2017

DEPARTMENT OF RADIOLOGY AND BIOMEDICAL IMAGING

IMAGES

UCSF

University of California
San Francisco

About the Cover:

Neurointerventional radiologists at UCSF use advanced imaging like time-resolved digital subtraction catheter angiography (iFlow, Siemens) to better identify, characterize, and treat vascular malformations of the central nervous system. These are images from the cerebral angiogram of a five-year-old with hereditary hemorrhagic telangiectasia syndrome (HHT) who had a frontal lobe brain arteriovenous malformation (AVM) that is off the field of view to the left. The degree of arteriovenous shunting—one physiologic characteristic of AVMs—can be quantified on the color maps before and after AVM treatment and may be useful to predict future risk of bleeding.

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Dear Colleagues and Friends,

The Department of Radiology and Biomedical Imaging and UCSF are in a period of transition. On October 1, we said farewell to our former Chairman Ronald Arenson, MD. That day, I began my service as interim chair. I have a new appreciation for the tremendous job Ron did for us all, as well as for the many emails he had to answer! The search for a permanent department chair is well underway. I am confident the transition to new leadership will go smoothly.

UCSF is also in a great period of change as we develop into a true health system internally (UCSF Health) and across the six campuses (UC Health). This provokes and stimulates discussion of how we deliver more valuable care to our patients while surviving economically to support our education and research missions. We will need to trim the sails a bit and improve efficiencies as we enter this new transition of health care delivery.

In life's vicissitudes, attitude is everything. Do you see the cup half full or half empty? I choose half full. I am reminded each day as I walk to work, of the beauty of our Bay Area, and how fortunate I have been to work in such a spectacular location with such superb colleagues, clinicians, and scientists who push the boundaries of discovery and clinical care each day.

Even as we celebrated Ron on the threshold of his well-deserved transition (I don't like the word retirement, as I know Ron will keep busy!), we knew we would miss his leadership and commitment to our department. The department and the university are grateful for the spirit of excellence Ron promoted in all of our missions during the past 25 years. The high quality of the faculty and trainees Ron recruited, his strong support for our teaching and research missions, his focus on mentorship and keeping UCSF on the cutting edge, and most importantly, his emphasis on skilled, innovative diagnosis and treatment critical to patient-centered care, are hallmarks of his years as chair. It was fitting that Ron was honored by UCSF with the 2017 Holly Smith Outstanding UCSF Faculty award. The award cited his visionary foresight in pioneering the adoption of PACS and informatics at UCSF and his dedication to service through leadership roles across the school, campus, and Medical Center. After a short break, Ron hopes to return to UCSF to assist the Medical Center in its growth and expansion strategies and to serve as a facilitator for university-wide efforts in Radiology. He has promised to engage with faculty and alumni at RSNA and Margulis Society events.

In August, we said farewell to Dr. Judy Yee, vice-chair and chief of Radiology at the San Francisco Veterans Affairs Medical Center. Judy is now chair of the Department of Radiology at Montefiore Medical Center and Albert Einstein Medical College in New York City. She was a key leader and advisor to our department and will be missed. Her pioneering work in virtual colonoscopy for colorectal cancer screening and diagnosis is widely known. We wish her well and every success in this new leadership chapter in her career. We are also grateful to Dr. Stefanie Weinstein who is serving as interim chief while a search is underway for Judy's successor.

"Change is difficult, but it can be managed when you stay aware of the power of your choices, even if it's simply your attitude."

—Michael Thomas Sunnarborg

Congratulations are also due to our marvelous physicist, Robert Gould, ScD, on his well-deserved transition. Bob has been at UCSF for 40 years and wears many hats. He has been a key advisor for the selection, installation, and operation of both clinical and research radiology equipment across six campuses. He served as the radiation safety officer for our department and headed up our IT/ PACS group. We are fortunate that he has agreed to return part-time after a brief break biking and hiking in Europe, and we are pleased that we will continue to have his wise counsel. Bob will be helping Alastair Martin, PhD, and Youngho Seo, PhD, who will be assuming some of his physics responsibilities. The PACS and IT leadership is in good hands with Dr. Marc Kohli, our director of clinical IT and our vice-chair of Informatics, Dr. John Mongan, leading a fantastic group. IT has become increasingly instrumental to the success of our operations within UCSF and among campuses as we develop into a California-wide UC health system.

I would also like to highlight some of the department's many accomplishments over the past year. In July, we greeted 14 outstanding first-year residents into the class of 2021 and 47 clinical fellows and clinical instructors specializing in 10 radiologic subspecialties. Our residency was once again named the best in the U.S. by *Doximity* and *U.S. News & World Report* thanks to the outstanding team led by Vice-Chair of Education Soonmee Cha, MD, and our faculty who provide outstanding clinical care, and whose lectures

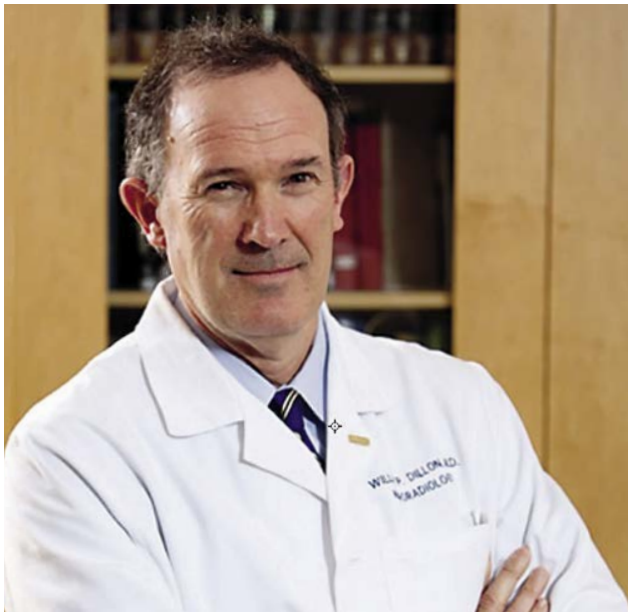
and one-on-one teaching in reading rooms make UCSF the best place to train in the country. The year-long Masters of Science in Biomedical Imaging program, led by Dr. Martin and Dr. David Saloner, welcomed 19 promising young science trainees. We are honored and excited to welcome these superb physicians and trainees into the UCSF family.

In May, the department broke ground for a new, spacious, and beautifully designed patient reception and waiting area at Parnassus, planned with the goal of providing a comfortable patient experience. We are also in the final planning stages for the new UCSF Precision Cancer Medical Building at Mission Bay (cancer.ucsf.edu/about/pcmb) that will house three new MR scanners for diagnostic and radiation oncology planning, and an interventional and diagnostic imaging center for our oncology patients. Plans for imaging beyond the SF campuses are being contemplated as UCSF Health develops its Accountable Care Organization strategy throughout the Bay Area.

Last March, the Margulis Society's biennial Sollitto Gala at the Olympic Club brought together alumni, trainees, and faculty for a spectacular evening of fun and conviviality. Please see page 39 for photographs from the event. Our silent auction was a hit again with many donated items bringing in financial support for resident training. In addition, we announced the Ronald L. Arenson, MD, Endowment for Innovative Research in Radiology to support research projects for our trainees and young faculty. For those of you who have donated to both efforts, thank you so much! For those of you who wish to support the department, the innovation fund, or in any way, we are including in this mailing ways to give.

This year we continued our departmental efforts to improve diversity in science and radiology. Under the leadership of Dr. Matt Bucknor, the department Diversity and Inclusion Committee continued its efforts to enhance faculty and resident recruitment and training. Last summer, the department was pleased to help support several deserving high school, college, and medical students from diverse backgrounds with summer lab experiences. In addition, our UCSF Radiology IR faculty held outreach programs and hands-on IR experiences in Bay Area high schools, showing the cool and fun aspects of radiology. The committee's work is helping to break down the barriers for kids who feel a career in science is out of their reach, and is helping to spark interest in a career in the radiologic sciences.

Over the past 12 months, our department faculty received many honors, a few of which I will mention here (please see page 19 for the full list). We are so proud of their accomplishments, and of all our faculty who try their



very best each day to make a difference in the lives of our patients. Specifically, Duygu Tosun-Turgut, PhD, was one of three recipients of the Parkinson's Progression Markers Data Challenge grants by the Michael J. Fox Foundation, supporting her work using advanced imaging technology to identify biomarkers that will detect the early progression of neurologic pathology. Steven Hetts, MD, received the UCSF Health Exceptional Physician Award and the Young Clinician Award for Outstanding Contributions to HHT (Hereditary Hemorrhagic Telangiectasia) Patient Care (read more about the clinic on page 4), Dr. John MacKenzie received the 2016–2017 UCSF School of Medicine Maxine Papadakis Award for Faculty Professionalism and Respect. At the ISMRM meeting in April, three of our faculty, Drs. Thomas Link, Nola Hylton, and David Saloner, were inducted as ISMRM fellows.

During this time of transitions, let's embrace change, and remember to look on the bright side. Let's be thankful that we live in a fabulous place and work in a vibrant specialty at one of the world's great institutions.

Best wishes for a great 2018!

William P. Dillon, MD

UCSF Center of Excellence for HHT

Miles Conrad, MD, Melissa Dickey, NP, Steven Hetts, MD

UCSF is the only location in Northern California to specialize in the diagnosis and treatment of hereditary hemorrhagic telangiectasia (HHT), and is one of only 22 centers of excellence designated by the HHT Foundation International. Also known as Osler-Weber-Rendu disease, HHT is an autosomal dominant genetic disorder of blood vessels throughout the body that affects approximately one in 5,000 people. Because it is autosomal dominant, on average, each child of an affected parent has a 50% chance of inheriting the disorder.

Manifestations of HHT include recurrent epistaxis (nosebleeds) from nasal telangiectasias, ischemic stroke, brain abscess, and hypoxemia due to pulmonary arteriovenous malformations (PAVMs), cerebral hemorrhage related to brain arteriovenous malformations (BAVMs), gastrointestinal bleeding from gastrointestinal telangiectasias, and anemia from blood loss. Chronic bleeding can necessitate recurrent intravenous iron or blood transfusions. The first sign of HHT in children is often recurrent nosebleeds but also can be hemorrhage from a BAVM, making early diagnosis essential. Small red telangiectasias tend to develop several years later involving the lips, oral mucosa, and fingers. Given the variety of manifestations that require imaging for diagnosis and image-guided interventional treatments, HHT is a natural fit for a clinic led by radiologists. In fact, the first HHT Center was developed by Robert White, MD, an interventional radiologist at Yale.

Clinical diagnosis of HHT begins with taking a history and physical in an office setting using the Curacao criteria: (1) family history of HHT, (2) spontaneous and recurrent epistaxis, (3) perioral and finger telangiectasias, and (4) visceral arteriovenous malformations. Persons meeting one of four criteria are unlikely to have HHT, two of four have probable HHT, and three or four of four have definite HHT.

Imaging plays a role in screening and confirming the diagnosis of patients for visceral AVMs. Echocardiography with agitated saline infusion is used to detect right-to-left shunting in patients with PAVMs. Noncontrast CT identifies the location and size of PAVMs. CT pulmonary angiography is used to follow-up treated PAVMs. Brain MRI is used to detect BAVMs and to risk-stratify BAVMs based on prior or current hemorrhage. Digital subtraction cerebral angiography (see cover of Images) confirms BAVMs and stratifies risk based on detailed angioarchitecture. Right upper quadrant ultrasound is used to identify liver AVMs and abdominal MRA is used to quantify flow through liver AVMs.

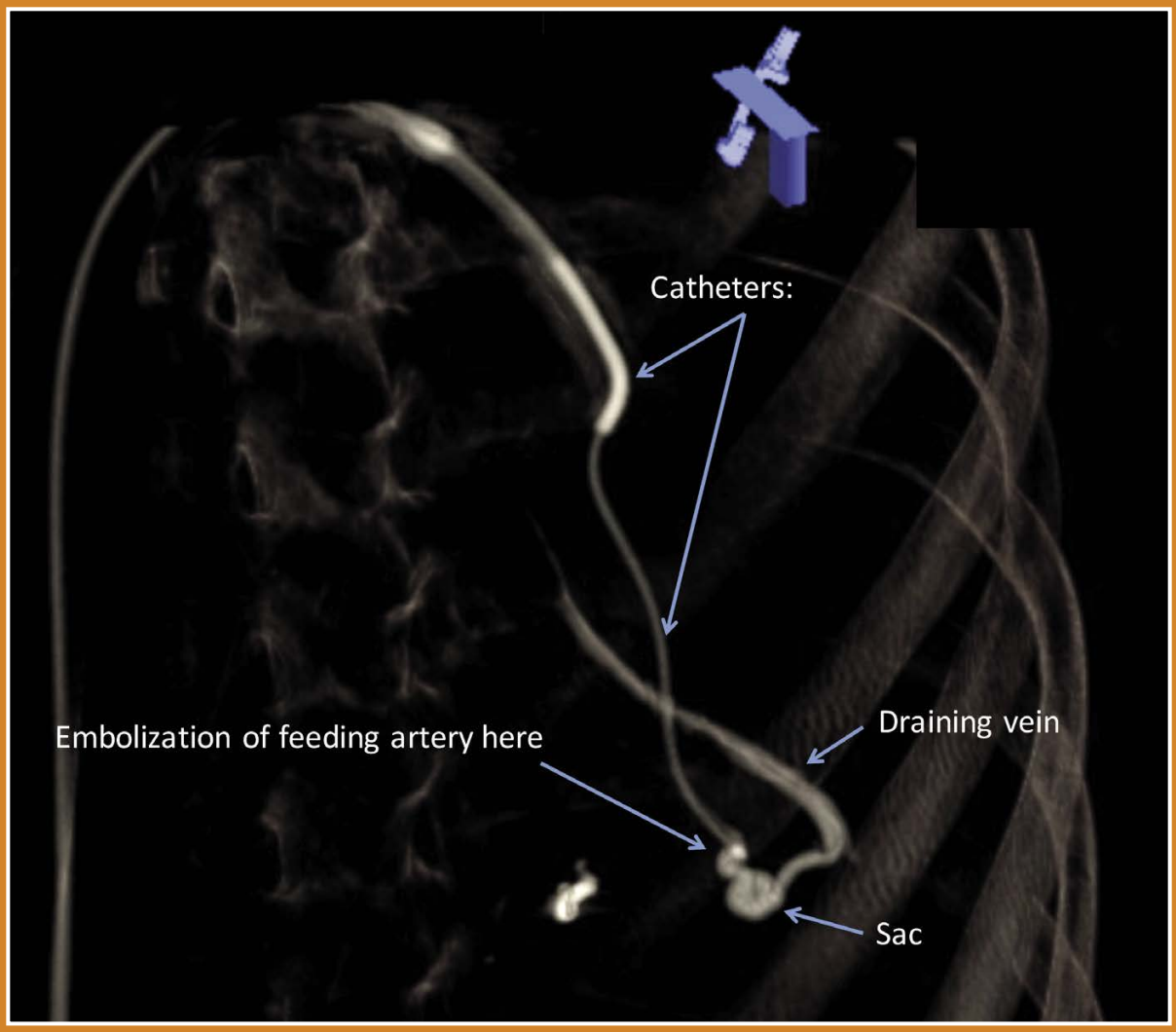
Because the clinical expression of HHT is variable, genetic screening is also critical in the evaluation of patients with possible HHT. If one of the five mutations that cause HHT is identified in an affected family member (proband), the rest of the family can be screened genetically with blood or saliva to determine who should undergo screening with imaging. Family members who test negative are excluded from having HHT and thus do not need to undergo screening with imaging tests. Family members who test positive are screened with imaging. This is particularly important with children. Clinically occult visceral AVMs, such as BAVMs, can be present at birth and early diagnosis may allow for treatment to prevent devastating intracerebral hemorrhage.

UCSF Clinic Opened in 2013

Having seen tragic cases of brain hemorrhage in children with HHT in past, and at the request of William L. Young, MD, founding director of the UCSF Center for Cerebrovascular Research, Steven Hetts, MD, and Miles Conrad, MD, started the UCSF HHT Clinic in 2013. With the support of the UCSF Department of Radiology and Biomedical Imaging and the personal efforts of Mark Wilson, MD, at Zuckerberg San Francisco General Hospital, they recruited Melissa Dickey, NP, from the UCLA HHT Clinic to help run the center and manage the very complex care involved in patients with this multisystem disorder. Anjuli Figueira joined them to organize the HHT Clinic in a patient-centered format. New patients receive their diagnostic imaging studies at UCSF in the morning and in the afternoon, are seen by Hetts or Conrad with Dickey at the China Basin Imaging Center (adults) or the Mission Bay Pediatric Brain Center (children and parents).

Based on initial imaging, genetic, and clinical evaluation, patients are then treated in radiology (e.g. pulmonary embolization by Conrad for PAVM) or referred for specific manifestations of their disease (e.g., Andrew Leavitt, MD, in hematology for management of severe anemia or Andrew Goldberg, MD, in Otolaryngology Head and Neck Surgery for management of epistaxis refractory to local hydration therapy).

Because HHT affects multiple organ systems, our center takes a multidisciplinary approach to diagnosis and treatment. Our team of UCSF providers includes pediatric and adult specialists in 12 medical and surgical specialties, and has quickly gained a reputation among the leading HHT centers nationally and internationally. To date, the UCSF HHT Clinic has evaluated and treated almost 400 patients with possible, probable, or definite HHT. In addition to receiving top-notch clinical care, many patients also



Up to 50% of patients with HHT have pulmonary arteriovenous malformations (PAVM). These vascular malformations predispose patients to stroke, brain abscess, and can cause low oxygenation (hypoxia). Depicted above is a PAVM during treatment. The components of a simple PAVM are a feeding artery, sac, and draining vein. A catheter is inserted through the femoral vein in the groin and used to select the pulmonary arteries in the lung. A second smaller catheter is inserted through the first catheter. Embolization of the feeding artery is achieved using either a plug or coils to stop blood flow through the PAVM which reduces the risk of stroke.

choose to participate in research through the Brain Vascular Malformation Consortium, an international collaboration to better understand and improve care for central nervous system vascular disorders run through the UCSF Center for Cerebrovascular Research.

Our efforts were recognized in 2017 when Hetts received the Robert I. White Young Clinician Award from Cure HHT (the successor to the HHT Foundation) for outstanding contributions to the care of HHT patients. Dickey, Conrad, and Hetts are also involved in the international effort to revise diagnostic criteria, screening approaches, and treatment algorithms for families with HHT.

Learn more about the clinic on our website: radiology.ucsf.edu/patient-care/services/specialty-imaging/HHT.

Miles Conrad, MD, MPH is an associate professor and co-director of the HHT Center for Excellence, Melissa Dickey, NP, is the clinical coordinator of the HHT Center of Excellence, and Steven Hetts, MD, is a professor and co-director of the HHT Center for Excellence in the Department of Radiology and Biomedical Imaging at UCSF.

Capital Projects Overview 2017: Projects Abound!

Alastair J. Martin, PhD

Parnassus

Major changes are underway for the department's activities on the third floor of the Moffit/Long buildings on the Parnassus campus. This nearly $20 million project began in July 2017, has several phases, and will run for 18 months. In preparation, both the Abdominal Imaging and Chest reading rooms had to be relocated. The third-floor renovation has many benefits, including the relocation of the Radiology reception desk and patient waiting area to space directly off the elevator bay. This new configuration, expected to open in early 2018, will make it much easier for patients to find their way to UCSF Health's imaging resources. It will also allow patients and families to wait in a bright room with natural light. The renovation will create a new private, gowned waiting area directly opposite the waiting room. An expanded patient holding room will be located down the main corridor in space that is presently used by the Department of Cardiology.

