then develop a drug that targets that mutation. The problem with AML is that it’s so genetically diverse, you would almost need an M-16 full of different targeted therapy bullets to try to treat the disease on a broad scale. We focus on finding molecular pathways that are not necessarily mutated, but are abnormally regulated across a broad spectrum of AMLs, that we can try to target to treat the disease.

Sergei Grivennikov, PhD: I work on the connection between inflammation and cancer. When large populations of people take non-steroidal, anti-inflammatory drugs like aspirin, we see a lower rate of many types of solid tumors. We study these mechanisms at work to see how human inflammatory cells can promote tumor growth. Cytokines are one such possible mechanism. They’re already implicated in many autoimmune diseases and there are many well-working cytokine inhibitors used to treat autoimmune diseases like arthritis and inflammatory bowel disease. We postulate that many of those inhibitors can potentially be applied to treat or prevent cancer.

Neil Johnson, PhD: I’m interested in mutations in the BRCA1 and BRCA2 genes. When these genes are defective, cells become more sensitive to different types of DNA-damaging agents; and we’re interested in the biology behind why that is. We’re particularly studying BRCA1 and protein products from these mutant alleles to see how they affect the biology of the DNA damage response and the response to therapeutics, as well as how these cells can become resistant to certain types of chemotherapy.

Rall: If you were to project your research or even the field forward five years or so, what do you imagine will come from studies in this pretty well-established field?

Johnson: This has an almost-immediate utility for personalized medicine. What people are starting to recognize is that there are lots of different types of BRCA mutations — the location of the mutation and type of mutation are different in different patients, and those variations have different effects on the phenotype of the disease and the response to therapeutics. Over time, I think patients will be grouped by their BRCA mutation type, and that will affect what therapy they’re administered and their prognosis.

Duncan: Our lab is interested in drug resistance as well but our focus is kinase inhibitors. Historically, people have utilized technologies that have allowed them to look at single kinases in a relatively linear fashion. Our goal is to study the kinome as a whole entity and to see how tumors can evade current therapies by altering their kinome state. Our technology allows us to determine what fraction of the kinome becomes either active or inactive within a tumor following drug treatment. Using this information, we can design new and effective kinase inhibitor combination therapies to better treat cancer. Currently, we’re focusing on genetic alterations in ovarian cancer that have specific effects on the kinome, such as KRAS or PTEN mutations.
Heat Shock Protein 90 Inhibitors Investigated as Therapeutic Agents

Ganetespib will now be tested in patients with recurrent ovarian, primary peritoneal, or fallopian tube cancer through a new clinical trial that combines the agent with paclitaxel (more info on page 9).

In another study published the same month in *Proceedings of the National Academy of Sciences*, Golemis and another research team investigated the potential of HSP90 inhibitors for treating autosomal dominant polycystic kidney disease (ADPKD). An inherited condition in which fluid-filled cysts gradually replace healthy renal cells, ADPKD leads to loss of kidney function in many patients. HSP90 is expressed more highly in cyst cells than in normal kidney tissue, suggesting that it plays a role in disease progression.

Golemis and colleagues found that weekly dosing with the HSP90 inhibitor STA-2842 slowed the onset of cyst formation in mice primed to develop a disease analogous to human ADPKD. The treatment also improved kidney function and slowed disease progression in mice with established ADPKD.

In this study, HSP90 inhibitors tended to accumulate and persist in diseased tissue, but not in normal tissue — suggesting that they provide an excellent mechanism for targeting cytotoxic agents to tumors without damaging other tissues.

Novel drugs that target HSP90 are also being explored as a potential therapy for small cell lung cancer (SCLC), an aggressively recurrent and usually fatal disease. Golemis and medical oncologist Yanis Boumber, MD, PhD, are working with Synta Pharmaceuticals (makers of ganetespib) to investigate the activity of their HSP90 inhibitor-chemotherapy conjugates. Preliminary studies using human SCLC cell line xenografts and patient-derived xenografts have shown promising results, and the researchers hope to move the study into a Phase I clinical trial.

In a study of a new investigational compound for advanced anaplastic lymphoma kinase-positive (ALK+) non-small cell lung cancer (NSCLC), co-authored by Fox Chase medical oncologist Ranee Mehra, MD, has led to FDA approval of this treatment for patients who have progressed on prior therapy.