New equipment to be installed as part of this renovation includes a new body interventional angiographic unit (Philips), a replacement nuclear SPECT camera (GE), a replacement multipurpose system (Siemens) used for ERCP procedures, and an updated radiographic room (Philips). All of this equipment will be installed in newly renovated rooms.

Two other projects have been approved for the Parnassus campus. They will affect the areas presently occupied by the Philips XMR system and Siemens PET scanner. The former will be replaced by an updated 70cm bore 1.5T Philips scanner (Ingenia) and a new 70cm bore 3T GE scanner (Premier). The Philips scanner will continue to be used primarily for neurosurgical procedures and cardiac MR applications. The GE system is heavily supported by the manufacturer, and significant research time will be available on this scanner. Options for the new PET-CT scanner are being evaluated.

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(l–r) Dr. Alastair Martin, Lamona Wood of Perkins Eastman, Dr. Ron Arenson and Dr. Bob Gould "break ground" for the new patient waiting area.

China Basin

A new GE 3T MR unit was installed in a suite previously occupied by a clinical 1.5T magnet. The new magnet presently has a 60cm bore and is our first system functioning on GE's newest operating system. The system is slated to be further upgraded in early 2018, when it will become our first GE Premier MR scanner, featuring a 70cm bore size and powerful imaging gradients (80mT/m). The other 3T MR scanners at China Basin, including a PET-MR and HIFU-enabled wide bore system, continue to be heavily used for clinical and research activities.

An exciting new PET-CT scanner will become functional at China Basin by the end of 2017. Our existing Siemens Biograph PET system will be replaced by a Philips Vereos PET-CT. The Vereos will be our first digital PET-CT system, which has the potential to significantly shorten scan time and/or improve PET resolution. Further expansion of our imaging facilities at China Basin is under serious consideration, including the addition of MR and PET-CT resources for both clinical and research use.

Mission Bay

Major expansions of the Mission Bay campus are being planned with the construction of the Precision Cancer Medical Building (PCMB) and the Weill Neuroscience Institute. Groundbreaking for the PCMB occurred in a lot adjacent to the Mission Bay Hospital. The goal of the PCMB is to consolidate all adult solid tumor cancer services in a single center. It is slated to open in April 2019 and will feature extensive radiology resources. Notably, our breast imaging activities that are presently located at the Mount Zion campus will move to PCMB.

New equipment purchases for the PCMB include two MR scanners, two interventional angiography suites, five mammography units, three ultrasound units, bone densitometry, CT, and a radiographic room. The Department of

(continued on page 7)

Highlights from Informatics

Marc Kohli, MD

Transitions

Bob Gould, ScD, retired following 40 years of service in the Department of Radiology and Biomedical Imaging. Over the last 15 years, Dr. Gould directed the Laboratory of Radiology Informatics, which among other things was responsible for the day-to-day operation of the PACS. As director of Clinical Informatics, I have taken over management of the group, which is also expanding services.

Led by Joe Bengfort and the other chief information officers from UCLA, UCSD, UC Irvine, and UC Davis, we have embarked on an historic project to implement a shared Vendor Neutral Archive (VNA). A VNA makes it easy to store radiology, cardiology, opthalmology, and even dermatology and wound-care images together in a single system. Coupled with a clinical viewer, a VNA can present the Electronic Medical Record with a timeline of imaging regardless of the original imaging department.

In addition to the shared core VNA, each campus will have its own edge node that will provide new workflows and serve as a local cache. Rather than create a stand-alone group within UCSF IT to manage the VNA, the PACS team (with additional resources) will be responsible for operation of the VNA. This is a testament to the fantastic team that Dr. Gould led.

Due to the additional responsibility, particularly to stakeholders outside of the Radiology department, the PACS team has been renamed Imaging IT to reflect its new role.

Upgrade to PS-360 4.0

Over the past year, we engaged in a strategic partnership with Nuance. This partnership includes participating in Nuance's beta program for PS-360 version 4.0. The upgrade to version 4.0 brought several features, most importantly upgrades to template functionality, including the ability to nest templates within templates, and better organization of section-specific site-wide templates.

John Mongan, MD, PhD, vice-chair of Informatics, and I have been invited to serve on the Powerscribe Clinical Advisory board, which provides input into the development of PS-360.

mPower

Following a survey of the available report searching options, we implemented Nuance mPower (formerly Montage). This web-based search engine that also allows exporting of records is now used throughout the department for research and quality improvement. mPower also has the capability to search pathology reports, which we hope to incorporate over the next year.

Automatic Image Retrieval (AIR)

Over the years, the need to access DICOM data from PACS has grown both within and outside the department. The film library and Imaging IT teams were spending considerable resources filling requests for image data. New work in machine learning and artificial intelligence have also dramatically increased the pace and size of requests.

Under the leadership of Dr. Mongan, Wyatt Tellis, PhD, director of Imaging IT Solutions & Applications, developed Automated Image Retrieval (AIR). This web-based self-service application allows faculty and residents to retrieve DICOM image files from the clinical PACS archive. Studies can be downloaded individually, with their demographic data intact, or de-identified. Downloads can be directed to a local computer or DICOM destination and are logged for HIPAA compliance. The next version of AIR, currently in testing, enables bulk downloads of large batches of studies.

Marc Kohli, MD, is an associate professor of Clinical Radiology and the Director of Clinical Informatics in the Department of Radiology and Biomedical Imaging.

Capital Projects Overview 2017 (from page 6)

Radiation Oncology will move a CT simulator from Mt Zion and add a new MR simulator at the PCMB facility.

The Joan and Sanford I. Weill Neurosciences Building was approved by the UC Regents on May 17, 2017. Ground was broken in the lot opposite the Koret Quad and the facility is slated to open in 2020. This institute contains more than 200,000 square feet of clinics and laboratories. It will be supported by an onsite clinical MR scanner that will be run by the Department of Radiology and Biomedical Imaging.

Alastair J. Martin, PhD, is an adjunct professor and director of Capital Projects for the Department of Radiology and Biomedical Imaging. He works collaboratively with Robert G. Gould, ScD, professor emeritus and vice-chair for Technology and Capital Projects, to oversee capital equipment evaluation, selection, and installation.

Symposium Highlights Extraordinary Career of Ronald Arenson, MD

The contributions of former Chairman Ronald L. Arenson, MD, to UCSF's Department of Radiology and Biomedical Imaging and UCSF Health were highlighted on May 5, 2017 at a special symposium attended by UCSF leadership, faculty, colleagues, family, and friends on the Parnassus Heights Campus. The department was honored to have his wife Ellen and family in attendance.

The symposium afforded a platform to highlight specific academic and clinical focus areas that were important to Arenson during his career: patient care, informatics, and the value of radiology, while at the same time celebrating Arenson's 25 years of leadership.

UCSF Chancellor Sam Hawgood, MD, noted the importance of Arenson's "intellectual honesty" to both the department's and university's success. Referring to Arenson, he quoted Nelson Mandela, "A good head and a good heart are always a formidable combination." Hawgood noted that, "The department has thrived nationally and internationally, because of Ron's academic contributions. UCSF has thrived because of his loyalty and institutional leadership."

"It is hard to imagine UCSF and the Department of Radiology without Ron Arenson," said Mark Laret, president and CEO of UCSF Health. "Over the course of many years that Ron and I worked together, I came to understand an underlying truth about him—that all he stood for was excellence. Excellence in our faculty and excellence in the care we provide, including excellence in our facilities and our equipment."

Talmadge King, MD, dean of the UCSF School of Medicine, noted his appreciation for Arenson's skills at picking and developing faculty. "He recruited fantastic people, and they enjoyed providing service. They would come to conferences, they would participate in research, and they did it with enthusiasm. That came from Ron's leadership. Ron was a true chair, working to make his department better for the faculty and the staff. But what I really liked about Ron was that he could pivot and ask, 'What is best for everybody here? What works best for the university?' And he would come up with ideas that helped the university succeed, while at the same time making sure that his department got what it needed to do its work. That is not a universal skill among department chairs at any university."

One of three invited external speakers, Mary Mahoney, MD, the Benjamin Felson Endowed professor and chair of Radiology at the University of Cincinnati, spoke on the need for patient-centered radiology. Traditionally, radiologists have measured success on volume, according to Mahoney. "My argument is that when productivity is the only important measure, patient care will be marginalized," she said. "We need to be partners, and we need to be visible partners in patient care. High-functioning groups that not only have

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Faculty, friends and colleagues celebrate Dr. Ronald L. Arenson and his 25 years of departmental leadership at UCSF.

volume, but also incorporate quality, safety, and patient experience will be successful."

Keith Dreyer, PhD, is a world-renowned leader in imaging informatics and clinical vice chair of Radiology Computing and Information Sciences at Massachusetts General Hospital. He spoke on deep learning IT and artificial intelligence. Radiologists "need to embrace new technology rather than be fearful of it. Just like when a new modality comes in, we figure it out and put it into the workflow. That is the same opportunity we have with artificial intelligence," he said.

"When we start talking about the cost of American health care, we need to move the discussion from cost to value because medical imaging provides tremendous value," noted N. Reed Dunnick, MD, the Fred Jenner Hodges professor and chair of Radiology for the University of Michigan Health System. "The earlier we can intervene in a patient's disease process the better the outcome will be. And the less expensive it will be to get to that outcome."

The symposium concluded with an afternoon reception for attendees and a dinner for invited guests.









UCSF DOCUMENTS & MEDIA - MARCO SANCHEZ

Art installed at Mission Bay Hospitals in Honor of J. Randall Forbes, MD

Shoreline, oil on canvas, 2013, Monterey, CA, Johnny Apodaca

The link between radiology and art is obvious—both deal with images. For J. Randall (Randy) Forbes, MD, it was also personal. He was both a radiologist and an artist. How fitting that Dr. Forbes is being remembered as an alumnus, colleague, and friend with an installation of artwork in the Main Lobby and in the Radiology waiting room at the new UCSF Mission Bay Hospital.

The paintings by Johnny Apodaca, a talented, acclaimed artist whose work is created in and reflects the coastal area of Monterey, California and the hillsides of Umbria, Italy, hold special meaning beyond their beauty. Apodaca and Dr. Forbes began a friendship more than 20 years ago at Community Hospitals of the Monterey Peninsula, where Apodaca worked as an orderly and Forbes as a physician. After workdays in the hospital, Dr. Forbes ventured out with Apodaca, learning from, and painting local landscapes with him.

Dr. Forbes had a remarkable ability to connect with and care for others, including his many friends, classmates, and colleagues at UCSF Radiology, where he was a resident from 1989–1993, and a musculoskeletal fellow from 1993–1994. Following his training, he served as a beloved compassionate and skilled physician at Community Hospitals of the Monterey Peninsula. He also stayed connected to UCSF, serving as a Margulis Society board member from 2008 until his death in 2009.

Enhancing the healing environment at the UCSF Medical Center at Mission Bay with art in his memory is an opportunity to honor Dr. Forbes. Patients and their families, visitors, faculty and trainees, staff, and volunteers are enriched by the installation of work that he too found comforting and inspiring.

Those who wish to honor Dr. Forbes with a donation toward the art installed in his memory at the UCSF Mission Bay Hospital may contact Annie Roeser, assistant director of Development, at annie.roeser@ucsf.edu.

Bone Health Addressed at UCSF Event

In May, a team of UC San Francisco bone health experts gathered to discuss with members of the community how bone health and osteoporosis shape patient care, research, and education at UCSF. The event, titled "Conquering Osteoporosis in our Community," was held at the Women's Health Complex at 1725 Montgomery Street.

Of the approximately 8,000 patients a year who visit UCSF Imaging at Montgomery, nearly 20 percent visit for bone screening alone. However, there is still much room to increase community knowledge about the severity and risks of osteoporosis, the value of bone screening, and the availability of dual-energy X-ray absorptiometry (DXA or DEXA). Many patients, and even the physicians who serve them, remain unaware of this preventive option.

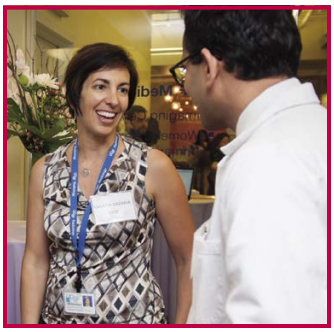
Community members and health care professionals from Pilates instructors to physicians participated in the May event and shared insightful perspectives in hopes of breaking new ground in addressing osteoporosis and care in San Francisco and beyond.

UCSF physicians with specializations across the board spoke directly to members of the community. Aenor Sawyer, MD, MS, director of UCSF's Skeletal Health Service in the Department of Orthopaedic Surgery, provided important information about osteoporosis, while Thomas Link, MD, PhD, chief of musculoskeletal imaging in the Department of Radiology, discussed diagnosing the disease. Fellow radiologist Vinil Shah, MD, assistant professor of clinical radiology, and Galateia Kazakia, PhD, director of the Bone Quality Research Lab, spoke on osteoporosis treatment and future directions of treatment, respectively. Sharmila Majumdar, PhD, vice chair of research, addressed the audience via a pre-recorded video to discuss her musculoskeletal research. Also in attendance were William Dillon, MD; Mary Bobel, MBA; and David Sostarich, MBA, BSRT.

The evening also featured the perspectives of UCSF Imaging patient Jan, who talked about her experience from diagnosis to treatment and health maintenance at the UCSF Orthopaedic Institute.

The Women's Health Complex combines a prominent Bay Area OB/GYN practice, Golden Gate OB/GYN, with UCSF Imaging, providing those who live and work in downtown San Francisco with access to world-class health care. The facility offers screening mammography, ultrasound, and DXA scanning to determine bone density and screen for osteoporosis.

Just as all public events at UCSF Imaging Montgomery, "Conquering Osteoporosis in our Community" received enthusiastic local support. Food and drink were provided by nearby businesses: The Organic Wine Company, Young's Market Company, Boulibar, and La Mar Cebichería Peruana.



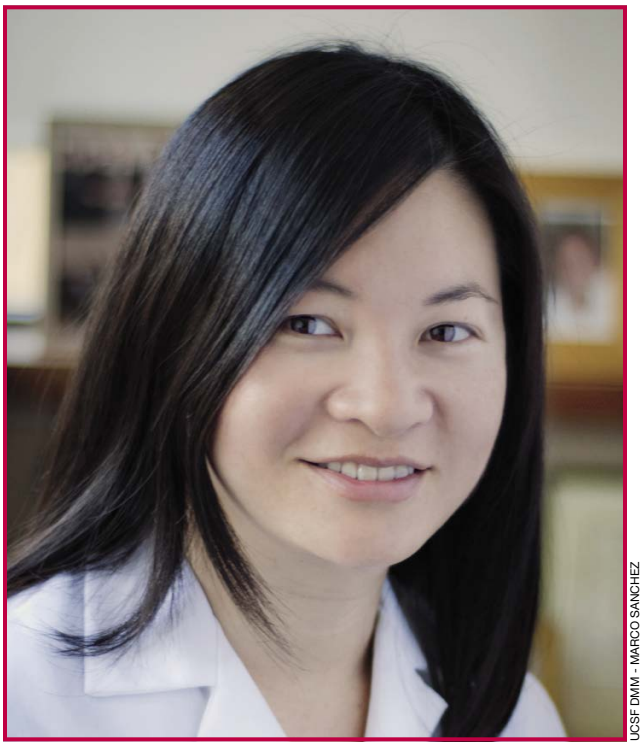
Osteoporosis prevention, symptoms, diagnosis, and treatment were the focus at the UCSF May bone health event.

Shum Accepts Chief of Ultrasound Position at ZSFG

"We are so pleased to announce that Dr. Dorothy Shum has agreed to become Chief of Ultrasound at Zuckerberg San Francisco General Hospital," noted Interim Chair William P. Dillon, MD, in announcing the new appointment. "Dorothy will spend more time at ZSFG as well as continuing her efforts at UCSF Health."

Dorothy Shum, MD, is an assistant clinical professor in the Ultrasound section in the Department of Radiology at the University of California, San Francisco. She is fellowship trained in abdominal imaging with additional subspecialty training in ultrasound. Dr. Shum received her medical degree from Brown Medical School, Rhode Island, in 2005, and completed her residency at Kaiser Permanente Medical Center, Department of Diagnostic Imaging in Los Angeles, California in 2010, followed by a fellowship in Advanced Body Imaging at the Keck School of Medicine of USC, Los Angeles in 2011.

Clinically, Dr. Shum's time is divided between UCSF and SFGH where she practices diagnostic ultrasound, and obstetrical care, including participation with the UCSF Fetal Treatment Center assisting in imaged-guided procedures and intraoperative localization.



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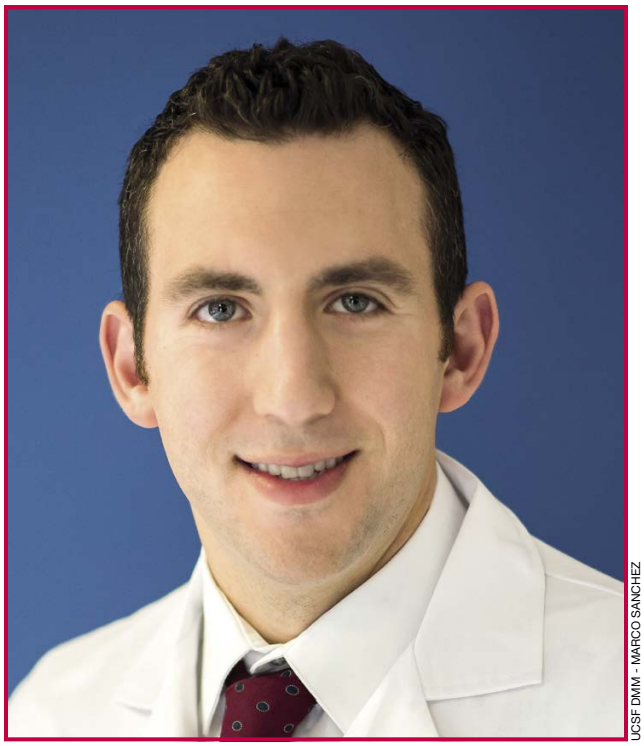
New Faculty 2017



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Brian Haas, MD

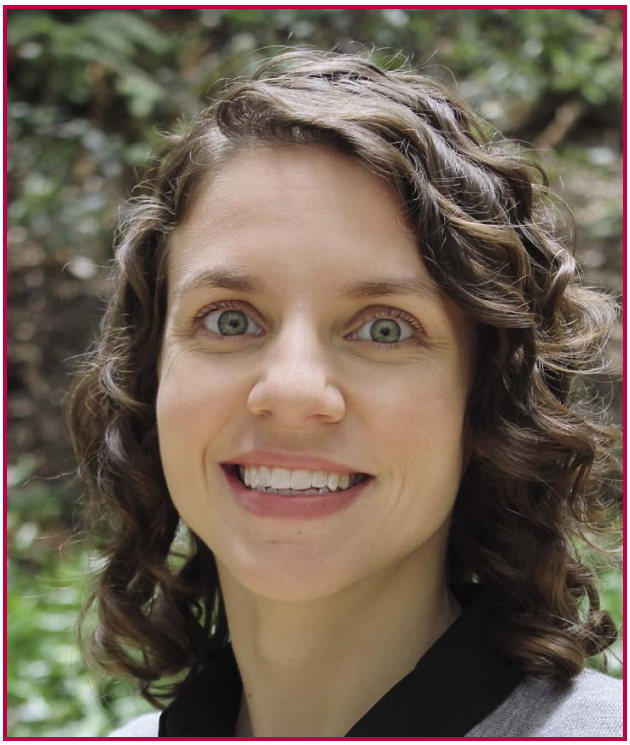
Assistant Professor of Clinical Radiology
Cardiac and Pulmonary Imaging

In 2009, Brian Haas completed a medical degree at the University of Pennsylvania School of Medicine in Philadelphia. A year later he completed a one-year internship at Albert Einstein Medical Center, in the same city. Haas completed a four-year diagnostic radiology residency at Yale University in New Haven, Connecticut in 2014, followed by a Cardiac and Pulmonary Imaging fellowship at UCSF in 2015. Haas' interests include quality improvement and patient safety, clinical decision-making following indeterminate test results, cancer screening, and radiation dose standardization. Prior to joining UCSF in July 2017 as an assistant professor in the Cardiac and Pulmonary Imaging section, he was a physician with The Permanente Medical Group.