Among about 5 percent of NSCLC tumors, translocations involving the ALK gene drive oncogenesis by encouraging the overproduction of ALK. Patients with such ALK-rearranged NSCLC are treated with the ALK inhibitor crizotinib. Although initial response rates are good, most patients develop resistance to crizotinib and relapse within a year.

In this study, published in the *New England Journal of Medicine* in March, the researchers tested patients’ response to ceritinib, a second generation ALK inhibitor, which preclinical studies had indicated was more potent than crizotinib. The trial showed an overall response rate of 58 percent to ceritinib in patients with advanced ALK-rearranged NSCLC, including those with crizotinib-resistant cancers.

Ceritinib, known commercially as Zykadia and produced by Novartis, received approval from the FDA in April, creating more options for patients with advanced NSCLC, whose post-relapse treatment choices have so far been very limited.

Mehra’s co-authors include Alice T. Shaw, MD, PhD, Dong-Wan Kim, MD, PhD, Daniel S.W. Tan, MB, BS, Enriqueta Felip, MD, PhD, Laura Q.M. Chou, MD, D. Ross Camidge, MD, PhD, Johan Vansteenkiste, MD, PhD, Sunil Sharma, MD, Tommaso De Pas, MD, Gregory J. Riely, MD, PhD, Benjamin J. Solomon, MB, BS, PhD, Juergen Wolf, MD, PhD, Michael Thomas, MD, Martin Schuler, MD, Geoffrey Liu, MD, Armand Santoro, MD, Yvonne Y. Lau, PhD, Meredith Goldwasser, ScD, Anthony L. Boral, MD, PhD, and Jeffrey A. Engelman, MD, PhD.
Fox Chase-Temple Team Receives ACS Grant to Examine Racial Disparities in Head and Neck Cancer Patients

A team of Temple researchers led by Fox Chase epidemiologist Camille Ragin, MPH, PhD, has received a grant of more than $1.7 million from the American Cancer Society (ACS) to examine how genetics and the environment interact to influence racial disparities in patients with head and neck cancer. A founding member of the African-Caribbean Cancer Consortium (AC3), since 2006 Ragin has investigated the prevalence and outcomes of cancer for different racial groups in the United States and abroad. At December’s American Association for Cancer Research Cancer Health Disparities Conference, she presented the first research ever conducted on head and neck cancer trends in a Caribbean nation, Trinidad and Tobago.

The rate of squamous cell carcinoma of the head and neck (SCCHN), specifically in the laryngeal sub-sites, is almost twice as high among people of African descent as among those of European descent, and outcomes for Black SCCHN patients are generally poorer. The new ACS-funded research will look for underlying genetic factors that may predispose certain patients to head and neck cancers. Ragin believes that “while [socioeconomic factors] and access to care are major drivers of the observed racial disparity, biological factors may play a role as well.” For example, tobacco and alcohol use are the major risk factors for SCCHN, and many of the proteins involved in breaking down the chemicals in tobacco smoke and alcohol are encoded differently in the genes across racial groups or sub-groups.

Ragin will work with Jeffrey Chang-Jen Liu, MD, assistant professor of otolaryngology — head and neck surgery at Temple University School of Medicine and attending surgeon in head and neck oncology at Fox Chase, and Rob J. Kulathinal, PhD, principal investigator in Temple University’s department of biology, to examine the genetic profiles of Black patients with head and neck cancers and compare them with genetic information from other groups, including white SCCHN patients and Black volunteers who are cancer-free. They will also conduct tests with healthy volunteers to determine whether, and to what extent, genetic differences affect the metabolism of alcohol- and tobacco-related compounds.

Ragin hopes the five-year study will help fill knowledge gaps related to head and neck cancer development and survival among Black populations. “We anticipate that the findings will provide insights into the biology of the disease as well as the factors that contribute to racial disparities, and will improve early detection and cancer prevention interventions,” she says. “We also hope that results of these studies will guide the development of personalized therapies that will reduce the vast survival disparity that currently exists.”