Rahul Desikan, MD, PhD

Assistant Professor in Residence
Pediatric Neuroradiology

In 2007, Rahul Desikan received his PhD, and in 2009 his MD, from Boston University in Massachusetts. In 2010, Desikan completed his one-year internship at New York Hospital, Queens in Flushing, New York. In 2015, he completed a diagnostic radiology residency program at the University of California, San Diego, followed by a neuroradiology fellowship and clinical instructorship at UCSF from 2015–2017. Desikan received the department's Outstanding Fellow/Clinical Instructor Teaching Award in 2017. His areas of interest include neuroradiology, neurodevelopmental and neurodegenerative disorders, neurogenetics, gene expression, and molecular markers. He joined the UCSF Neuroradiology faculty as an assistant professor in residence in May 2017.



Kimberly Kallianos, MD

Assistant Professor of Clinical Radiology
Cardiac and Pulmonary Imaging

Kimberly Kallianos received her medical degree from Harvard Medical School in Boston, Massachusetts, in 2011. The following year she completed a one-year internship at Mount Auburn Hospital in Cambridge, Massachusetts. In 2016, Kallianos completed a four-year diagnostic radiology residency at UCSF, serving as a NIH T32 trainee in 2015–2016. She was a 2016 recipient of the Margulis Society Outstanding Resident Research Award. Her cardiac and pulmonary imaging fellowship was completed in 2017. Kallianos' areas of interest include medical student education, medical publishing, cardiac MR strain imaging, and coronary CTA. In July 2017, Kallianos accepted an assistant professor of clinical radiology position in the Cardiac and Pulmonary section at UCSF.

Rina Patel, MD

Assistant Professor of Clinical Radiology
Musculoskeletal Radiology

Rina Patel obtained her MD degree at Vanderbilt School of Medicine in Nashville, Tennessee, in 2009. In 2010, she completed her one-year internship at University of Chicago Medical Center, Illinois, where she also completed her four-year diagnostic radiology and chief residency in 2014. In 2015, Patel finished her musculoskeletal fellowship at UCSF. Prior to joining UCSF, Patel held an assistant professor position in the Loyola University Health System's Department of Radiology, Musculoskeletal section, in Maywood, Illinois. She accepted an assistant professor of clinical radiology position in the Musculoskeletal Radiology section at UCSF in November 2017.

Donna Peehl, PhD

Professor
Body Research Interest Group

Donna Peehl, PhD, received her undergraduate degree in biology at Stanford University in California and completed her PhD in molecular, cellular, and developmental biology at the University of Colorado in Boulder. During post-doctoral fellowship research at the University of California in both Irvine and San Francisco, she investigated tumor suppressor genes and oncogenes in cancer. Prior to joining UCSF, Peehl became professor emerita at Stanford University, California, after 35 years as a basic scientist in the Department of Urology. She is widely recognized for her work in developing realistic and representative preclinical cell and tissue models of prostate and kidney cancer. She joined the Body Research Interest Group in October 2017.

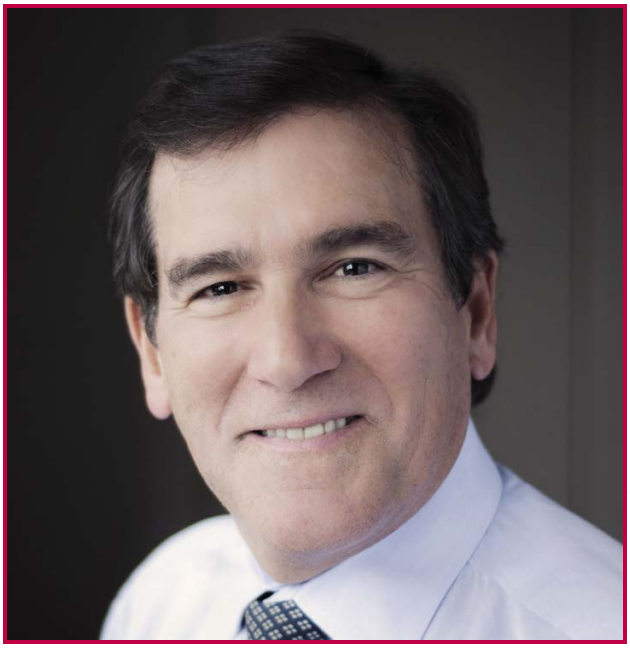
Javier Villanueva-Meyer, MD

Assistant Professor of Clinical Radiology
Neuroradiology

Javier Villanueva-Meyer received his medical degree in 2011 from Baylor College of Medicine in Houston, Texas. He completed a one-year internship at Virginia Tech Carilion School of Medicine in Roanoke in 2012. In 2016, Villanueva-Meyer completed a four-year diagnostic radiology residency at UCSF, serving as chief resident, as well as a one-year NIH T32 post-doctoral fellowship. He was selected as the Elmer Ng Outstanding Resident in 2016.

In 2017, Villanueva-Meyer completed a Neuroradiology clinical instructorship at UCSF. His areas of interest include MRI of brain tumors, imaging of infection, and molecular imaging. In July 2017, Villanueva-Meyer accepted an assistant professor position in Neuroradiology at UCSF.

Robert Gould, ScD, Retires After 40 Years of Service



UCSF DMM - MARCO SANCHEZ

The retirement of Robert Gould, ScD, capped a 40-year career that was "intrinsically linked to the development and success of this department," said former department chair Ron Arenson, MD. "I feel tremendously fortunate to have had him all these years as a colleague, trusted adviser, scientist, and friend."

Gould joined the faculty in 1977, as chief of the Physics section. Since 2002, he has served as the director of the Laboratory of Radiologic Informatics (LRI), which is responsible for the department's Picture Archiving and Communication System (PACS). "The PACS implementation was challenging, complex, and required many years of planning," said Arenson. "Bob was responsible for its success, from vendor selection to definition of the architecture, to development and execution of the implementation plan. In 2015, he oversaw the PACS system upgrade – a complete replacement of the system. He and his team were deeply involved with the roll-out and integration of EPIC Radiant, which replaced the former Radiology Information System (RIS) and is fully integrated with PACS."

Gould had an immeasurable impact on the selection, installation, and operation of both clinical and research radiology equipment across six campuses. He has supervised installation of MRI equipment adjacent to two streetcar lines: the first Magnetic Resonance Science Center on Irving Street and later at China Basin as the department expanded its clinical and research enterprise there in advance of UCSF's expansion at Mission Bay. "Bob defied the odds of successful MRI operation next to the largest possible pieces of 'moving metal' we could think of," said Arenson. "From the cyclotron installation at China Basin, to the selection of nearly every piece of clinical equipment in all the UCSF hospitals and clinics, including Benioff Children's and the new women's and cancer hospitals at Mission Bay, his technical savvy and negotiating skills have saved UCSF and the department millions of dollars."

In addition to major equipment installations, Gould oversaw numerous key construction projects, working with a myriad of contractors and vendors, as well as UCSF and Medical Center design and construction personnel.

Gould was also involved in system-wide research related to reducing radiation dose to patients. With the late Bruce Hasegawa and others, Gould helped develop early prototypes for fusion imaging. "Multi-modality imaging is now so ubiquitous in radiology departments around the world that we forget the concepts of PET with CT, or PET with MR were once completely foreign," noted Arenson.

Another of Gould's important contributions was his scientific collaboration with Doug Boyd, PhD, on their NIH-funded development of the first electron beam CT scanner. The "Imatron Scanner" is long since gone, but it allowed for pioneering work on cardiac CT imaging. UCSF was the first to install the clinical version of this scanner. Gould was an author on many peer-reviewed papers based on this work, which included the measurement of myocardial blood flow, truly innovative in the 1980s.

Gould has served on numerous committees, including the Medical Center Capital Budget committee, and advised many departments in the selection of imaging equipment. He was a valued member of the department's Operations, Safety, and Radiation Oversight committees, and the UCSF Campus Radiation Safety and Radioactive Drug Research committees. He also served on the Medical Center Radiation Protection Committee. His participation in these committees made Gould a leading advocate for radiation safety within the department, the UCSF campus, and the Medical Center.

Gould earned his Bachelor's degree in chemistry from the College of Wooster in Ohio. He completed his Master's degree in biomedical engineering at the University of Pennsylvania, and received his ScD degree in medical physics from Harvard University. Gould is a past vice president of the Radiological Society of North America and a past president of the American Association of Physicists in Medicine.

Gould plans to return to UCSF and departmental service on a part-time basis after a brief break.

Judy Yee, MD, Named Radiology Chair at Montefiore and Albert Einstein

Calling it both a source of delight and sadness, former department chair Ron Arenson, MD, announced the departure of Judy Yee, MD, to accept the position of professor and University Chair of the Department of Radiology at Montefiore and Einstein College of Medicine in New York City. Yee assumed her new responsibilities in September 2017. She will oversee Radiology services at the Moses, Einstein, Wakefield, and Westchester campuses and 11 outpatient imaging centers.

At UCSF, Yee was a professor in residence and vice chair of the Department of Radiology and Biomedical Imaging. She also served as chief of Radiology at the San Francisco VA Health Care System, where she developed a state-of-the-art department. As director of the 3D Imaging Laboratory, Yee ensured that it was equipped with advanced computer workstations for clinical care, research, and education.

"Judy has been an integral part of the leadership of our department and our institutions," Arenson said. "We will certainly miss her. We congratulate her on her new appointment and wish her well in this new chapter in her career."

After graduating from Barnard College, Columbia University, Yee received her medical degree from the Albert Einstein College of Medicine. She completed an internship at Mt. Sinai Hospital and returned to Einstein to complete her radiology residency. Yee later completed a fellowship in abdominal imaging at UCSF, before joining the UCSF faculty in 1993. An internationally recognized expert in abdominal radiology, Yee is an accomplished researcher. She is a renowned pioneer in CT colonography (virtual colonoscopy), a novel technique she helped develop and that is now used globally for colorectal cancer screening and diagnosis. A prolific author, her publications include landmark studies in the CT colonography field and other innovative techniques for liver, pancreatic, and gastrointestinal tract imaging. She wrote the well-received textbook *Virtual Colonoscopy* (Lippincott Williams & Wilkins). Yee has been frequently featured on television and in the media helping raise public awareness about colorectal cancer.

She serves on the editorial boards of *RadioGraphics*, *Abdominal Radiology* and the *Journal of Computed Tomography*. She chairs the American College of Radiology Colon Cancer Committee, and is a Fellow of the American College of Radiology. She is the new chair of the Gastrointestinal Refresher Course Program, past chair of the Public Information Committee for the Radiologic Society of North America, and past president of the Society of Abdominal Radiology.

UCSF DMM - MARCO SANCHEZ

The long list of awards Yee has received includes the Igor Laufer Visiting Professor award from the Society of Abdominal Radiology, the Best Speaker award from the American Roentgen Ray Society, the Howard Steinbach Outstanding Fellow award, the Haile Debas Excellence in Teaching award, and the inaugural UCSF Outstanding Radiology Faculty Mentoring award.

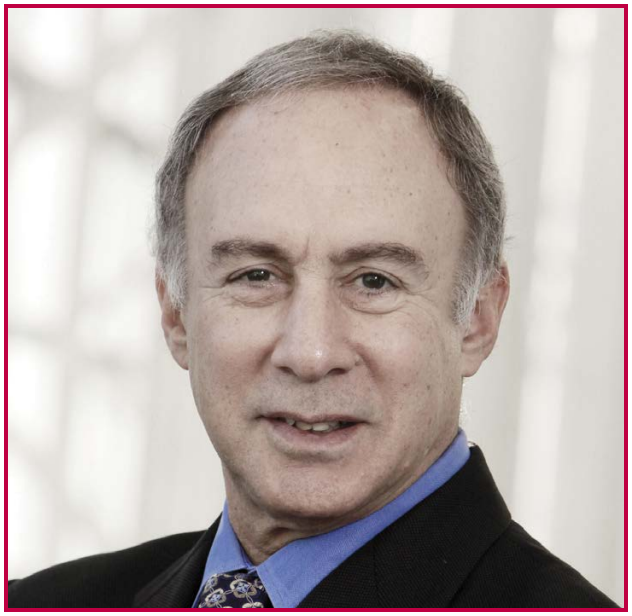
Xiaojuan Li, PhD, to Direct PAMI at Cleveland Clinic

In August 2017, Xiaojuan Li, PhD, left UCSF to accept the directorship of the new Program in Advanced Musculoskeletal Imaging (PAMI) at the Cleveland Clinic in Ohio. “PAMI is gaining an experienced research director,” noted Sharmila Majumdar, PhD, vice chair of research in the Department of Radiology and Biomedical Imaging. “We are proud of all that Xiaojuan has accomplished during the past decade at UCSF and wish her our very best as she assumes this exciting new leadership position.”

The mission of PAMI is to advance musculoskeletal imaging in health care, in particular advanced quantitative imaging, for orthopedics and rheumatology through technology development, translational research, and education. PAMI will also advance new collaborations across institutes within the Cleveland Clinic and with investigators around the world. The new program was formed as a part of the Lerner Research Institute, the Imaging Institute, and the Institute of Orthopaedics and Rheumatology at the Cleveland Clinic.

Li completed her Masters of Science in biomedical engineering at Tsinghua University, China, in 1999. She obtained her PhD in bioengineering from UCSF in 2003, followed by a postdoctoral research fellowship. She joined the department as an assistant professor in 2006, and became a full professor in 2015. Li served as faculty in the Musculoskeletal Quantitative Imaging Research Group, the Department of Orthopedic Surgery, and the UCSF-UCB Joint Bioengineering Graduate Program. She also directed UCSF’s Arthritis Imaging Laboratory, where she led research focused on the development of advanced quantitative MRI and MRSI imaging techniques, and the evaluation of their clinical significance for musculoskeletal diseases such as arthritis, acute knee injuries, and osteoporosis. In 2015 the Academy of Radiology Research honored Li with its Distinguished Investigator award.

Honors and Awards



Ronald L. Arenson, MD, was a 2017 recipient of the Holly Smith Award for Exceptional Service to the UCSF School of Medicine. The award was established in 2000 to recognize career service that has resulted in broad and long-lasting benefit to the School of Medicine.

Ronald L. Arenson, MD
- Recipient, Holly Smith Award for Exceptional Service to the UCSF School of Medicine
- Recipient, Visionary Leadership Award, Society of Chairs of Academic Radiology Departments

Spencer Behr, MD
- Recipient, Hideyo Minagi Outstanding Teacher Award, UCSF Radiology and Biomedical Imaging
- Recipient, UCSF Haile T. Debas Academy Excellence in Teaching Award

Matthew Bucknor, MD
- Recipient, GE Radiology Research Academic Fellowship

Rahul Desikan, MD, PhD
- Recipient, Outstanding Fellow/Clinical Instructor Teaching Award, UCSF Radiology and Biomedical Imaging

William P. Dillon, MD
- Named Top Doctor 2017, *San Francisco Magazine*

UCSF DMM - MARCO SANCHEZ

Spencer Behr, MD, received the 2017 Hideyo Minagi Award for his dedication to trainee teaching. In his remarks to the residents following graduation he commented “For me, a good teacher is always a student—learning from and being pushed forward by their students. You have taught me so much.”

Brett M. Elicker, MD
- Promoted to professor

Michael Evans, PhD
- Recipient, American Cancer Society Research Scholar Award
- Recipient, American Brain Tumor Association Discovery Award Grant for Early Career Investigators
- Recipient, UCSF Brain Tumor SPORE Developmental Research Project Award

Roy Filly, MD
- 2016 Peter Cooperberg Honorary Lecturer, University of British Columbia

Robert Flavell, MD, PhD
- Recipient, Howard S. Stern Research Award, Society of Abdominal Radiology
- Prostate Cancer Foundation David Blitzer Young Investigator Award
- Co-Recipient, Young Investigator Award, Prostate Cancer Foundation

The 2017 Bruce Hasegawa Award for Excellence in Biomedical Imaging was presented to Caroline Guglielmetti, PhD, (right) on October 10, 2017 by selection committee member Miguel Hernandez Pampaloni, MD, PhD (left). Guglielmetti received her PhD from the University of Antwerp, Belgium, and has been a postdoctoral scholar at UCSF since 2016. Her scientific goal is to determine the role of metabolic impairment in the progression of cerebral diseases, particularly multiple sclerosis.

Christine Glastonbury, MD
- Cum Laude award, Education Exhibit, 2016 Radiological Society of North America Meeting
- Keynote Lecturer, American Roentgen Ray Society Annual Meeting, New Orleans

Heather Greenwood, MD
- First place, the San Francisco First Half Marathon, women 30–34

Caroline Guglielmetti, PhD
- Recipient, Bruce Hasegawa Award for Excellence in Biomedical Imaging, Radiology and Biomedical Imaging

Travis Henry, MD
- Promoted to associate professor

Randall T. Higashida, MD
- Named Top Doctor 2017, *San Francisco Magazine*

Thomas Hope, MD
- Co-Recipient, Young Investigator Award, Prostate Cancer Foundation
- Best GU Clinical Scientific Paper Award, Society of Abdominal Radiology

UCSF DIMM - MARCO SANCHEZ

The Institute of Electrical and Electronics Engineers named Srikantan Nagarajan, PhD, a fellow for his significant scientific contributions to neural engineering and biomagnetic brain imaging.

Steven Hetts, MD
- Promoted to professor
- Recipient, UCSF Health Exceptional Physician Award
- Winner, UC Entrepreneur Contest
- Recipient, Robert White, Jr. Young Clinician Award, Cure HHT Foundation

Nola Hylton, PhD
- Inducted as fellow, International Society for Magnetic Resonance in Medicine

Galateia Kazakia, PhD
- Promoted to associate professor

Robert K. Kerlan, Jr., MD
- Distinguished Reviewer Award, *Journal of Vascular and Interventional Radiology*, 2016

Maureen Kohi, MD
- Inducted as fellow, Society of Interventional Radiology
- Certificate of Merit, Educational Exhibit, American Roentgen Ray Society

Roland Krug, PhD
- Promoted to associate professor

UCSF DMM - MARCO SANCHEZ

Lynne S. Steinbach, MD, has been recognized with the International Skeletal Society's Founders' Medal for excellence in her field and significant contributions to the ISS. The medal will be presented at the ISS annual meeting in 2018. Steinbach served as president of the ISS in 2014–2016.