The study will enroll patients from Fox Chase and Temple University Hospital as well as county-wide from the Pennsylvania Cancer Registry, with all recruitment and bioassays based at Fox Chase. Ragin and her partners have already recruited 570 control subjects (Black volunteers who are cancer-free) and twelve head and neck cancer patients from Temple’s otolaryngology/head and neck surgery clinics, and have obtained preliminary data and specimens. Recruitment of additional head and neck cancer patients from the Pennsylvania Cancer Registry began in July 2014. Liu will coordinate the project’s clinical aspects while Kulathinal will direct the genomic and bioinformatic assessments.
Vascularized Lymph Node Transfer and Lymphovenous Bypass Provide Relief from Lymphedema

Fox Chase surgical oncologists Sameer A. Patel, MD, FACS, and Eric I. Chang, MD, are offering vascularized lymph node transfer, an innovative surgical procedure for treating lymphedema, a common condition for patients who have had their lymph nodes removed during cancer treatment. With lymphedema occurring in the arms of up to about half of breast cancer patients and in the lower extremities of nearly a third of gynecologic cancer patients, the procedure can benefit a wide range of patients who suffer from pain, swelling, and discomfort.

“Lymphedema can cause a significant decrease in patients’ quality of life and serves as a constant reminder of their battle against cancer,” Patel says. “Vascularized lymph node surgery can help these patients have a better quality of life.”

During the procedure, lymph nodes are transplanted from one part of the body to the part that is affected by lymphedema. The procedure ensures that the lymph nodes are alive by reestablishing blood flow to the transplanted lymph nodes, which then helps divert the lymphatic fluid in the affected extremity to the venous circulation. There is a theoretical risk of developing lymphedema in the donor extremity, although very few cases have been reported. The surgeon can prevent this from happening by selecting the proper lymph nodes for transfer, which can be done by analyzing anatomical studies and using a nuclear medicine injection to identify lymph nodes that are less crucial to the donor site.

While vascularized lymph node transfer is starting to become more commonly available, Fox Chase is one of only two institutions in the Philadelphia region currently offering the procedure. Fox Chase will also soon be the only facility in Philadelphia to offer lymphovenous bypass, another option for treating lymphedema. The procedure, which features a shorter operative time and hospital admission, involves connecting the lymphatic vessels directly to small blood vessels in order to allow fluid to drain.

THE TOPLINE

- In vascularized lymph node transplant, the surgeon transplants healthy lymph nodes into the area affected by lymphedema
- Lymphatic fluid collecting in the affected extremity drains into the venous circulation, reducing swelling
- In lymphovenous bypass, the surgeon connects lymphatic vessels to small blood vessels to drain fluid
Studies Reveal More Clues on How Full-Term Pregnancy Protects Against Breast Cancer

At the AACR 2014 Annual Meeting in San Diego, Fox Chase scientists presented findings from three studies that examined how pregnancy reduces women’s risk of developing breast cancer.

In the first study, Julia Santucci-Pereira, PhD, a research associate in the Breast Cancer Research Laboratory led by Jose Russo, MD, FACP, and colleagues used gene expression microarrays to compare the breast genomic profiles of cancer-free breast tissue samples from more than 100 premenopausal women — 79 parous, 30 nulliparous. They found that immune response genes are activated for a few years after pregnancy, whereas genes related to both cell differentiation and to the development of breast anatomy are permanently activated independently of the time of last pregnancy — findings that confirm pregnancy’s protective effect, as more differentiated cells are less prone to carcinogenesis.

In another study, they looked at 10 postmenopausal women using sophisticated DNA sequencing technology, and found that mothers and non-mothers displayed differences in the methylation patterns of their genes. Most of these differences occur in genes that control development — again implying differences in processes associated with the development of breast anatomy.

Finally, in a third study, Santucci-Pereira and other scientists looked deeply at differences in long non-coding RNAs in eight mothers and eight non-mothers through RNA sequencing and identified 42 non-coding RNAs with differences in expression. The researchers believe it is possible that these non-coding regions work with the genes identified in the other two studies to induce changes in the differentiation and development processes, thereby protecting women who have given birth.

The ultimate goal is to understand how these protective effects occur in order to find ways to mimic them in non-mothers — perhaps by administering compounds that target these molecular mechanisms — so that they experience the same protection against breast cancer.

Fox Chase Faculty Honored at Spring Meetings

At its annual meeting in May, the American Urological Association presented its 2014 Residents Committee Teaching Award to Robert G. Uzzo, MD, FACS, chair of surgical oncology. The award recognizes Uzzo as an outstanding urology program director who is dedicated to mentoring the next generation of urologic researchers.

Michael H. Levy, MD, PhD, vice chair of medical oncology and director of pain and palliative care, was selected by the American Society of Clinical Oncology (ASCO) for its first ever Excellence in Teaching Award. The award, presented during ASCO’s 50th Annual Meeting in Chicago in May, honors recipients for inspiring and shaping trainees’ practice of cancer medicine.