Vishal Kumar, MD
- Recipient, 2016 UCSF Haile T. Debas Academy Excellence in Teaching Award

Thomas Link, MD, PhD
- Inducted as fellow, International Society for Magnetic Resonance in Medicine
- Recipient, 2016 Distinguished Investigator Award, RSNA

John MacKenzie, MD
- Recipient, 2016–2017 Maxine Papadakis Award for Faculty Professionalism and Respect, UCSF School of Medicine

Carina Mari Aparici, MD
- Promoted to professor

Sharmila Majumdar, PhD
- Recipient, *Journal of Orthopedic Surgery* Excellence in Translational Science Award

Pratik Mukherjee, MD, PhD
- Recipient, Distinguished Investigator Award, Academy of Radiology Research
- Keynote Address, New England Roentgen Ray Society, Boston, MA

UCSF DMM - MARCO SANCHEZ

Duygu Tosun-Turgut, PhD, was a winner of the 2016 Michael J. Fox Foundation Parkinson's Progression Markers Initiative Data Challenge. Tosun-Turgut aims to develop validated imaging markers, potentially providing a means of monitoring the efficacy and regional specificity of drug therapy for neurodegenerative diseases. This will have a broad use in early diagnosis, facilitating initiation of prevention strategies in those at risk.

Srikantan Nagarajan, PhD
- Named as fellow, Institute of Electrical and Electronics Engineers

Sarah Nelson, PhD
- Invited speaker, Seventh Annual Faculty Research Lecture in Translational Science, UCSF Academic Senate

Liina Poder, MD
- Certificate of Merit, Educational Exhibit, American Roentgen Ray Society

Elissa R. Price, MD
- Promoted to associate professor

Viola Rieke, PhD
- Promoted to associate professor

Alexander V. Rybkin, MD
- Promoted to professor

David Saloner, PhD
- Inducted as fellow, International Society for Magnetic Resonance in Medicine

Vice Chair Susan Wall, MD, (left), with Outstanding Alumnus Mark W. Wilson, MD, (right).

Reed Omary, MD, chair of the Vanderbilt University Department of Radiology and Radiological Sciences (left) with Benjamin Yeh, MD, the 2017 Henry P. Pendergrass lecturer (right).

Youngho Seo, PhD
- Promoted to professor
- Recipient, 2016 Distinguished Investigator Award, RSNA

Dorothy Shum, MD
- Appointed chief, Ultrasound, Zuckerberg San Francisco General Hospital
- Gold Medal, Educational Exhibit, American Roentgen Ray Annual Meeting

Leo Sugrue, MD
- Reviewer, *American Journal of Neuroradiology*

Lynne S. Steinbach, MD
- Recipient, 2018 Founders' Medal, International Skeletal Society
- Fellow, American Association for Women Radiologists
- Named Top Doctor 2017, *San Francisco Magazine*

Jason Talbott, MD, PhD
- Reviewer, *American Journal of Neuroradiology*

Duygu Tosun-Turgut, PhD
- Promoted to associate professor
- Recipient, Young Talent in Artificial Intelligence 2017 Award, BioData World West
- Winner, 2016 Parkinson's Progression Markers Initiative Data Challenge, Michael J. Fox Foundation

Alina Uzelac, MD
- Promoted to associate professor

Thienkhai Vu, MD
- Recipient, 2017 Robert Lull Award, Zuckerberg San Francisco General Hospital

Susan Wall, MD
- Recipient, Radiology Award for Outstanding Faculty Mentoring

Emma Webb, MD
- Promoted to professor
- Recipient, Outstanding Medical Student Teaching Award, UCSF School of Medicine

Mark W. Wilson, MD
- Recipient, Outstanding Alumnus Award, Department of Radiology and Biomedical Imaging

Duan Xu, PhD
- Recipient, 2016 Distinguished Investigator Award, RSNA

Benjamin M. Yeh, MD
- 2017 Pendergrass Lecturer, Vanderbilt University, Radiology, Nashville, TN
- Named Top Doctor 2017, *San Francisco Magazine*
- Chair, GI Scientific Program Committee, Society of Abdominal Radiology
- Chair, GI Scientific Program Committee, American Roentgen Ray Society

Ronald J. Zagoria, MD
- Named Top Doctor 2017, *San Francisco Magazine*

Xiaoliang Zhang, PhD
- Inducted as fellow, American Institute for Medical and Biological Engineering
- President, Overseas Chinese Society for Magnetic Resonance in Medicine

Radiology Residency Highlights 2017

Soonmee Cha, MD

2017 marked my fifth year as residency director and my second year as vice-chair for Education. During that time, the CORE curriculum, the new board system, and Milestones have been fully implemented in our training program. They form a foundation for our goal of training skilled diagnostic radiologists who are leaders in research, academics, public service, and clinical care.

Our residents continue to impress me with their work ethic, their focus on learning new skills, and their commitment to service and patient care.

This year's match was again very successful. We will welcome 13 new Diagnostic Radiology residents and one Integrated Interventional Radiology resident in July 2018. The IR resident will complete three years of DR training before transitioning to a focused IR training program for two years.

I am pleased that *US News & World Report* and *Doximity* once again named the UCSF Diagnostic Radiology residency a top program using a peer review ranking of 66,000 nominations submitted by board-certified physicians.

Outstanding Support

I would like to acknowledge the incredible network of UCSF faculty, teachers, and support staff from within and outside the department who care about and have supported the residency program.

First and foremost, I am grateful to Ron Arenson, MD, who during his time as chairman, actively supported the residency training program and all educational training in the department. He created a culture that values education, collaboration, and respect.

I am incredibly fortunate to be supported in my work as program director by two hard-working assistant program directors, Jason Talbott, MD, PhD, at Zuckerberg San Francisco General and Stefanie Weinstein, MD, at the Veterans Affairs Medical Center. Both are instrumental components of our efforts.

Our three outgoing chief residents, Spencer Lake, MD, Zhixi Li, MD, and Luis Gutierrez, MD, worked very hard to make the past year a beneficial one for our trainees, and all three have stayed on as fellows this year. In June, we welcomed three new chiefs who willingly stepped forward to assume new responsibilities: Emily Edwards, MD, Michael Heller, MD, and Phelps Kelley, MD.

I would also like to acknowledge the many dedicated teachers throughout the department who prepare and give our teaching conferences. Among them, Spencer Behr, MD, received the 2017 Hideyo Minagi Teaching award for outstanding resident teaching. Rahul Desikan MD, received the 2017 the Outstanding Fellow/Clinical Instructor teaching award for his strong and impactful teaching. Both awardees

BRAD NAKANO

2017–2018 Chief Diagnostic Radiology Residents (l–r): Emily Edwards, MD, Phelps Kelley, MD, Michael Heller, MD.

were selected by the residents themselves, which is truly a tribute to the focus and commitment these two teachers have shown to our residents.

I would like to thank Brett Mollard, MD, a recent fellowship graduate, now in private practice at TRA Medical Imaging in Tacoma, Washington, for traveling to UCSF at the invitation of our residents this spring. As the 2017 Residents' Visiting Professor, Mollard gave fantastic teaching sessions geared to the residents' needs and a well-received departmental lecture "Non-Interpretive Skills in Radiology Practice."

Our two residency coordinators, Cindy Flores Gaytan and Sandria Wong, are key to the residency. They have been instrumental in handling the many administrative aspects of the program, including infrastructure and curriculum scheduling.

Over the past five years, many of the residents I trained have assumed their own leadership roles, whether in private practice or at academic institutions, and have brought with them the foundation in excellence that came from their UCSF training years. As I look back, I feel fortunate that I have been able to work with, and continue to work with the best radiology residents in the country.

Resident Accomplishments 2017

Awards:

Michael Heller, MD: Certificate of Merit, Best Abstract, RSNA, 2016

Best Abstract Award, Digestive Disease Interventions Conference, 2016

Yilun Koethe, MD: Certificate of Merit, American Roentgen Ray Society, 2017

Zhixi Li, MD: Elmer Ng Award for Outstanding Resident 2017

Jae Ho Sohn, MD: Stanford Health++ Hackathon Global Oncology Award

Hari Trivedi, MD: UCSF Radiology and Biomedical Imaging, Margulis Society Outstanding Resident Research Award

Maya Vella, MD: Julius Krevans Award 2017, ZSFGH

Service:

Colin Burke, MD: Residency Program Social co-chair

Lindsay Busby, MD, MPH: resident representative, Infection Control Committee, UCSF; member, Committee on Practice Parameters—Body Imaging, ABR

Adam Coy, MD: member, UCSF School of Medicine Dean's Communication Advisory Board

Mithun Diwakar, MD: instructor, Imaging Physics for first year-diagnostic radiology residents

Emily Edwards, MD: chief resident; Resident Quality Improvement project leader, UCSF GME QI Incentive Program 2016–2017

James Frencher, MD, PhD: HIV/STI tester, UCSF Alliance Health Project; reviewer, *American Journal of Respiratory and Critical Care Medicine*

Michael Heller, MD: chief resident; Department of Radiology and Biomedical Imaging resident liaison for UCSF Medical Student Education; resident director, Radiology Primer elective; instructor, Bay Area IR Medical Student Symposium

Eric Jordan, MD: member, Public Information Committee, RSNA: member Public Information Advisors Network, RSNA

Phelps Kelley, MD: chief resident; PGY5 Margulis Society resident representative

Benjamin Laguna, MD: Department of Radiology and Biomedical Imaging resident liaison for Medical Student Education; PGY4 Margulis Society resident representative

Courtnay Lawhn Heath, MD: 2017–2019 intern, Society of Nuclear Medicine and Molecular Imaging Clinical Trials Network

Bryce Merritt, MD: Radiology and Biomedical Imaging Quality Assurance co-chair

Jae Ho Sohn, MD, MS: volunteer provider, City Team, San Francisco Free Clinic for Homeless; reviewer, *Journal of Digital Imaging*; reviewer, *Journal of Rare Diseases & Orphaned Drugs*

Daniel Sonshine, MD: union liaison, Radiology Residency, UCSF-wide resident union effort

Alexandra Wright, MD: Residency Program Social co-chair; PGY3 Margulis Society resident representative

Presentations:

Matthew Barkovich, MD: poster, "Quantitative Morphometric Evaluation of Subcortical Regions in Neurofibromatosis Type 1," UCSF RIRS 2017; poster, "Regional NF1 Gene Expression: Implications for Neurofibromatosis Type I Pathobiology," ASNR 2017, poster, "Clinical Decision Support and Appropriate Use Criteria: Complying with PAMA While Improving Usefulness of Imaging," RSNA, 2016

Lindsay Busby, MD, MPH: oral presentation, "Did You Miss Me? Bias in Radiology: The How and Why of Misses and Misinterpretations." RSNA 2016; oral presentation, "Incidental Pulmonary Embolism in Asymptomatic Cancer Patients: Incidence of Treatment Related Adverse Outcomes," NASCI 2016; educational exhibit, "Roses are Red but the Patient is Blue: Delayed Diagnosis in a Case of Smoldering Sporotrichal Monoarthopathy," ISS, 2016

2017 Elmer Ng award recipient Zhixi Li,MD with Chair Ron Arenson, MD.

William Carson, MD: "Primary Mucosal Melanoma of the Lacrimal Sac and Nasolacrimal Duct: A Case Report," ASNR 2017; "The Great Oligodendroglioma Mimicker: Supratentorial Astroblastoma Containing a Single Macrocalcification in a 31-Year-Old Woman,",ASNR 2017

Emily Edwards, MD: poster, GME Resident and Fellow Quality Improvement Incentive Program Symposium, UCSF 2017; educational exhibit, "Go With The Flow: Non-Contrast Angiographic Imaging in Pediatric Body MRI," SPR, 2017

Michael Heller, MD: oral presentation, "Bridging to Liver Transplant: Role of Percutaneous Ethanol Injection in Patients with Hepatocellular Carcinoma and Marginal Hepatic Reserve," DDI, 2016

Robert Hicks, MD: poster, "Variable Refocusing Flip-Angle Single Shot Fast Spin Echo Imaging of Liver Lesions: Increased Speed and Lesion Contrast," ISMRM, 2017

Eric Jordan, MD: oral presentation, "Evaluating the Additional Utility of ADC Values to PI-RADS v2," RSNA 2016; poster, "Evaluating the Performance of PI-RADS v2 in the Non-Academic Setting," RSNA 2016

Yilun Koethe, MD: oral presentation, "U Can't Touch This! Imaging and Management of Uterine Arteriovenous Malformation," ARRS 2017; educational exhibit, "Quarantine! Granulomatous Mastitis of the Breast," ARRS 2017.

Courtnay Lawhn Heath, MD: oral presentation, "Scatter Artifact with 68Ga-PSMA-11 PET: Severity Reduced with Furosemide Diuresis and Improved Time-Of-Flight Scatter Correction," Society of Nuclear Medicine and Molecular Imaging, 2017; educational exhibit and oral presentation, "Incidentalomas on FDG PET/CT: Differentials and Management," ARRS, 2017; educational exhibit and oral presentation, "FDG PET/CT Artifacts and Physiologic Uptake: Pearls and Pitfalls," ARRS, 2017

Aaron Losey, MD: "Musculoskeletal Applications of MR-Guided Focused Ultrasound Ablation," ARRS, 2017

Bryce Merritt, MD: "Imaging Characteristics of Gliosarcoma with Special Emphases on Dural Involvement at Initial Presentation and at Recurrence," ASNR 2017

Jae Ho Sohn, MD, MS: "Structured Categorization of Medical Images Using Free-text Radiology Reports: Building the Next ImageNet for Radiology," AIMed 2016; "CT Imaging Characteristic of Intrapulmonary Lymph Nodes in Pediatric Patients with Pathological Correlation," SPR 2017; poster, "Automatic Determination of the Need for Intravenous Contrast in Musculoskeletal MRI Examinations using a Machine Learning Based Natural Language Processing Algorithm," SIIM 2017; oral presentation,"Development and Validation of Machine Learning Based Natural Language Classifiers to Automatically Assign MRI Abdomen/Pelvis Protocols from Free-Text Clinical Indications," SIIM 2017; "Development of a Robustly Labeled Pathology Database for Prediction of Breast Cancer through Deep Learning of Mammographic Images," DAHSHU 2017; "Automated Localization and Characterization of Lung Cancer from Chest CT using Deep Learning," KOLIS 2017; "Data-driven Lung Cancer Risk Stratification of Pulmonary Nodules in Chest CT Using 3-D Convolutional Neural Network," UCSF RIRS 2017

Vanja Varenika, MD: Poster,"The Posterolateral Approach for Tibiotalar Joint Injection," SSR, 2017; poster, "Osteochondroses, Differential Considerations and Recent Developments," AUR 2017

Grants:

Matthew Barkovich, MD: NIH Biomedical Imaging for Clinician Scientist Training Grant (T32)

Lindsay Busby, MD, MPH: NIH Biomedical Imaging for Clinician Scientist Training Grant (T32)

Kevin Connolly, MD: Department of Radiology and Biomedical Imaging seed grant

Courtnay Lawhn Heath, MD: Radiology/Radiation Oncology seed grant

Joseph Leach, MD, PhD: NIH Biomedical Imaging for Clinician Scientist Training Grant (T32)

Jae Ho Sohn, MD, MS: UCSF CTSI Resident Research Grant; UCSF CTSI Resident Travel Grant; NVIDIA Academic Grant; Radiology and Biomedical Imaging seed grant, ISMRM educational stipend

PGY2 Residents: Class of 2021


BRAD NAKANO

Justin Bañaga, MD

2016–2017 PGY1 PGY1 Santa Clara Valley Medical Center, San Jose, CA

MD 2016 University of California, San Francisco, School of Medicine

Service:

2012–2017 Mabuhay Health Center, Clinic Coordinator and Volunteer

2013–2017 UCSF School of Medicine Admissions Advisory Committee

Research:

2013–2016 UCSF Department of Radiology and Biomedical Imaging, Neurointerventional Section

2010–2012 University of California, Los Angeles, Dr. Yibin Wang Laboratory


BRAD NAKANO

Evan Calabrese, MD, PhD

2016–2017 PGY1 Kaiser Permanente Medical Center, San Francisco, CA

MD 2016 Duke University, School of Medicine, Durham, NC

PhD 2016 Duke University School of Medicine, Durham, NC

Honors and Awards:

2014–2017 Junior Fellow, International Society for Magnetic Resonance in Medicine

2012 AHA Top 10 Abstract Award, Stroke Symposium

Research:

2010–2016 Emory University, Dr. G. Allan Johnson Laboratory

Selected Publications:

Calabrese E. Diffusion Tractography in Deep Brain Stimulation Surgery: A Review. *Front Neuroanat.* 2016 May 2;10:45.

Calabrese E, Badea A, Cofer G, Qi Y, Johnson GA. A Diffusion MRI Tractography Connectome of the Mouse Brain and Comparison with Neuronal Tracer Data. Oxford University Press; *Cereb Cortex*. 2015 Nov;25(11):4628-37.


BRAD NAKANO

Dylan T. Crebs, MD

2016–2017 PGY1 Iowa Methodist Medical Center, Des Moines

MD 2016 University of Iowa, Carver College of Medicine, Des Moines

Honors and Awards:

2015 Alpha Omega Alpha

2013 McClintock Award, University of Iowa, Carver College of Medicine

Research:

2013 University of Iowa, Carver College of Medicine, Department of Orthopedics, John P. Albright, MD

Selected Publications:

Crebs DT, Anthony CA, McCunniff PT, Nieto MJ, Beckert MW, Albright JP. Effectiveness of Fulkerson Osteotomy with Femoral Nerve Stimulation for Patients with Severe Femoral Trochlear Dysplasia. *J Iowa Orthop J.* 2015;35:34-41.


BRAD NAKANO

Tyler J. Gleason, MD

2016–2017 PGY1 Reading Health System, Reading, PA

MD 2016 Emory University, Atlanta, GA

Honors and Awards:

2015–2016 Hoffman Scholarship, Emory University, Atlanta, GA

Research:

2014–2016 Emory University Department of Radiology, Neuroradiology Section

2010–2012 Emory University Department of Human Genetics

Selected Publications:

Dehkharghani S, Bowen M, Haussen DC, **Gleason TJ**, Prater A, Cai Q, Kang J, Nogueira RG. Body Temperature Modulates Infarction Growth following Endovascular Reperfusion. *AJNR Am J Neuroradiol.* 2017 Jan;38(1):46-51.

Dehkharghani S, Bammer R, Straka M, Bowen M, Rangaraju S, Allen J, Kang J, **Gleason TJ**, Nahab F. Performance of CT ASPECTS and Collateral Score in Risk Stratification: Can Target Perfusion Profiles Be Predicted without Perfusion Imaging? *AJNR Am J Neuroradiol.* 2016 Aug;37(8):1399-404.

Ryan EL, Lynch ME, Taddeo E, **Gleason TJ**, Epstein MP, Fridovich-Keil JL. Cryptic Residual GALT Activity Is a Potential Modifier of Scholastic Outcome In School Age Children With Classic Galactosemia. *J Inherit Metab Dis*. 2013 Nov;36(6):1049-61.


BRAD NAKANO

Karl Grunseich, MD

2016–2017 PGY1 Scripps Mercy Hospital, San Diego, CA

MD 2016 Yale School of Medicine, New Haven, CT

Research:

2014–2016 Yale School of Medicine, Cardiac MRI Research

2012 Yale School of Medicine, Summer Research Fellowship

Selected Publications:

Peters DC, Duncan JS, **Grunseich K**, Marieb MA, Cornfeld D, Sinusas AJ, Chelikani S. CMR-Verified Lower LA Strain in the Presence of Regional Atrial Fibrosis in Atrial Fibrillation. *JACC Cardiovasc Imaging.* 2017 Feb;10(2):207-208.

Sharkey MS, **Grunseich K**, Carpenter TO. Contemporary Medical and Surgical Management of X-linked Hypophosphatemic Rickets. *J Am Acad Orthop Surg.* 2015 Jul;23(7):433-42. Review.


BRAD NAKANO

James (Matthew) Kerchberger, MD, MPH

2016–2017 PGY1 Emory University Hospital, Atlanta, GA

MD 2016 Emory University, School of Medicine, Atlanta, GA

MPH 2016 Emory University, Rollins School of Public Health, Atlanta, GA

Honors and Awards:

2015 Alpha Omega Alpha

2015 Delta Omega Honor Society in Public Health

Selected Publications:

Hanna TN, Shuaib W, **Kerchberger JM**, Johnson JO, Khosa F. Inefficient Resource Use for Patients Who Receive Both a Chest Radiograph and Chest CT in a Single Emergency Department Visit. *Am Coll Radiol.* 2016 Jan;13(1):21-7.

Hanna TN, Shekhani H, Zygmont ME, **Kerchberger JM**, Johnson JO. Incidental Findings in Emergency Imaging: Frequency, Recommendations, and Compliance with Consensus Guidelines. *Emerg Radiol.* 2016 Apr;23(2):169-74.

Zygmont ME, Shekhani H, **Kerchberger JM**, Johnson JO, Hanna TN. Point-of-Care Reference Materials Increase Practice Compliance with Societal Guidelines for Incidental Findings in Emergency Imaging. *J Am Coll Radiol.* 2016 Dec;13(12 Pt A):1494-1500.


BRAD NAKANO

Yoon-Jin Kim, MD

2016–2017 PGY1 Emory University Hospital, Atlanta, GA

MD 2016 Emory University, School of Medicine, Atlanta, GA

Service:

2014–2016 Board Member, Medical Students for Choice

2013 Volunteer, Haiti, Emory University Medishare Program

Honors and Awards:

2015 RSNA Medical Student Research Grant


BRAD NAKANO

Sage Kramer, MD

2016–2017 PGY1 Carolinas Medical Center, Charlotte, NC

MD 2016 University of Kentucky, Lexington, KY

Honors and Awards:

2014 Wellington B. Stewart Scholarship

Research:

2012–2014 Kentucky Children's Hospital, Lexington, KY

2011–2012 Virginia Commonwealth University Department of Physiology and Biophysics, Richmond, VA

Selected Publications:

Kim S, **Kramer S**, Dugan A, Minion D, Gurley J, Davenport D, Ferraris V, and Saha S. Cost Analysis of Iliac Stenting Performed in the Operating Room and the Catheterization Lab: A Case-Control Study. *Int J Surg.* 2016 Dec;36(Pt A):1-7.

Echiverri K, **Kramer S**, and Raissi D. (2015) "Aortoiliac and Left Common Iliac Penetrating Aortic Ulcers with Stent Graft Repair: A Case Report." *ACR: Case in Point*.

Haggerty C, **Kramer S**, Skrinjar O, Binkley C, Powell D, Mattingly A, Epstein F, and Fornwalt B. Quantification of Left Ventricular Volumes, Mass, And Ejection Fraction Using Cine Displacement Encoding with Stimulated Echoes (DENSE) MRI. *J Magn Reson Imaging.* 2014 Aug;40(2):398-406.


BRAD NAKANO

Olivia Linden, MD

2016–2017 PGY1 Cambridge Health Alliance, Cambridge, MA

MD 2016 Brown University, Providence, RI

Honors and Awards:

2016 Brown Sigma Xi Award

2012 Phi Beta Kappa

Selected Publications:

Lee K, Higgins W, **Linden O**, Cruz A. Gender differences in tumor and patient characteristics in those undergoing Mohs surgery. *Dermatol Surg.* 2014 Jun;40(6):686-90.

Linden O, Taylor HO, Vasudavan S, Byrne M, Deutsch C, Mulliken JB, Sullivan SR. Nasal Symmetry: Three Dimensional Photogrammetric Analysis of Patients with Cleft Lip/Palate and Normal Controls. *Plastic and Reconstructive Surgery*. April 2014, 133 (Suppl): 1026.

Linden OE, Baratta VM, Byrne MM, Klinge PM, Sullivan SR, Taylor HO. Abstract 84: Surgical Correction for Metopic Craniosynostosis: A 3D Photogrammetric Analysis of Cranial Vault Outcomes. *Plastic and Reconstructive Surgery.* May 2015; 135(5S Suppl): 63-64.


BRAD NAKANO

Milan Manchandia, MD

2016–2017 PGY1 Mount Auburn Hospital, Cambridge, MA

MD 2016 Harvard Medical School, Boston, MA

Honors and Awards:

2015 Society of Interventional Radiology Medical Student Travel Scholarship

2015 Radiological Society of North America Research Medical Student Grant

Research:

2012–2013 Massachusetts General Hospital, Center for Regenerative Medicine

2008–2011 Stanford Hospital and Clinics, Institute for Stem Cell Biology and Regenerative Medicine

Selected Publications:

Shamloo A*, Manchandia M*, Ferreira M, Mani M, Nguyen C, Jahn T, Weinberg K, Heilshorn S. Complex Chemoattractive and Chemorepellent Kit Signals revealed by Direct Imaging of Murine Mast Cells in Microfluidic Gradient Chambers. *Integr Biol (Camb).* 2013 Aug;5(8):1076-85. *Authors contributed equally to this work.


BRAD NAKANO

Matthew Mikhail, MD

2016–2017 PGY1 Yale-Waterbury Internal Medicine Program, Waterbury, CT

MD 2016 Yale University, New Haven, CT

Honors and Awards:

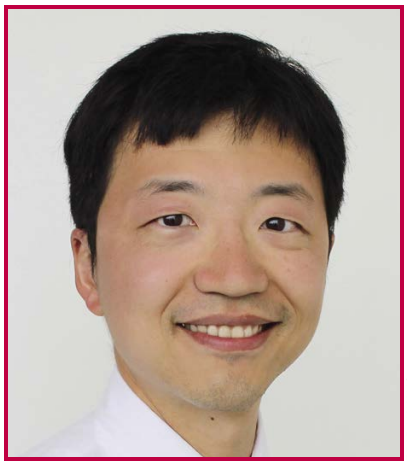
2014 Richard K. Gershon MD Student Research Fellow, Yale University, New Haven, CT

2011 Tau Beta Pi Engineering Honors Society

Research:

2014–2015 Dr. Kirk Shelley, Yale University, Department of Anesthesia

2012 Yale University, Department of Biomedical Engineering, Dr. Mark Saltzman


BRAD NAKANO

Jaehoon Shin, MD, PhD

2016–2017 PGY1 MedStar Harbor Hospital, Baltimore, MD

MD 2008 Seoul National University, Seoul, South Korea

PhD 2016 Johns Hopkins, Baltimore, MD

Honors and Awards:

2010–2015 Samsung Scholarship, Samsung Foundation, Korea

2006–2008 Doosan Scholarship, Yeonkang Foundation, Korea

Research:

2010–2016 Institute for Cell Engineering, Johns Hopkins Medical Institutions, Baltimore

MD 2009–2010 Department of Chemical Engineering, Seoul National University, South Korea

Selected Publications:

Su Y, Shin J, Zhong C, Wang S, Roychowdhury P, Lim J, Kim D, Ming GL, Song H. Neuronal Activity Modifies the Chromatin Accessibility Landscape in the Adult Brain. *Nat Neurosci.* 2017 Mar;20(3):476-483.

Shin J, Berg DA, Zhu Y, Shin JY, Song J, Bonaguidi MA, Enikolopov G, Nauen DW, Christian KM, Ming GL, Song H. Single-Cell RNA-Seq with Waterfall Reveals Molecular Cascades underlying Adult Neurogenesis. *Cell Stem Cell.* 2015 Sep 3;17(3):360-72.

Shin J, Ming GL, Song H. Molecular toggle switch of histone demethylase LSD1. Mol Cell. 2015 Mar 19;57(6): 949-50.


BRAD NAKANO

Brian Trinh, MD

2016–2017 PGY1 University of California, Los Angeles

MD 2016 Northwestern University Feinberg School of Medicine, Chicago, IL

Honors and Awards:

2016 RSNA Student Travel Award

Research:

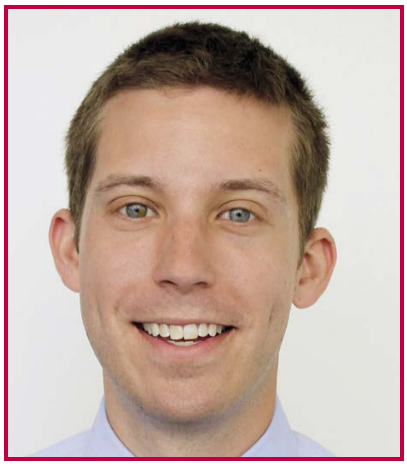
2015–2016 Northwestern University Feinberg School of Medicine, Department of Radiology

2012–2014 Northwestern University Feinberg School of Medicine, Department of Pulmonary Critical Care

Selected Publications:

Trinh B, Dubin I, Rahman O, Ferreira Botelho MP, Naro N, Carr JC, Collins JD, Barker AJ. Aortic Volumetry at Contrast-Enhanced Magnetic Resonance Angiography: Feasibility as a Sensitive Method for Monitoring Bicuspid Aortic Valve Aortopathy. *Invest Radiol.* 2017 Apr;52(4):216-222.

Frogameni A, Smith S, Trinh B, Grace B, Russell S, Weiss CH, Waterer GW, Wunderink RG. Healthcare-associated Pneumonia (HCAP) Versus Community-acquired Pneumonia (CAP): Microbiology Data and Mortality Outcomes. *Am J Respir Crit Care Med.* 189 (2014), A6524.


BRAD NAKANO

Mark Winkler, MD

2016–2017 PGY1 Riverside Regional Medical Center, Newport News, VA

MD 2016 Duke University, Durham, NC

Honors and Awards:

2016 Duke Medicine Academic Achievement Award

Service:

2013 Volunteer, LEAP: Education and outreach program for Latin American Elementary School Students

2011–2012 Clinic Assistant, Nuestros Pequeños Hermanos Guatemala, Parramos, Guatemala

Diagnostic Radiology Residents: 2017–2018

Second-Year Residents (PGY3)

Katherine Bruksch, MD
Mithun Diwakar, MD, PhD
James Frencher, MD, PhD
Robert Hicks, MD
Jessica Hightower, MD
Jonathan Jo, MD
Kathleen Kinzer, MD
Ryan Navarro, MD, MS
Kesav Raghavan, MD
Jae Ho Sohn, MD, MS
Daniel Treister, MD
Maya Vella, MD
Shrilakshmi (Shri) Vyas, MD
Alexandra Wright, MD

Third-Year Residents (PGY4)

Colin Burke, MD
Andrew Callen, MD
Maureen (Molly) Chapman, MD
John Colby, MD, PhD
Adam Coy, MD
Kirema Garcia-Reyes, MD
Yilun Koethe, MD
Benjamin Laguna, MD
Courtney Lawhn Heath, MD
Aaron Losey, MD, MS
Bryce Merritt, MD
Ashley Oladipo, MD
Yujie Qiao, MD
Adam Schwertner, MD

Fourth-Year Residents (PGY5)

Matthew Barkovich, MD
Lindsay Busby, MD, MPH
Kevin Connolly, MD
Jason Curtis, MD
Emily Edwards, MD
Michael Heller, MD
Neeta Kannan, MD
Phelps Kelley, MD
Mai Le, MD
Joseph Leach, MD, PhD
Patrick Mulligan, MD
Adi Price, MD
Daniel Sonshine, MD

Radiology Residency Graduates: Class of 2017

Congratulations to our 2017 graduates. We wish them success in their new fellowship positions.

Residents in Diagnostic Radiology

Deddeh M. Ballah, MD
Fellowship, Vascular Interventional Radiology, UCSF

Miguel Cabarrus, MD
Fellowship, Abdominal Imaging/ Ultrasound, UCSF

William G. Carson III, MD
Fellowship, Neuroradiolgy, UCSF

Kavi Devulapalli, MD, MPH
Fellowship, Interventional Radiology, University of North Carolina, Chapel Hill

Luis B. Gutierrez, MD
Fellowship, Musculoskeletal Radiology, UCSF

Daniel S. Hendry, MD
Fellowship, Vascular Interventional Radiology, UCSF

Michael G. Holmes, MD
Fellowship, Neuroradiology, UCSF

Brandon M. Ishaque, MD
Fellowship, Vascular Interventional Radiology, UCSF

Eric J. Jordan, MD
Fellowship, Abdominal Imaging/ Ultrasound, UCSF

Spencer T. Lake, MD
Fellowship, Abdominal Imaging/ Ultrasound, UCSF

Zhixi Li, MD
Fellowship, Neuroradiology, UCSF

Hari M. Trivedi, MD
Fellowship, Musculoskeletal Radiology, UCSF

Vanja Varenika, MD
Fellowship, Musculoskeletal Radiology, UCSF

Jennifer Jen-wei Wan, MD
Fellowship, Vascular Interventional Radiology, UCSF

CINDY CHEW

2017 Diagnostic Radiology Residency Program Graduates: (l–r back row) Vanja Varenika, MD, William Carson, MD, Michael Holmes, MD, Spencer Lake, MD, Kavi Devulapalli, MD, Miguel Cabarrus, MD, Brandon Ishaque, MD, Zhixi Li, MD, Hari Trivedi, MD. (l–r front row) Chairman Ronald L. Arenson, MD, Daniel Hendry, MD, Eric Jordan, MD, Jennifer Wan, MD, Deddeh Ballah, MD, Luis Gutierrez, MD, Program Director Soonmee Cha, MD

Clinical Fellows and Instructors: 2017–2018

Clinical Fellows:

Mariam Aboian, MD, PhD
Neuroradiology

Armonde Baghdanian, MD
Abdominal Imaging

Arthur Baghdanian, MD
Abdominal Imaging

Jason Bailey, MD
Abdominal Imaging

Deddeh Ballah, MD
Vascular and Interventional

Christopher Bedford, MD
Abdominal Imaging

Danial Bokhari, MD
Pediatric Radiology

Miguel Cabarrus, MD
Abdominal Imaging/Ultrasound

William Carson, MD
Neuroradiology

Peter Chang, MD
Neuroradiology/T32

Christina Chen, MD
Breast Imaging

Robert Darflinger, MD
Neurointerventional

Brittany Dashevsky, MD
Breast Imaging

Garrett DeJesus, MD
Abdominal Imaging

Laura Eisenmenger, MD
Neuroradiology

Jill Fay, MD
Breast Imaging/Ultrasound

Eric Flagg, MD
Cardiac and Pulmonary Imaging

Luis Gutierrez, MD
Musculoskeletal

Katryana Hanley-Knutson, MD
Abdominal Imaging

Daniel Hendry, MD
Vascular and Interventional

Michael Holmes, MD
Neuroradiology

Brandon Ishaque, MD
Vascular and Interventional

Eric Jordan, MD
Abdominal Imaging/Ultrasound

Tatiana Kelil, MD
Breast Imaging/Ultrasound

Rajkamal Khangura, MD
Neurointerventional

Priya Krishnarao, MD
Breast Imaging/Ultrasound

Nicole Kurzbard-Roach, MD
Breast Imaging/Ultrasound

Spencer Lake, MD
Abdominal Imaging/Ultrasound

Zhixi Li, MD
Neuroradiology

Lawrence Manalo, MD
Breast Imaging

Daniel Murph, MD
Neurointerventional

Vijay Nayak, DO
Abdominal Imaging

Cyrus Raji, MD, PhD
Neuroradiology

Paul Robinson, DO
Musculoskeletal

Elizabeth Tong, MD
Neuroradiology

Dennis Toy, MD
Cardiac and Pulmonary Imaging

Hari Trivedi, MD
Musculoskeletal

Michelle Tsang Mui Chung, MD
Abdominal Imaging

Vanja Varenika, MD
Musculoskeletal

Alana Wade, MD
Vascular and Interventional

Jennifer Wan, MD
Vascular and Interventional

Shota Yamamoto, MD
Neuroradiology

Fan Yang, MD
Neuroradiology

Clinical Instructors:

Yi Li, MD
Neuroradiology

Elliot Dickerson, MD
Neuroradiology

Ari Kane, MD
Neuroradiology

Sam Payabvash, MD
Neuroradiology

Masters of Science in Biomedical Imaging—Still Going Strong

The Masters of Science in Biomedical Imaging (MSBI) program gradated 19 members of the class of 2017 and has welcomed 19 new students for the 2017-18 academic year. Interest in the program continues to be high, with the MSBI program drawing the attention of a wide range of out-of-state and international students, as well as students from the University of California system. The MSBI program is designed to bring students with diverse backgrounds rapidly up to speed on the scientific underpinnings of medical imaging technologies. Students entering the program typically have an undergraduate degree in engineering or the physical or biological sciences. The class of 2017 also had two students with MD degrees.

The MSBI faculty features 14 professors from the Department of Radiology and Biomedical Imaging, under the leadership of Program Director David Saloner, PhD, Director of Graduate Studies Alastair Martin, PhD, and Program Administrator Rukayah Abdolcader. This year, Susan Noworolski, PhD, joined the administrative team as an academic advisor. Clinical faculty also contribute to the MSBI program, giving guest lectures that highlight the real-world applications of medical imaging.

Classroom Learning Supports Hands-On Experiences

The MSBI core courses deliver in-depth training in the principles of *in-vivo* imaging modalities. Students also choose from a wide set of electives related to imaging applications for major diseases and different organ systems. The program covers all major medical imaging technologies, as well as topics such as image processing and research study design.

Following their coursework, students bring the various elements of their learning together in applied research projects, working with faculty supervisors or as interns with industry partners. MSBI students benefit from the department's wide range of state-of-the-art imaging facilities. The students consistently report that the hands-on activities, where they get to operate and perform experiments using these imaging systems, are the highlight of the MSBI program.

A high percentage of MSBI students remain through the summer academic quarter to apply their newly honed skills on a wide range of research projects under the supervision of UCSF faculty. These projects culminate in the MSBI Imaging Symposium, held in late August, where the students' research accomplishments are highlighted.

MBSI Graduates Move On

Our graduates have been exceptionally successful. Twenty-four have continued on to medical or dental school and another 15 have entered PhD programs. Others have continued the research work they began as students in labs throughout the department or have moved on to industry opportunities.

CINDY CHEW

UCSF Masters of Science in Biomedical Imaging Class of 2017

The RIDR Program: Mentoring the Future of Imaging Research

Diversity and inclusion within health care improve access, quality of care, patient experiences, and health outcomes. Toward that end, the department's Research Initiative to Promote Diversity in Radiology pipeline program (RIDR) debuted in the summer of 2017. It is a research and academic career development program funded by the Department of Radiology and Biomedical Imaging.

The program provides tailored research experiences and focused mentorship to students from groups historically underrepresented in radiology—women and races/ethnicities underrepresented in medicine—as well as students who are at risk for systemic discrimination (for example, related to disability, national origin, socioeconomic or LGBT status), as well as those who feel they can contribute to promoting a culture of inclusion. "The goal is to provide an early opportunity for diverse students to explore radiology as a career choice and support the next wave of innovation in the field," said Matthew Bucknor, MD, assistant professor and chair of the department's Diversity and Inclusion committee, which developed RIDR.