Sergei Grivennikov, PhD, assistant professor in the cancer prevention and control program, was awarded the 2014 Landon Foundation-American Association for Cancer Research INNOVATOR Award for Research in Tumor Microenvironment — a two-year, $100,000 grant — to investigate the role of cytokine IL-17-dependent inflammation in promoting tumor development.

Hormoz Ehya, MD, chief of cytopathology at Fox Chase, received the 2014 L.C. Tao Educator Award during the annual meeting of the United States and Canadian Academy of Pathology in San Diego in March. The award was presented by the Papanicolaou Society of Cytopathology.
Trials Explore a Synergistic Therapeutic Combination for Head and Neck, Lung Cancer

Epidermal growth factor receptors (EGFRs) are proven to be effective molecular targets for anti-cancer drugs, but what happens when EGFRs are targeted in conjunction with a lesser-studied enzyme — Aurora kinase A? Clinical trials underway at Fox Chase are exploring the effectiveness of this “two-hit” therapeutic approach in head and neck cancer as well as lung cancer.

EGFR inhibitors are a commonly used treatment in a variety of cancers because of their effectiveness at rapidly shrinking tumors, but tumors are likely to develop resistance to these drugs over time. This resistance led researchers at Fox Chase to search for a more effective approach than EGFR inhibitors alone — work that has led to two Phase I clinical trials now under way at Fox Chase.

Igor Astsaturov, MD, PhD and Hossein Borghaei, DO

The original research, led by deputy chief scientific officer Erica A. Golemis, PhD, and medical oncologist Igor Astsaturov, MD, PhD, and reported in *Science Signaling*, used siRNA screens to determine which proteins are required by cells to survive despite the presence of an EGFR inhibitor. “We were searching for drugs and pathways that would enhance the potency of EGFR inhibition,” Astsaturov says.

One such protein was Aurora kinase A, which the team felt had the biggest therapeutic potential because of its synergism with EGFR.

A Kaplan-Meier plot comparing survival in cohorts of SCCHN patients with high and normal expression of Aurora kinase A, based on data from The Cancer Genome Atlas. Inhibiting the activity of Aurora kinase A is expected to improve survival for patients with elevated levels of Aurora kinase A.

Astsaturov and Roger B. Cohen, MD, of the Abramson Cancer Center at the Hospital of the University of Pennsylvania, designed a trial which adds MLN8237, an oral Aurora kinase A inhibitor, to radiation and cetuximab, the standard treatment for locally advanced squamous cell carcinoma of the head and neck (SCCHN). The trial continues to recruit participants (see opposite page for more information) with the eventual goal of moving into a randomized Phase II study.

“We believe this combination has the potential to be very synergistic,” Astsaturov says. “It was successful in animal models and we are hoping for humans the same will be true.”

Further exploring the role of Aurora kinase in head and neck cancers, Astsaturov and a team of colleagues led by medical oncologist Ranee Mehra, MD, reviewed potential drug combination trials and biomarkers to use with Aurora kinase inhibitors in SCCHN. Their work was published in *The Lancet Oncology* in September 2013.

MLN8237, known commercially as alisertib and produced by Millennium Pharmaceuticals, is also being explored by Fox Chase researchers as a potential treatment for patients with recurrent or metastatic non-small cell lung cancer. In a trial being led by Hossein Borghaei, DO, chief of thoracic medical oncology, the drug is combined with the EGFR inhibitor erlotinib (see opposite page).

Results from the trial, reported by Borghaei at the AACR Annual Meeting in April 2014, are too early to judge whether or not the combination is effective, so he plans to analyze tumors post-study to look for a marker that would predict response to treatment.
SELECTED OPEN CLINICAL TRIALS

**BREAST CANCER**
REPO210: A Single Arm, Preoperative, Pilot Study to Evaluate the Safety and Biological Effects of Orally Administered Reparixin in Early Breast Cancer Patients Who Are Candidates for Surgery
Lori J. Goldstein, MD
PDOME002/12-055

**GENITOURINARY CANCER (RENAL)**
AGS-003-007: An International Phase III Randomized Trial of Autologous Dendritic Cell Immunotherapy (AGS-003) Plus Standard Treatment of Advanced Renal Cell Carcinoma (ADAPT)
David Y.T. Chen, MD
PARGOS001/12-058

**GASTROINTESTINAL CANCER (COLORECTAL)**
GI-063: A Phase I Study Evaluating the Maximal Tolerated Dose of Intra-hepatic Drug Eluting Irinotecan Beads (DEBIIR) for the Treatment of Colorectal Liver Metastases in Patients with Metastatic Colon Cancer with Liver Only or Liver Predominant Disease
Efrat Dotan, MD
ERPGIO63/13-048

**GENITOURINARY CANCER (BLADDER)**
A Phase II Trial of Dovitinib in BCG Refractory Urothelial Carcinoma Patients with Tumor FGFR3 Mutations or Over-Expression: Hoosier Oncology Group GU12-157
Richard E. Greenberg, MD
HOGGU12157/13-012

**GENITOURINARY CANCER (PROSTATE)**
BNIT-PRV-301: A Randomized, Double-Blind, Phase III Efficacy Trial of PROSTVAC-V/F+GM-CSF in Men with Asymptomatic or Minimally Symptomatic Metastatic, Castrate-Resistant Prostate Cancer
Marijo Bilusic, MD, PhD
ERPTORT54/12-046

**(NON-SMALL CELL LUNG)**
MK-3475-010: A Phase II/III Randomized Trial of Two Doses of MK-3475 (CH5424802) versus Dovastaxel in Previously Treated Subjects with Non-Small Cell Lung Cancer
Hossein Borghaei, DO
PMERCK014/13-034

**HEMATOLOGIC CANCER (LEUKEMIA)**
PNOVART035/13-014
Patricia L. Kropf, MD
Non-Small Cell Lung Cancer
AUY922 in Patients with ALK-Rearranged Non-Small Cell Lung Cancer

**GASTROINTESTINAL CANCER (PANCREAS)**
RT-054: A Phase I Study of Neoadjuvant Hypofractionated Chemoradiation Plus Radiosurgical Boost for Patients with Borderline Resectable and Locally Advanced Unresectable Pancreatic Cancer (NCT01739439)
Joshua E. Meyer, MD
ERPRT054/12-046

**HEPATOBILIARY CANCER**

**GENITOURINARY CANCER (OVARIAN)**
GYN-064: A Phase I/II Trial of Weekly Paclitaxel in Combination with Bevacizumab and Definitive Radiotherapy in Patients with Recurrent or Persistent, Platinum-Resistant Ovarian, Fallopian Tube or Primary Peritoneal Cancer (IND 120407) (NCT01962948)
Lainie P. Martin, MD
GYN-064: A Phase I/II Trial of Weekly Paclitaxel in Combination with Ganetespib in Patients with Metastatic or Persistent, Platinum-Resistant Ovarian or Primary Peritoneal Cancer (NCT01471964)

**HEAD AND NECK CANCER**
10311: A Phase I Study of MLN8237 in Combination with Cetuximab and Definitive Radiotherapy in Patients with Locoregionally Advanced Squamous Cell Carcinoma of the Head and Neck
Igor Astsaturov, MD
UPENN001/12-023

**SARCOMA**
AEWS1031: A Phase III Randomized Trial of Adding Vinristine-Topotecan-Cyclophosphamide to Standard Chemotherapy in Initial Treatment of Non-Metastatic Ewing Sarcoma
Margaret von Mehren, MD
CTSUAEWS/12-003

**THORACIC CANCER**
FERTH036/11-012
Hossein Borghaei, DO

**FOR INQUIRIES, visit foxchase.org/ClinicalTrialsProgram or call 888-369-2427.**
Christina S. Chu, MD, joins the department of surgical oncology and the gynecologic cancer treatment team after completing her medical residency in obstetrics and gynecology and her fellowship in gynecologic oncology at the Hospital of the University of Pennsylvania. Chu’s interests include clinical trials for ovarian, endometrial, and cervical cancers, with a research focus on cancer immunotherapies, as well as weight-loss interventions for women with endometrial cancer or endometrial hyperplasia. She earned her MD from the University of Pennsylvania School of Medicine.