Five students participated in RIDR in 2017:

Anna Vardapetyan, a senior at Fremont High School, worked with Steven Hetts, MD, and Mark Wilson, MD, in the Interventional Radiology Lab to study how machine learning could be used to enhance the performance of the ChemoFilter device, a novel endovascular device concept that uses mechanistic approaches to clear various chemotherapeutic agents.

Christina Miller, a junior at Mountain View High School, worked with Dr. Hetts in the IR lab, investigating the use of magnetic nanoparticles for improved endovascular drug delivery.

Ayushi Gautam, a sophomore at Johns Hopkins University, also worked with Drs. Hetts and Wilson in the IR lab to develop a ChemoFilter prototype specific for Cisplatin.

Bannet Muhoozi, a second-year medical student at the University of California, San Diego, worked with David Naeger, MD, to assess the impact of diagnostic radiology involvement on radiation oncology treatment planning for thoracic tumors, in addition to engaging in computational liver imaging research with Michael Ohliger, MD, PhD.

Jesus Uribe, a second-year medical student at UCSF, worked with Jesse Courtier, MD, to assess the accuracy and precision of 3-D augmented reality holographic models derived from CT scans, and worked with Bhavya Rehani, MD, on assessments of acute stroke care in underdeveloped nations.

In addition to continuing the RIDR program, the Diversity and Inclusion Committee will develop programs for visiting medical student electives and high school shadowing experiences in the coming year.

Learn more about the RIDR program and the Diversity and Inclusion Committee:

- radiology.ucsf.edu/about/diversity/RIDR-program
- radiology.ucsf.edu/about/diversity

BRAD NAKANO

RIDR Program 2017. Back Row (l–r): Jesus Uribe, Dr. Matt Bucknor, chair, Diversity and Inclusion committee, Bannet Muhoozi
Front Row: (l–r): Anna Vardapetyan, Ayushi Gautam, Christina Miller

Goldberg Center

Tomas Bolivar

BRAD NAKANO

UCSF Medical students tour a CT suite with David Naeger, MD.

The Goldberg Center for Advanced Imaging Education has been a busy place this year as we continually strive to improve medical student education in radiology at UCSF.

UCSF is now more than a year into its new Bridges curriculum for the School of Medicine. As one component of this new curriculum, UCSF students will have regular medical imaging instruction by radiologists incorporated into their clinical clerkship year. Goals include teaching students about the appropriate utilization of imaging exams that will guide them in their management of patients on the wards. Teaching this high-yield information from the outset of their clinical training aims to produce more informed, efficient physicians. Goldberg faculty are hard at work devising new teaching materials for this exciting endeavor.

The biggest change to the Goldberg Center in the past year was the addition of Tomas Bolivar as our terrific new Medical Student Education coordinator. He is the backbone of all the Center's activities and programs; without his tireless efforts, everything would likely screech to a halt. We are lucky to have recruited him to our education team. If you haven't met Tomas yet, please stop by and say hello.

Kudos to our Education Team

The faculty and resident members of the Medical Student Education Committee supervise the Goldberg Center's medical student programs. Our resident representatives include Ben Laguna, MD, our new resident liaison for Medical Student Education, and Michael Heller, MD, who remains on the committee after completing his liaison year as the new resident director for the Radiology Primer elective. Emily Webb, MD, and David Naeger, MD, continue to serve as co-chairs of the committee and longtime committee member Andrew Phelps, MD, has taken on a larger role in medical student education and is helping lead the transition to the new Bridges curriculum. Committee members include: Brett Elicker, MD, Vickie Feldstein, MD, Stefanie Weinstein, MD, Lynne Steinbach, MD, Miles Conrad, MD, Elissa Price, MD, Evan Lehrman, MD, and Khai Vu, MD. They have all been asked to step up efforts recently due to all the innovations.

Spencer Behr, MD, has been long recognized as an outstanding teacher in the Department of Radiology and Biomedical Imaging. This year he impressively won both the Hideyo Minagi Teacher of the Year award for resident education and a Haile T. Debas Academy of Medical Educators Outstanding Teaching Award for Excellence in Teaching for his efforts in medical student education. Dr. Emily Webb won the Outstanding Medical Student Teaching Award for the Department of Radiology and Biomedical Imaging. Dr. David Naeger was named associate chair for education in the Department of Radiology and Biomedical Imaging.

In addition, many UCSF faculty, volunteer faculty, fellows, and residents give generously of their time in our programs. We, and the UCSF medical students who benefit directly from their contributions and time, truly appreciate their efforts.

For more information about the Goldberg Learning Center's activities, please contact Tomas Bolivar (Tomas.Bolivar@ucsf.edu) or visit radiology.ucsf.edu/education/medical-students.

The Henry I. Goldberg Center for Advanced Imaging Education is the headquarters for all medical student education in the Department of Radiology and Biomedical Imaging. The Center oversees radiology instruction in the pre-clinical curriculum, provides a course during clinical clerkships on appropriate use of diagnostic tests, provides lectures to senior students and a variety of radiology electives spanning both clinical applications of radiology and imaging research, and offers career advising and mentoring to UCSF medical students.

Radiology Continuing Medical Education

Highlights

Participation in our Summer 2017 course, Imaging Update in the Canadian Rockies, held at the Fairmont Banff, topped 120 attendees. Brett Elicker, MD, chaired the course, with other UCSF faculty in attendance: Christine Glastonbury, MBBS; Bonnie Joe, MD, PhD; Maureen Kohi, MD; Tara Morgan, MD; and Ron Zagoria, MD.

Looking Forward to 2018

Next year, we'll continue to offer our signature courses in Kona, Hawaii, as well as many other CME opportunities in the Bay Area. You'll find a complete listing of CME offerings on our website, radiology.ucsf.edu/cme/upcoming

The Annual Review course will be hosted at the JW Marriott Hotel in San Francisco Union Square, March 12–16, 2018. This comprehensive review course continues to attract radiologists looking for an opportunity to refresh basic radiology practices. The course offers a detailed review of all systems and modalities, presented by world-renowned UCSF Radiology faculty. More than 20 self-assessment SAM-CME credits will be offered at the course, enough to satisfy the American Board of Radiology continuous certification requirements.

We are offering three new destinations this year:

- Jackson Hole at the Hotel Terra, February 5–8, 2018, UCSF Winter Imaging Update
- Las Vegas at the Four Seasons, September 28–30, 2018, UCSF Imaging Update
- Kauai at the Grand Hyatt Resort, October 14–19, 2018, UCSF Imaging Update

Our UCSF Imaging Update will return to two favorite destinations:

- Bermuda Fairmont Southampton, June 24–29, 2018
- Four Seasons Nevis, December 2–7, 2018.

Mark your calendars and join us at your favorite destination!

Save When Attending UCSF Courses

We reward loyal customers for attending our courses. The UCSF Radiology CME Loyalty Program offers three reward levels: Silver, Gold, and Platinum and discounts 10%, 20% or 30% off registration fees for EVERY course you attend. Please visit our website to learn more about the program, radiology.ucsf.edu/cme/loyalty_program

We hope to see you at future CME courses!

"The Garden Isle" provides the setting for Imaging Update on Kauai in October 2018.

2018 UCSF Radiology Continuing Medical Education Calendar

January 7–12
Breast Imaging & Body MRI
The Fairmont Orchid, Kona, Big Island, HI

January 14–19
Body Imaging: Abdominal & Thoracic
The Fairmont Orchid, Kona, Big Island, HI

January 28–30
Musculoskeletal MR Imaging
Omni Rancho las Palmas Resort, Palm Springs, CA

January 31 – February 2
Abdominal & Pelvic Imaging: CT/MR/US
Omni Rancho las Palmas Resort, Palm Springs, CA

February 5–8
Winter Imaging Update on the Slopes
Hotel Terra, Jackson Hole, WY

February 11–16
Neuro and Musculoskeletal Imaging
The Fairmont Orchid, Kona, Big Island, HI

February 15–16
Prostate Cancer Imaging with Workstations
UCSF, San Francisco, CA

March 12–16
UCSF Radiology Annual Review with Rapid-Fire Cases
JW Marriott Hotel, San Francisco, CA

May 3–4
Prostate Cancer Imaging with Workstations
UCSF, San Francisco, CA

May 5
Sonography Update (ARDMS credit only)
UCSF, San Francisco, CA

May 20–25
Practical Body Imaging at Yosemite
Tenaya Lodge, Fish Camp, CA

In September 2018, UCSF Radiology CME goes to Las Vegas, "the entertainment capital of the world."

June 24–29
Imaging Update in Bermuda
Fairmont, Southampton, Bermuda

August 6–10
Imaging Update in Wine Country
Silverado Resort, Napa, CA

September 17–21
Interventional Radiology Review
UCSF, San Francisco, CA

September 28–30
Imaging Update in Las Vegas
Four Seasons Hotel, Las Vegas, NV

October 14–19
Imaging Update on Kauai
Grand Hyatt Resort, Koloa, Kauai, HI

December 2–7
Imaging Warm-Up in the Caribbean
Four Seasons Resort, Nevis, Caribbean

FOR FURTHER INFORMATION PLEASE CONTACT:

UCSF Radiology Continuing Medical Education

Telephone: 415-476-5731 E-mail: rad-cme@ucsf.edu Fax: 415-476-9213

Course dates, locations, and course titles are subject to change prior to brochure publication.

The Margulis Society

Nick Costouros, MD, became president of the Margulis Society in July. A graduate of the UCSF School of Medicine, Costouros received his degree in 2003, and completed his diagnostic radiology residency in 2008, followed by a fellowship in Nuclear Medicine. In 2015, he received the department's Outstanding Clinical Faculty award. Costouros has been a radiologist at Palo Alto Medical Foundation since 2009.

Sollitto Gala

On March 4, the Margulis Society held its biennial event, the Sollitto Gala at the Olympic Club, Lakeside. More than 200 alumni, faculty, and friends of the department braved the rain to enjoy a festive evening in the historic Lakeside clubhouse, designed by Arthur Brown, Jr. (designer of the San Francisco City Hall), which opened its doors in 1925.

(continued on next page)

Margulis Society Sollitto Gala, March 4, 2017 at the Olympic Club Lakeside

PHOTOGRAPHY BY ELIZABETH FALL

Guests enjoyed a silent auction, buffet dinner, and stellar camaraderie with alumni from many classes in attendance. A highlight of the auction items was a dinner at Gary Danko restaurant to be enjoyed with two residents whose names were selected randomly at the event. Trainees Kirema Garcia-Reyes and Zhixi Li, MD, subsequently went to dinner with Drs. Erik Gaensler and Donna Hoghooghi, who bid jointly on the item.

2017 Research Awardee

The Margulis Society recognized senior resident Hari Trivedi, MD, with its Outstanding Resident Research Award at commencement on June 16. The selection subcommittee noted that the research Trivedi performed during his residency was "novel and potentially groundbreaking," and commented on the "originality and impact" of his work. Trivedi is now a clinical fellow in Musculoskeletal Radiology.

Career Conference 2017

Thank you to our alumni and faculty panelists for turning out to make the 17th annual Margulis Society career evening a valuable experience for our trainees. The career event, held September 13, and once again moderated by Dr. Gaensler, is important to our trainees as they begin their professional journey.

Panelists provided perspectives on current issues facing the radiology community, such as health care financing, insurance, and artificial intelligence in the radiological workplace. Practical information such as how and when to mount an effective radiology job search, interviewing, and selecting a practice or academic setting were also addressed. The Margulis Society is grateful to the many alumni who give back each year by serving as panelists or by agreeing to be on our contact list so trainees wanting to know about your practice may contact you.

Career Conference 2017: Back row (l–r) Drs. Spencer Behr, Ricky Tong, Mark Mamlouk, David Avrin, Om Rawal. Front row (l–r): Drs. Avanti Ambekar, Ronald Arenson, Soonmee Cha, Erik Gaensler

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Alumni News

1967

Charles Gooding, MD, and Gretchen **A.W. Gooding, MD,** (1975), Mill Valley, CA, sent a photo from Christmas 2016.

The Goodings.

1971

David F. Merten, MD, Wilmington, NC, writes that he is "enjoying retirement. My last academic post was emeritus professor of Radiology, chief of Pediatric Radiology at the University of North Carolina at Chapel Hill."

1973

Faye Laing, MD, Washington, DC, former professor of Radiology at UCSF and Harvard University and professor emerita at Georgetown University was honored as a "pioneer in medicine" as she received a Women Making History Award from the National Women's History Museum on May 16, 2017. The mission of this museum, which currently has an online presence, is to raise awareness and honor women with diverse experiences and achievements. When it is built on the National Mall in Washington, DC, it will be the first museum in any nation's capital to showcase the full scope of the history of its women and will serve as a guiding light to people everywhere. For more information, go to: nwhm.org/.

The Women Making History Awards recognize and honor a select group of women who have made a significant contribution to their field and serve as an inspiration to women everywhere. The 2017 honorees are (l–r): Faye Laing, MD; Brig. Gen. Wilma Vaught (USAF, Ret); Laura Bush (former First Lady of the United States); Diane Rehm (former NPR host)' the Honorable Rosie Rios (43rd Treasurer of the United States); and Maj. Gen. Charles Bolden (USMC, Ret., 12th NASA Administrator).

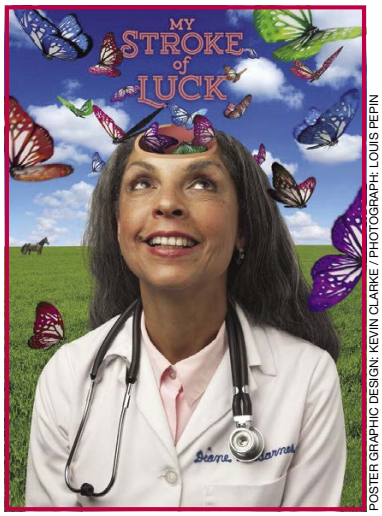
1981

Before his death (see *In Memoriam*, page 44), **William G. Bradley, MD,** San Diego, CA, sent this note about receiving the Association of University Radiologists Gold Medal in May 2017: "The 2017 AUR Gold Medal was actually my fifth along with ISMRM (1989), RSNA (2003), ACR (2012), ARRS (2015). Since these were all a result of the MRI I was introduced to as a resident at UCSF, none of them would have been possible without UCSF and, of course, Alex Margulis, who had the foresight to put money into an unproven technology back in the late 70s."

Society of Chairs of Academic Radiology Departments (SCARD) President Jonathan S. Lewin, MD, FACR (left) after presenting the AUR Gold Medal to William G. Bradley, MD, FACR (right).

1983

Diane Barnes, MD, San Rafael, CA, is no longer practicing, but has a new career. Her dramatic and comedic solo performance, *My Stroke of Luck*, opened at The Marsh San Francisco, on November 2 for a six-week run. This follows performances at the Orlando, London, Vancouver, and Victoria Fringe Festivals, the LA Women's Theater Festival, United Solo Fest in New York City, and the Atlanta Black Theater Festival. It was developed with David Ford and directed by Rebecca Fisher. Barnes says, "Did you



POSTER GRAPHIC DESIGN: KEVIN CLARKE / PHOTOGRAPH: LOUIS PEPIN

Diane M. Barnes appears in *My Stroke of Luck*.

know the average person loses 1.9 million brain cells every minute a stroke goes untreated? I knew; I'm a doctor, a radiologist who diagnoses strokes! But I did not deal with having a stroke very well. It was 21 hours before I drove myself to the hospital! Come see how that worked for out for our family: me, a single parent by adoption and my two biracial, 'tween, sons—one gifted, one special needs."

2000

Christopher J. Schultz, MD, Napa, CA, writes "we are thankful our family and property are safe despite the extensive fires that impacted the Napa Valley this fall—the Napa community is resilient, rebuilding and remains 'open' and ready to welcome your next visit." He shared a family photo from Hawaii, summer 2017.

The Schultz family (l–r): Sheila, Presley, Kingston, Kennedy, and Chris, just before going out on the ocean in a Hawaiian outrigger canoe.

2002

Harold Litt, MD, Philadelphia, PA, has accepted the position of chief of the Cardiothoracic Imaging Division in the Department of Radiology at Penn Medicine.

2008

Derk D. Purcell, MD, Mill Valley, CA, received the Department of Radiology and Biomedical Imaging's Outstanding Clinical Faculty Award, presented at the 2017 Commencement.

Derk Purcell, MD (right) is awarded by Christopher Hess, MD (left).

Rainer Poley climbed to the summit of Mt. Rainier in Mt. Rainier National Park, Washington state.

2010

Rainer N. Poley, MD, Austin, TX, sends a photo taken from Mt. Rainier in July 2017.

Christina and Mark Mamlouk with Nicholas.

2014

Mark Mamlouk, MD, Foster City, CA, writes "we welcomed Nicholas James Mamlouk in August."

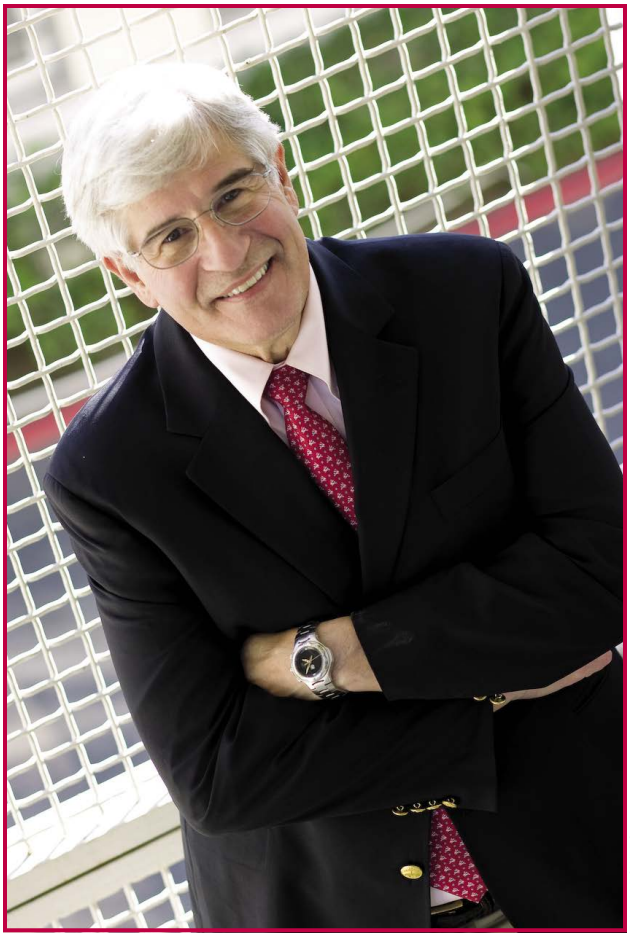
2015

Jason M. Johnson, MD, Houston, TX, has accepted a position at MD Anderson Cancer Center after serving in Afghanistan and Qatar as the squadron medical element/flight surgeon for the 340th Expeditionary Air Refueling Squadron.

Jason M. Johnson (right) with Karl Soderlund (left) outside the Kandahar Institute of Surgical Science (KISS) in Afghanistan. Soderlund is a naval officer and one of only a few US military radiologists in Afghanistan and the only one in Kandahar. Karl will begin his UCSF Neuroradiology fellowship in July 2018.

In Memoriam: William G. Bradley Jr., MD, PhD, 1948–2017

Ronald L. Arenson, MD



PAUL M BOWERS

William G. Bradley Jr., MD, PhD

A dear friend, colleague, and eminent alumnus of the UCSF Department of Radiology and Biomedical Imaging, William G. Bradley Jr., MD, PhD, passed away on November 20, 2017 at the age of 69.

Bill was a distinguished professor emeritus at UC San Diego, Department of Radiology where he served as chairman from 2002–2015. He received his BS at the California Institute of Technology and his PhD at Princeton University, both in Chemical Engineering. He completed all of his medical training, including his medical degree, internship and 1981 diagnostic radiology residency, at UCSF. While at UCSF, Dr. Bradley first became involved in magnetic resonance imaging, initially "translating" the physics of MRI for other radiologists. His subsequent research was focused on MRI of flow phenomena, hemorrhage, stroke, multiple sclerosis, and normal pressure hydrocephalus as well as other topics involving magnetic resonance imaging of the brain.

Bill's relationship with the UCSF Department of Radiology and Biomedical Imaging was an enduring one. He came back to attend many Margulis Society Galas and other UCSF Radiology events over the years. In 2000 and 2004, he was selected by the diagnostic radiology residents as their visiting professor, and was invited to UCSF as the Margulis Society Alumnus Lecturer in 2014. Bill also received the department's Outstanding Alumnus Award in 2002.

Bill was a past president of the International Society of Magnetic Resonance in Medicine (ISMRM) and received its two highest honors for his research: He was named an honorary ISMRM member, and was awarded the ISMRM Gold Medal (1989). He was on the Board of Trustees of the Radiological Society of North America (RSNA) Research and Education Foundation (1995–2001) and chaired its Fund Development Committee from 1996 to 2008. He was honored with the RSNA Gold Medal in 2003. Dr. Bradley also served on the Board of Chancellors of the American College of Radiology (ACR), where he chaired the Commission on Neuroradiology and MRI from 1999 to 2005 and served as vice president from 2005 to 2006. He received the ACR Gold Medal in 2012, the American Roentgen Ray Society's Gold Medal in 2015, and the Association of University Radiologists' Gold Medal in 2017 (see page 42).

During his long career, he served on the boards of numerous societies, including the UCSF Margulis Society, the International Society for Strategic Studies in Radiology, the Association of University Radiologists, the Academy of Radiology Research, and the Academy of Radiology Leadership and Management. He had published more than 200 papers, 54 chapters, and 21 textbooks.

You always knew when Bill entered a room—his boisterous laugh would announce his arrival! Everyone then turned to see the broad smile and energetic bounce in his walk. And everyone smiled in response because they knew that Bill Bradley, the bigger-than-life, one-of-a-kind, inspiring leader had joined them.

There is no doubt we will all remember him fondly and miss him greatly. Let me add my sincere condolences to his family, especially his wife Dr. Rosalind Dietrich and his children and grandchildren, as well as his many close friends.

In Memoriam: Melvyn T. Korobkin, MD, 1941–2017

"I was deeply sorrowed to learn of Mel's passing. He was a resident when I was a junior faculty member, and I also knew him as a colleague on the faculty of SFGH/UCSF, and as a good friend. The legacy he leaves to the world of abdominal imaging is huge. Mel embodied a unique and happy synthesis of immense personal charm, superb intellect, goodwill, and keen wit. He shall be sorely missed." —Hideyo Minagi, MD

"Mel got his start here, taught a lot of us old guys, and helped teach us about how to teach and how to learn. He left his mark on all of us who were around in those days, and I will always remember him, and his smile, whenever I give a lecture."—W. Richard Webb, MD

"When I was a medical student at Michigan deciding where to train, Mel strongly encouraged me to apply to UCSF. It turned out to be the best decision I ever made. It was great to see him honored at our commencement ceremony a few years ago. He will be missed."—Mark W. Wilson, MD

Melvyn Korobkin, MD, an alumnus and longtime friend of the Department of Radiology and Biomedical Imaging, passed away on March 17, 2017. Dr. Korobkin was an internationally recognized leader in abdominal radiology, whose research efforts focused on genitourinary radiology, especially adrenal imaging. He led the field in defining the imaging features of adrenal lesions, and developed the criteria used today to distinguish benign from malignant adrenal nodules. His work in demonstrating the possibilities of computed tomography (CT) in diagnosing abdominal disease was performed early in his career at UCSF, one of the first medical centers in the nation to install a body CT scanner.

He received his BA degree from the University of California, Los Angeles, in 1963, and his MD degree from Yale University in 1967. He completed a medical internship at Beth Israel Hospital, Boston, from 1967–68, followed by a radiology residency at UCSF in 1971. He joined the UCSF faculty in 1972, leaving in 1978 to accept a faculty position at Duke University. In 1984 he relocated to Michigan, opened a private practice, and concurrently was appointed clinical professor of radiology at Wayne State University. He joined the faculty at the University of Michigan as professor of radiology in 1989. From 1991 to 2002, Dr. Korobkin directed the University of Michigan Abdominal Radiology Division.

SCOTT C. SODERBERG

Melvyn T. Korobkin, MD, 1941–2017

Dr. Korobkin was a beloved and outstanding mentor for trainees in abdominal radiology throughout his 40-year career. A prolific investigator, he published more than 200 peer-reviewed papers during his career, and served on the editorial boards of the four most important journals in his field. He was chosen as a James Picker Foundation Scholar (1973–76), and received an NIH Research Career Development Award (1975–80). In 2007, the Society of Uroradiology honored him with its Lifetime Achievement Award. In 2013, Dr. Korobkin received the UCSF Department of Radiology and Biomedical Imaging Outstanding Alumnus award for his many significant contributions to the field.

Dr. Korobkin is survived by his beloved wife of 38 years, Linda Korobkin, and his cherished son, Daniel Korobkin.

In Memoriam: George W. Chaney, MD, 1928–2017

On Sunday night, October 8, 2017, George Chaney, MD, and his lifelong companion Edward Stone, were unable to escape the fire that ravaged their Atlas Peak home. It was their home for over 50 years. The house had survived two major fires over the years but this time, it was not meant to be.

George Chaney grew up in Austin, Texas. He attended the University of Texas and graduated from the University of Texas Medical School in Galveston, in 1952. He completed his residency in radiology at University of California, San Francisco, Moffitt Hospital in 1958.

George moved to the Napa Valley to work with E. Kash Rose, MD in the radiology department, with the opening of the new Queen of the Valley Hospital in 1958. This partnership marked the beginning of the Radiology Medical Group of Napa.

For over four decades George helped move the department into a highly specialized imaging and oncology center in the North Bay area. His direction focused on academic and technical excellence. Working in close collaboration with an excellent medical staff and the Sisters of St. Joseph he helped to build and support the Queen's mission to provide the highest quality of care for the community of Napa. During the early 1970s and 1980s the departments of Nuclear Medicine, Ultrasound, Angiography, CT, MRI and Radiation Oncology were added to the Imaging services offered by the Queen.

When George retired, he and his longtime partner Edward Stone traveled throughout Europe and Asia and Africa. He enjoyed the museums, classical music, the theatre, and Asian art. George loved to experience other cultures and meeting new people. He especially enjoyed talking to the people that made the wonderful wines of France. The past several years his travel was limited to spending half the year in Palm Springs and the remainder in the Napa Valley.

The physicians of Radiology Medical Group of Napa are a younger version of George with the same passion for clinical excellence. Many of the group knew George and expressed their loss and memories:

"Many of the radiologists joining the group found that George was the rock, the foundation, the quiet man behind the scenes whose reputation for academic excellence, service to others and absolute professional honesty, served his community and all of us who were to follow."

"We stayed equal to or better than larger groups in the Bay Area because of George's stress on clinical rigor and his encouragement to stay current with technology. He was a true physician who happened to be a radiologist."

"He was a man who taught me what it meant to be a radiologist and what it meant . . . to be. He was generous with an always appropriate sense of humor, respectful of others even when he might not have respected their choices, a gentleman always. He led a life of quiet dignity that was an example to many. George Chaney was my mentor and I loved him."

"A tragic loss for anyone that knew George Chaney. Sad beyond words."

"Remembering the laughter and good times we had traveling in Europe with George and Ed are wonderful memories that we will never forget."

George will be missed by many of the Queen's medical staff and employees and his friends in the Napa community. As so many have said, we have lost a wonderful physician and a great friend to many. Rest in peace George.

Reprinted with permission from the Napa Valley Register.

Medical and Campus Staff Awards 2016–2017

Both medical and staff awards were presented at the department's Holiday party in December 2016.

Elda Nefat, RT, received the Lanna Lee Award. She was acknowledged as "extremely conscientious, meticulous, and incredibly efficient," and described as a "strong patient advocate and outstanding technologist who embodies the 'great people' spirit of UCSF." Nefat is a CT technologist at Mt. Zion Hospital. This award is given in honor of Lanna Lee, a senior radiology technologist who died on her way home from work in 1989 during the Loma Prieta earthquake.

Said Mzili, the recipient of the Richard Sollitto, MD, Award, is a hospital assistant at Parnassus. He was recognized for being "a truly outstanding member of the team" who is "always service oriented and pleasant." This award honors the memory of Richard Sollitto, MD, a faculty member who cared deeply for all of the department's staff and patients. It is presented annually to an outstanding medical or administrative support staff member.

BRAD NAKANO

Elda Nefat, RT (center) with Chair Ron Arenson, MD (left) and Radiology Operations Director David Sostarich (right)

BRAD NAKANO

David Sostarich (left) and Said Mzili (right)

David Lap-Kong Poon, RT, was acknowledged as the recipient of the 2016 American Registry of Radiologic Technologists (ARRT) "I am the Gold Standard" award. It recognizes technologists who consistently display excellence in their work and in the community.

The Cathy Garzio Award was created in honor of Cathy Garzio, MBA, a long-time department administrative director. Two people shared the award this year. Malena Ryan, a financial systems manager, was described as "an amazing mentor who is determined to help everyone achieve their highest potential" and "an influential leader who is widely recognized for her integrity and collaborative spirit." Co-recipient Katie Murphy, the department's events and communications manager, "embodies the qualities of the Garzio Award: integrity, collaborative spirit, and continuous improvement" and is a "wonderful supporter of our department."

BRAD NAKANO

David Lap-Kong Poon, RT (center) with Chair Ron Arenson, MD (left) and Radiology Operations Director David Sostarich (right)

BRAD NAKANO

Katie Murphy (left) and Malena Ryan (right)

The Year in Pictures



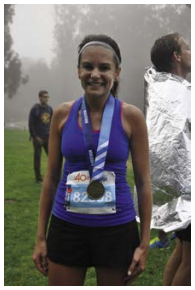


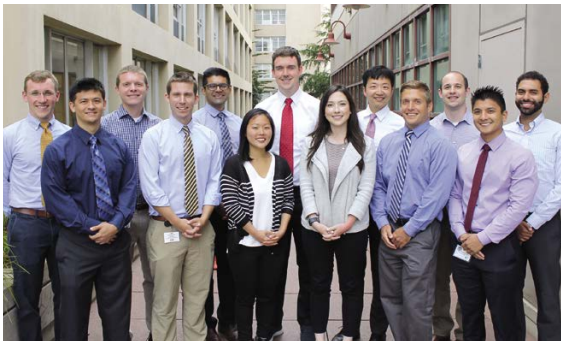












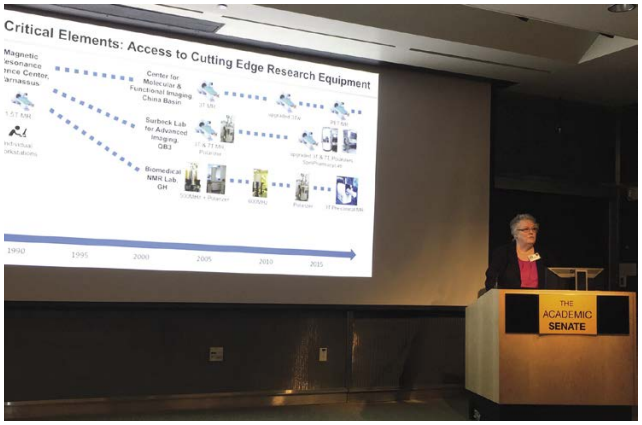








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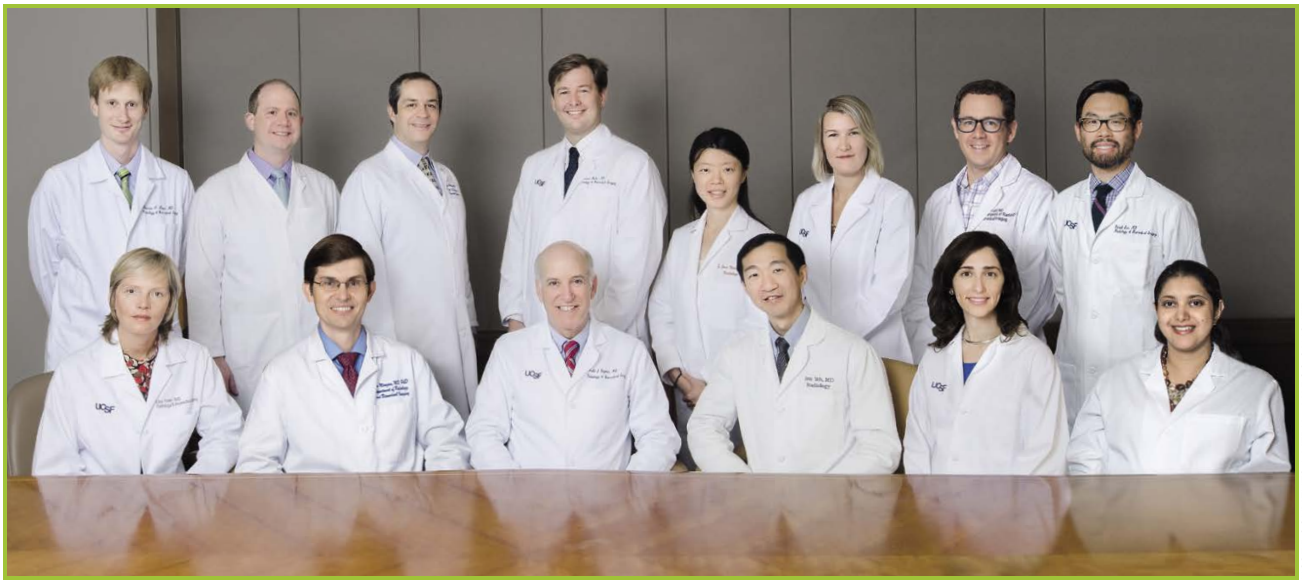
Neuroradiology
Christopher P. Hess, MD, PhD


Research Directions



UCSF DOCUMENTS & MEDIA - MARCO SANCHEZ

ABDOMINAL IMAGING

Ronald Zagoria, MD, Chief

Research Directions:

- The promotion of evidence-based abdominal imaging, including systematic validation of commonly held opinions and assumptions
- Developing MRI and CT techniques to optimize assessment of hepatobiliary, GI tract, and GU diseases
- Optimizing multiparametric MRI scanning for detection and staging of prostate cancer
- High-intensity focused ultrasound of uterine fibroids and prostate cancer
- Advanced hepatic imaging, including multi-detector CT, CT cholangiography, new hepatobiliary MR contrast agents, and MR cholangiopancreatography
- Radiological evaluation of diffuse liver disease, including cirrhosis, pseudocirrhosis, and nonalcoholic steatohepatitis
- Dynamic contrast-enhanced MRI and CT for assessment of solid organs and tumors in the abdomen and pelvis
- 3D rendering of CT and MR images, including projectional and volumetric applications, and CT colonography
- Expanding image-guided percutaneous thermal ablation applications in the abdomen

ADVANCED IMAGING TECHNOLOGIES SPECIALIZED RESOURCE GROUP

Daniel B. Vigneron, PhD, Director

Research Directions:

The Advanced Imaging Technologies SRG works to advance imaging science to benefit human disease studies. This includes everything from development of new techniques, to translation of existing techniques to improving quality, speed, information-content, and applicability of existing methods. The group provides expertise and research focus in several areas including: basic physics, engineering, bioengineering, initial patient testing, clinical single and multisite trials of new techniques, and training.

Basic development => Translation => Optimization => Validation

Our goal is to excel in imaging science in each of the three UCSF mission areas:

- Scholarship: Publications, Grants, Patents, Conference presentations.
- Training: Formal UCSF courses, informal training, CME courses, International Society (i.e. ISMRM) Educational courses.
- Services: Support clinical patient studies, UCSF Committee service, Grant Reviews for NIH and other funding agencies.

The key missions of the Advanced Imaging Technologies SRG are to:

- Be world leaders in cutting-edge imaging techniques for studying human disease
- Collaborate with RIGS to get these and other basic techniques into application studies for testing and optimization
- Work with clinical areas to translate new techniques and improve state-of-art methods
- Train and educate personnel in advanced imaging techniques

BODY IMAGING RESEARCH INTEREST GROUP
John Kurhanewicz, PhD, Co-Director
Z. Jane Wang, MD, Co-Director

Research Directions:

- Developing an optimized and clinically feasible multiparametric MR protocols for prostate cancer and for diseases of the kidney and liver and for metabolic studies of dietary interventions
- Rigorous histopathological correlative studies for validation of MR biomarkers
- Developing ways to analyze multiparametric imaging data
- Developing clinical predictive nomograms that incorporate imaging variables
- Image-guided biopsy and therapy (HIFU, radiation)
- Identifying, validating and implementing robust, quantitative, noninvasive magnetic resonance-based metabolomic biomarkers of human disease and therapeutic response using *ex vivo* tissues, biofluids, and preclinical cell and murine models of human disease
- Developing targeted contrast agents for prostate cancer and other urogenital diseases
- Developing and implementing hyperpolarized 13C magnetic resonance imaging in patients

BREAST CANCER RESEARCH INTEREST GROUP
Nola Hylton, PhD, Co-Director
Bonnie N. Joe, MD, Co-Director

Research Directions:

The Breast RIG's research aims are to advance imaging-based approaches for breast cancer diagnosis, leading to earlier detection, reduction of disease recurrence, and improved survival.