Stephen C. Rubin, MD, is the new Paul Grotzinger and Wilbur Raab Chair in Surgical Oncology and chief of gynecologic oncology. Nationally regarded for his expertise in the treatment of gynecologic cancers, Rubin specializes in both surgery and chemotherapy to treat patients with ovarian, uterine, cervical, and endometrial cancers, as well as surgery for complex benign gynecologic conditions. He has a special interest in ovarian cancer clinical trials and his research focuses on hereditary ovarian cancer. He earned his MD from the University of Pennsylvania, where he did his residency and fellowship, and later returned to Penn as chief of gynecologic oncology and director of the gynecologic oncology research program at the Abramson Cancer Center. (See Q&A on page 11.)

HEMATOLOGIC ONCOLOGY

Stefan K. Barta, MD, MS, MRCP (UK), joins the medical oncology department and hemato logic oncology treatment team as an assistant professor. Barta’s research focuses on HIV-related lymphomas, bone marrow transplantation for HIV-positive patients, immunotherapies for lymphoid malignancies, and high-dose chemotherapy for hematologic cancers. He earned his MD from Johann Wolfgang Goethe-University in Frankfurt, Germany, and his MS from Albert Einstein College of Medicine of Yeshiva University in New York, where he also completed his hematologic oncology fellowship. He completed residencies at St. Bartholomew’s and the Royal London School of Medicine in London, as well as St. Luke’s Roosevelt Hospital Center in New York.

Patricia L. Kropf, MD, director of the Fox Chase-Temple myelodysplastic syndrome program and assistant director of the Fox Chase-Temple bone marrow transplant program, joins the hematologic care team of Fox Chase’s medical oncology department. Her clinical research focuses on the use of epigenetic therapy and novel drug combinations to treat myelodysplastic syndromes and acute leukemia. Kropf received her MD from Georgetown University School of Medicine and completed a residency in internal medicine and a fellowship in hematology and oncology at the University of Pittsburgh School of Medicine.

Mary Ellen Martin, MD, FACP, also a member of the Fox Chase-Temple bone marrow transplant program, joins Fox Chase’s department of medical oncology as an associate professor. Her clinical interests include the care and management of patients with acute myeloid leukemia, secondary leukemia, myelodysplastic syndromes, and lymphoblastic lymphoma, as well as bone marrow and stem cell transplantation for these conditions. Martin earned her MD at SUNY Health Science Center at Brooklyn and completed her internal medicine residency at Washington University School of Medicine/ Barnes-Jewish Hospital in St. Louis. At the University of Pennsylvania, she completed a fellowship in hematologic oncology and a postdoctoral fellowship studying the Mixed Lineage Leukemia (MLL) gene in acute and secondary leukemias.

PULMONARY MEDICINE

Rohit Kumar, MD, an interventional pulmonologist with a special interest in lung cancer screening, joins the department of pulmonary medicine as an attending physician. He earned his MD from the University College of Medical Sciences of the University of Delhi, India, and was a medical resident at the University’s Vallabhbhai Patel Chest Institute. Kumar also completed a residency in internal medicine at the Graduate Hospital of Drexel University and a fellowship in pulmonary, allergy, and critical care at the Hospital of the University of Pennsylvania.
Q&A: Stephen C. Rubin, MD

“Fox Chase has a more extensive selection of clinical trials for gynecologic cancer than any other place in the region by far.”

Stephen C. Rubin, MD, joined Fox Chase in March as chief of gynecologic oncology. A nationally known expert in the management of ovarian cancer, Rubin’s interests include minimally invasive gynecologic surgery, hereditary ovarian cancer, and ovarian cancer clinical trials. (See full bio on page 10.)

Q: How did you decide on a career in gynecologic oncology?
A: You hear a lot about the merits of multidisciplinary cancer care, combining the various therapeutic disciplines — surgery, chemotherapy, and radiation therapy. Gynecologic oncology is the only true multidisciplinary cancer specialty, combining surgery and chemotherapy. We believe it allows for a higher level of continuity of care to have one physician who understands and treats both the surgical and the medical aspects of the disease.

Q: Why Fox Chase?
A: I’ve always had a very warm spot in my heart for Fox Chase. It’s always had the reputation of being an excellent place to work. Curiously enough, my mother was an anesthesiologist who worked here when it was called American Oncologic Hospital back in the ’60s. I’m delighted to be here.

Q: What has been your career highlight to date?
A: The most important contribution I’ve made was original research that first showed that BRCA-related ovarian cancers have a better prognosis and respond better to chemotherapy than non-hereditary ovarian cancer.

Q: What do you hope to accomplish?
A: I’m going to be a principal investigator for our NCI Gynecologic Oncology Group trials. Fox Chase has a more extensive selection of clinical trials for gynecologic cancer than any other place in the region by far. Another strength we hope to continue is basic science research in gynecologic cancers. Fox Chase is one of only five institutions in the country with an NCI SPORE grant in ovarian cancer, which is a very important source of research activity for us. In addition, we plan to develop an approved fellowship training program within the next year. Nationally, there are only 45 such programs approved by the American Board of Obstetrics and Gynecology. It will take Fox Chase gynecologic oncology to the next level to have clinical services, research, and education all under one roof.

Q: Who’s on your team?
A: I am privileged to work with Stephanie King, Christina Chu, Cynthia Bergman, and Gina Mantia-Smaldone — arguably the most experienced team of gynecologic oncologists in the city.

NEWS NOW

Bone Marrow Transplant Program Earns FACT Accreditation

The Fox Chase-Temple bone marrow transplant program recently earned reaccreditation for three years from the Foundation for the Accreditation of Cellular Therapy (FACT). This achievement reaffirms the expertise and dedication of the faculty and the high quality of care provided to patients through the hematology program.

NCCN Recognizes Engstrom with Winn Award

The National Comprehensive Cancer Network (NCCN) has honored Paul F. Engstrom, MD, acting chair of medical oncology and senior vice president of extramural research programs, with its prestigious Rodger Winn Award in recognition of his role in developing the organization’s widely used clinical guidelines. NCCN CEO Robert W. Carlson, MD, calls him “the ‘father’ of the NCCN Clinical Practice Guidelines in Oncology,” noting Engstrom’s “demonstrated leadership and dedication to the welfare of patients” and active membership in NCCN since its inception.
Pain and Palliative Care Program Receives Joint Commission Advanced Certification

In April, Fox Chase’s pain and palliative care program received its advanced certification from The Joint Commission. Fox Chase is one of only five facilities in the region that has achieved this certification, which recognizes inpatient programs that demonstrate exceptional patient- and family-centered interdisciplinary palliative care. The certification is the latest development in a decades-long quest to raise the profile of pain and palliative care. “Pain and palliative care is essential, specialty care. Every hospital needs to provide it through a skilled and compassionate, interdisciplinary team,” says Michael H. Levy, MD, PhD, vice chair of medical oncology, director of Fox Chase’s pain and palliative care program, chair of the NCCN Palliative Care Guidelines panel, and member of the Technical Advisory Panel for the first update of The Joint Commission’s palliative care standards.

Doss Named Outstanding Leader in Low Dose-Response

Medical physicist Mohan Doss, PhD, MCCPM, associate professor of diagnostic imaging, received the International Dose-Response Society’s 2014 Outstanding Leadership Award at the organization’s annual conference in April in Amherst, Mass. The award recognizes his contribution to a deeper understanding of the relationships between dose and response.

Fox Chase Hosts Veteran New York Times Writer and Editor George Johnson

For the latest in its Cancer Conversations series — public talks in which physicians, authors, filmmakers, and others discuss cancer-related topics — Fox Chase welcomed George Johnson, former writer and editor for The New York Times. Johnson discussed his book The Cancer Chronicles: Unlocking Medicine’s Deepest Mystery, in which he recounts his journey into the world of oncology following his wife’s diagnosis with metastatic cancer and details the wealth of insights now emerging about cancer’s fundamental nature and origins.

Fox Chase Faculty Co-Write and Edit SCCHN Book

A new book co-edited by Fox Chase deputy chief scientific officer Erica A. Golemis, PhD, and Barbara Burtness, MD, formerly of Fox Chase and now at Yale Cancer Center, summarizes the unique pathobiology of head and neck cancers. Molecular Determinants of Head and Neck Cancer, one of very few books in its field, introduces the origins and subclasses of squamous cell carcinomas of the head and neck (SCCHNs) and how those factors impact disease profile and response to treatment. The book then summarizes current understanding of the genetic, epigenetic, and protein expression changes associated with various classes of the disease, and it discusses future therapeutic targets. The book contains chapters co-authored by Golemis and Burtness as well as Fox Chase faculty members Camille Ragain, MPH, PhD, Ranee Mehra, MD, and Ilya Serebriiskii, PhD; Temple University School of Medicine faculty member Jeffrey Liu, MD; and Fox Chase and Temple staff members Tim Beck, BS, and Jennifer Cracchiolo, MD.

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