Our major research areas include:

- MRI and spectroscopy to assess breast tumor response to neoadjuvant chemotherapy. UCSF is the lead institution for the national ACRIN 6657/I-SPY breast cancer clinical trial testing MRI and molecular biomarkers for the prediction of treatment response and survival for women receiving neoadjuvant chemotherapy for locally advanced breast cancer
- Computer-aided tools for real-time measurement of MRI biomarkers for breast cancer
- MRI of ductal carcinoma in situ (DCIS) for staging and assessing response to hormonal treatment
- Quantitative mammographic breast density measurement for breast cancer risk assessment
- MRI-directed tissue biopsy for radiologic-pathologic correlation of imaging and molecular biomarkers
- MRI measurement of breast density and tissue composition

BREAST IMAGING

Bonnie N. Joe, MD, PhD, Chief

Research Directions:

- MRI, optical imaging and X-ray mammography for breast cancer screening and surveillance, diagnosis and tissue characterization for risk assessment, cancer staging, and treatment response assessment
- New techniques in MRI-guided biopsy and imaging protocols
- Quantitative assessment of breast density and breast cancer risk models
- Digital breast tomosynthesis
- MRI/MRS for assessing tumor response to neo-adjuvant chemotherapy for patients with locally advanced breast cancer
- Biomarker development using advanced breast MR techniques

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BRAD NAKANO

CARDIAC AND PULMONARY IMAGING

Brett M. Elicker, MD, Chief
Karen Ordovás, MD, MAS, Director of Cardiac Imaging

Research Directions:

- Cardiac CT
  - Use of cardiac CTA for emergency room evaluation of atypical chest pain
  - Evaluation of coronary atherosclerosis in patients with HIV infection
  - Evaluation of pulmonary venous anatomy in atrial fibrillation
  - Characterization of myocardial ischemic injury by contrast enhanced MRI and CT
- Chest CT/High-resolution CT
  - High-resolution CT of interstitial lung disease
  - Predictors of poor outcome in patients with acute PE diagnosed by helical CT
- Cardiac MRI
  - Use of novel cardiac MRI techniques and computational modeling for the quantitative assessment of ventricular performance in congenital heart disease
  - Use of multidimensional flow techniques for quantitative assessment of flow dynamics in congenital heart disease
  - MRI to assess cardiac function after repair of tetralogy of Fallot; correlation with clinical outcomes
  - T1 mapping techniques for assessment of pulmonary hypertension cardiomyopathy

CARDIOVASCULAR RESEARCH INTEREST GROUP

Karen Ordovás, MD, Co-Director
David Saloner, PhD, Co-Director

Research Directions:

The Cardiovascular RIG aims to provide leadership to the Radiology community in developing and implementing state-of-the-art methods for providing early diagnosis and improved outcomes for patients suffering from cardiovascular diseases.

The CVRIG works closely with physician/scientists from other disciplines to develop and evaluate methods that include numerical modeling, physical in vitro models, and animal and human models of cardiovascular disease.

The combination of these elements, together with a program for educating and training practitioners and scientists, will provide measurable benefits to patients. In summary, our mission is to:

- Use state-of-the-art imaging for understanding the etiology of multiple cardiovascular diseases

PICASA

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- Investigate the scientific basis for new imaging modalities and their applications
- Apply cardiovascular imaging modalities to evaluate the physiologic, pharmacologic, and molecular basis of disease
- Develop tools for early detection of cardiovascular diseases
- Assess the role of cardiac imaging to predict cardiovascular outcomes to reduce overall and cardiac-related mortality

INTERVENTIONAL RADIOLOGY

Robert K. Kerlan, Jr., MD, Chief

Research Directions:

- Joint project with Transplant Service for implantation of pancreatic islet cells
- Joint project with Transplant Service for down staging hepatocellular carcinoma in potential transplant candidates
- Joint project with Abdominal Imaging using MR diffusion imaging to differentiate flow abnormalities from hepatocellular carcinoma
- Joint project with Pediatric Surgery to create gastrojejunostomies and percutaneous jejunostomies using magnets
- Assessing the role of interventional radiology in managing complications related to the creation of ileal pouches following proctectomy
- Use of expandable metallic stents in the airways
- Joint project with Urology on RF ablation of small renal masses
- Assessing the safety of transdiaphragmatic drainages

MARGARET HART SURBECK LABORATORY OF ADVANCED IMAGING

Sarah J. Nelson, PhD, Director
Daniel B. Vigneron, PhD, Associate Director

The Margaret Hart Surbeck Laboratory of Advanced Imaging endeavors to stretch the limits, creating new imaging technologies that can be adapted for the broadest range of investigating disease, health and treatment. Our overall objective is to contribute to the understanding of normal physiology and to elucidate the underlying biological mechanisms of health and disease. Critical factors that can be investigated through imaging are disease progression, the biological basis of different diseases, and response to treatment by individual patients. Translating these factors into bioengineering problems involves the integration of the underlying principles of MR physics with the design of new algorithms for reconstruction, post-processing and quantitative interpretation of the resulting multi-dimensional and multi-faceted imaging data, as well as the development of innovative RF coils and coil arrays for high-field imaging.

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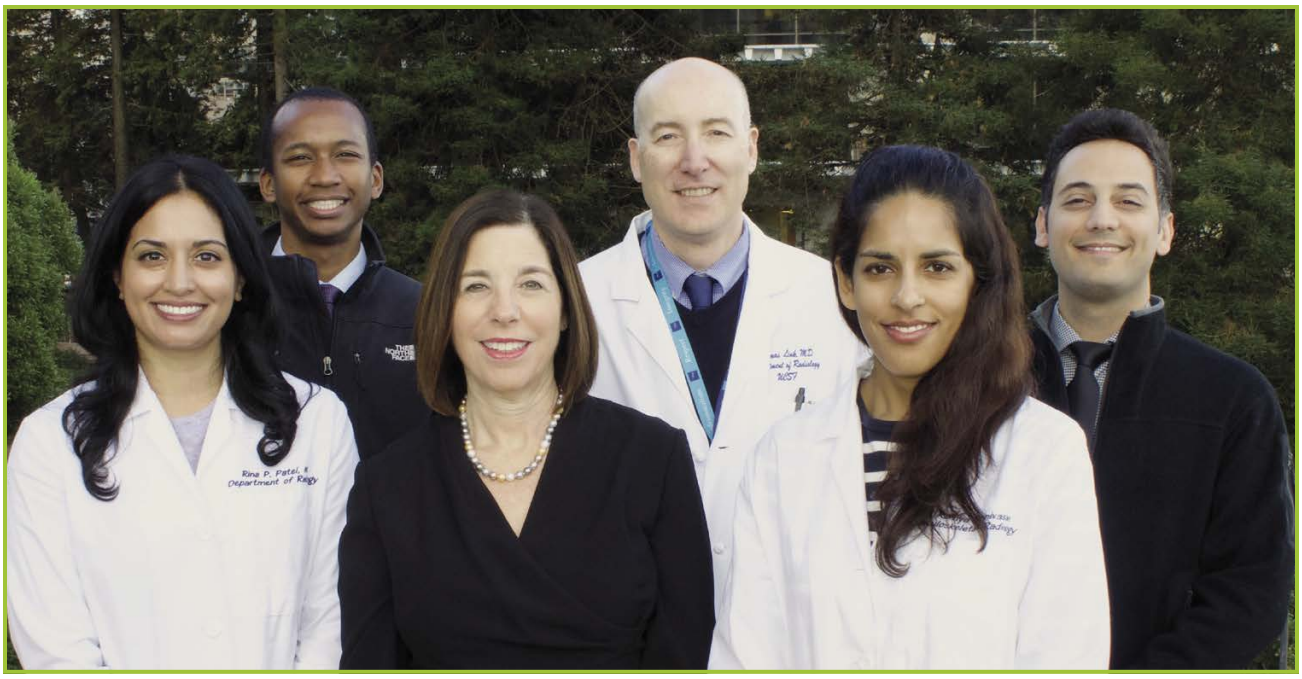
MUSCULOSKELETAL AND QUANTITATIVE IMAGING RESEARCH GROUP

Sharmila Majumdar, PhD, Director
Thomas M. Link, MD, PhD, Clinical Director

Research Directions:

The Mission of MQIR is to pursue research and teaching in quantitative tissue characterization focused on the musculoskeletal system by building collaborations between basic scientists, clinical scientists, and physicians, thus establishing a strong resource for musculoskeletal imaging-based research at UCSF. MQIR strengthens and nurtures partnership not only within the Department of Radiology and Biomedical Imaging, but also with the Departments of Orthopaedic Surgery, Medicine and Bioengineering at UCSF and UC Berkeley.

- Identification of biomarkers for degeneration in bone, cartilage, and inter-vertebral disc, and diseases such as osteoporosis, spinal disorders, and osteoarthritis.
- Improve musculoskeletal health by using Computed Tomography (CT), High Resolution Peripheral Quantitative CT (HR-pQCT) and Positron Emission Tomography (PET)/CT imaging to study risk factors for age-related fractures, to quantify deterioration of bone structure and strength as result of aging and disease, and to analyze the anatomy and function of skeletal muscle in relation to mobility loss.
  - Effects of reduced weight-bearing on skeletal geometry, micro-structure, and strength
  - Effects of exercise on bone quality in HIV positive individuals
  - Mechanisms of increased cortical porosity in the peripheral skeleton
  - Use of advanced image analysis techniques such as finite element modeling and voxel based morphometry to study age-related bone loss and predict hip fracture.
  - Use of CT to study muscle mass and fat infiltration as risk factors for hip fracture
  - Development of acquisition and analysis methods to standardize scanning and analytic methods for multi-center studies in osteoporosis and sarcopenia
  - Development of PET/CT to study protein synthesis in skeletal muscle
  - Mechanisms of increased cortical porosity in the peripheral skeleton
  - Use of advanced image analysis techniques such as finite element modeling and voxel- based morphometry to study age-related bone loss and predict hip fracture.
  - Use of CT to study muscle mass and fat infiltration as risk factors for hip fracture
  - Development of acquisition and analysis methods to standardize scanning and analytic methods for multi-center studies in osteoporosis and sarcopenia
  - Development of PET/CT to study protein synthesis in skeletal muscle
- Magnetic Resonance (MR) Imaging and Spectroscopy methods for characterizing muscle and bone in diabetes, HIV disease, and other diseases.
  - Bone marrow fat quantification in the proximal femur and spine using high-resolution water-fat imaging, and the relationship of marrow adiposity to bone quantity and quality.
  - Fat infiltration in the rotator cuff muscles as a predictor of surgical outcome
- Detection of early joint degeneration using quantitative metrics (T1r and T2), and radiological grading methods in osteoarthritis of the knee and hip and correlating them



with biomechanical function, biochemical changes, clinical findings, and function
  - Contact mechanics, neuromuscular control, and cartilage composition in knee OA changes in knee contact mechanics and cartilage composition following meniscectomy
  - Characterization of cartilage using MR and kinematics in hip osteoarthritis
  - Running biomechanics and overuse injuries of the lower extremity
  - Development of osteoarthritis in anterior cruciate ligament (ACL)-injured and reconstructed knees
  - Investigating the impact of physical activity, obesity, weight loss and gain on longitudinal development of cartilage and meniscal degeneration
- *In vivo* MR Imaging in the presence of metal implants
- MRI temperature measurements of bone during MR guided focused ultrasound
- Multimodality imaging (MRI and HR-pQCT) and hyperpolarized 13C MRI of rheumatoid arthritis
- Radiation dose reduction in CT

MUSCULOSKELETAL RADIOLOGY
Thomas M. Link, MD, PhD, Chief

Research Directions:

Imaging of Osteoarthritis and Cartilage

- New morphological pulse sequences for cartilage imaging
- Biochemical, quantitative imaging of the cartilage matrix
- Analysis of the Osteoarthritis Initiative Cohort
- Osteoarthritis, obesity, and physical activity
- Cartilage imaging of marathoners and physically active individuals
- Assessing menisci and cartilage with matrix-sensitive MRI sequences

Bone Marrow Imaging

- Monitoring the progress of the treatment of Gaucher's disease
- MRI of bone marrow changes in osteoarthritis
- Disuse osteopenia related bone marrow changes

Osteoporosis Imaging

- Evaluating insufficiency fractures of the pelvis, CT vs. MRI
- Contrast-enhanced, multi-slice-spiral CT for assessing bone density and structure
- Diabetic bone disease: cortical porosity and increase in fracture risk
- Imaging of the Shoulder
- Optimizing MRI for visualizing metal-on-metal surface replacements
- Evaluating fatty infiltration of muscles of the rotator cuff
- Imaging of the Spine
- Imaging at 1.5T and 3T
- Clinical implications of lumbosacral segmentation abnormalities MR Arthrography
- Evaluating the complications of MR arthrography

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- High-field MRI for musculoskeletal applications
- *In vitro* and *in vivo* comparison of cartilage imaging at 1.5T, 3T, and 7T
- Comparing 1.5T with 3T MRI for the evaluation of smaller joints
- Optimizing MR protocols for the knee at 3T and 7T

New MRI Techniques

- Use of CUBE and IDEAL sequences at 3T to image the knee
- Application of metal suppression MAVRIC sequences for assessment of total joint replacements
- *In vitro* and *in vivo* assessment of metal suppression sequences at 1.5 and 3T MR neurography

NEURO INTERVENTIONAL RADIOLOGY

Randall Higashida, MD, Chief

Research Directions:

Advances in the field of Neuro Interventional Radiology require the constant development of new skills and techniques, and the Neuro Interventional Radiology researchers within the UCSF Department of Radiology and Biomedical Imaging have been involved in designing, conducting, and publishing research regarding current trends and techniques for patient care. In particular, we are focused on developing new and innovative techniques to treat a variety of neurovascular disorders including aneurysms, vascular malformations, tumors, and vasospasm in animal models and in active clinical practice within the interventional neurovascular radiology section at UCSF.

We work closely with the Institutional Review Board at UCSF Medical Center to oversee new products and procedures. We are working with several sponsor companies to assess the use and outcome of new intravascular stents. We have been involved in a multicenter study regarding outcomes after placement of carotid artery stents to treat carotid artery atherosclerotic disease. We conduct translational research in remote-controlled catheter guidance, percutaneous ablation, intra-arterial chemotherapy, and endovascular biopsy. We are working closely with other collaborators at UCSF in MRI modeling of unruptured cerebral aneurysm and MRI-assisted embolization of brain tumors. In addition, we conduct long-term clinical research on pediatric neurovascular diseases.

NEUROIMAGING RESEARCH INTEREST GROUP

Christopher P. Hess, MD, PhD, Co-Director
Sabrina Ronen, PhD, Co-Director

Research Directions:

The UCSF Neuroimaging Research Interest Group (RIG) studies the structure and function of the healthy and diseased brain, and develops and applies innovative methods for imaging, analyzing and monitoring the brain in neurologic and psychiatric disease.

The RIG's research focuses on improving diagnosis and treatment for a wide range of patients with diverse needs related to brain health and conditions of the brain. Although the RIG is based within the Department of Radiology and Biomedical Imaging, our work is multidisciplinary, our studies range from preclinical to clinical, address basic science questions, clinical translation and routine clinical needs, and RIG members collaborate with investigators in multiple departments including in the Departments of Neurology, Neurosurgery, Psychiatry, Pathology, Physical Medicine and Rehabilitation, Anesthesia, and Bioengineering and Therapeutic Sciences at UCSF, and partner faculty at the University of California Berkeley.

The clinical application of our research includes special focus on:

- Normal brain development and congenital brain malformations in the fetus and infant
- Brain tumor diagnosis, treatment and monitoring
- Traumatic brain injury
- Neurodegenerative disorders including Alzheimer's and Huntington's
- Cerebrovascular disease
- Multiple sclerosis
- Epilepsy
- Psychiatric disease including schizophrenia and obsessive compulsive disorder
- Addiction
- Infection and inflammatory disorders
- Neck and back pain

We look forward to building relationships a wide range of partners:

- Patients and their families
- Researchers from our own and other institutions
- Visionaries who seek to serve the populations we do
- Corporate partners in neuroscience, data science and imaging
- Donors committed to improving the lives of others

In addition to researching causes and treatments for brain disease, the Neuroradiology RIG collects and analyzes data from multiple sources and imaging modalities to better understand neurologic and psychiatric conditions. Our overarching vision is to enable precision medicine approaches for individualized assessment and healing and population-based health approaches to addressing neurologic and psychiatric disease at a larger scale.

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NEURORADIOLOGY
Christopher P. Hess, MD, PhD, Chief

Research Directions:

Neuropediatrics

- Cause of cerebellar hypoplasia in some prematurely born neonates and the effects of brain cooling on CNS injury in term neonates suffering hypoxic-ischemic injury
- Embryogenesis of disorders of the midbrain and hindbrain
- Normal and abnormal development of the cerebral cortex
- Fetal MR Neuroimaging: development and application of advanced MRI techniques to study normal and abnormal fetal brain development Traumatic Brain Injury
- DTI and fiber tractography, fMRI, 3D MRSI, and deformation morphometry as imaging biomarkers for mild TBI to predict clinical outcomes in post-concussive syndrome, with correlation to neurocognitive testing and genomic analysis for TBI susceptibility genes such as ApoE
- DTI and fiber tractography processing for a multi-center consortium study of mild TBI
- Cardiovascular Disease and Stroke
- Use of 64-slice CT to detect cardiovascular disease and stroke and a functional mapping and scoring system for predicting the outcome of ischemic stroke
- Use of perfusion and CTA imaging to detect ongoing hemorrhages in the brain of patients presenting with acute intracerebral hematoma
- Use of permeability image mapping to detect stroke patients at risk of subsequent hemorrhage
- Automated software for the outcome classification of patients with acute subarachnoid hemorrhage

Cardiovascular Disease and Stroke

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Brain Tumors

- Use of permeability and perfusion imaging to guide operative biopsy
- Correlation of genetic markers and imaging markers from tissue obtained by image guided biopsy

Head and Neck

- The utility of PET/CT in follow-up of patients with head and neck cancer
- The use of advanced imaging techniques in the detection of recurrent head and neck cancer

Spine

- CT-guided back pain management
- Use of image guidance to improve the accuracy of injections
- Utility of gadolinium MR myelography to detect CSF leaks
- MR neurography for peripheral nerve diagnosis
- Neurodegenerative Diseases
- New imaging biomarkers for neurodegenerative diseases using
- 7T MRI
- 7T imaging of patients with intractable epilepsy
- Characterization of multimodal diffusion data using high-angular, resolution-diffusion imaging

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NUCLEAR MEDICINE

Miguel Hernandez Pampaloni, MD, PhD, Chief

Research Directions:

Cardiac and vascular applications of clinical SPECT-CT, PET and PET-CT

- Applications of SPECT-CT for cardiac synchrony
- Dementia imaging with SPECT-CT
- Clinical PET and PET-CT studies of cancer, cardiovascular, and neurological diseases
- Feasibility of PET and MRI to characterize myocardial metabolism and flow
- Use of PET to monitor therapy for breast and ovarian cancers
- Conformal radiation treatment planning with PET-CT
- Imaging structure and function in small animals with CT/SPECT
- Molecular probe development for SPECT and PET

PEDIATRIC RADIOLOGY

John Mackenzie, MD, Chief

Research Directions:

The mission of the Pediatric Radiology section is to improve the health of children through advanced clinical imaging and research.

The section studies pediatric disease through the lens of imaging and is focused on the development of new imaging technologies.

Several ongoing basic science and clinical studies are underway with collaborations with MRI physics, pediatric oncology, pediatric gastroenterology and pediatric surgery.

Examples of research in the Pediatric Radiology section include:

- Study of novel diffusion weighted imaging (DWI) techniques to better identify inflammation and monitor treatment changes in children with inflammatory bowel disease (ulcerative colitis and Crohn disease).
- Testing and improving motion-resistant MRI with pulse sequences such as PROPELLER for use in infants and nonsedated children.
- Examining the strengths and limitations of high-resolution, 3D MRI sequences such as CUBE and SPACE for complex pediatric diseases in the chest, abdomen, and pelvis, including diseases of the liver, bile ducts, kidneys, and pelvic organs.
- Studying bowel motion (peristalsis) of bowel and the changes in motion that occur in disease using MRI pulse sequences such as real-time CINE FIESTA.

RADIOLOGY OUTCOMES RESEARCH LABORATORY

Rebecca Smith-Bindman, MD, Director

Research Directions:

The main objective of Radiology Outcomes Research Laboratory (RORL) is to rigorously evaluate the benefits and the harms of medical imaging that uses ionizing radiation in order to identify ways to improve patient safety.

- Demonstrate, through high-quality clinical and observational research, the impact of medical imaging on patient health, both beneficial and harmful.
- Improve the performance of diagnostic imaging tests by conducting clinical trials that provide the evidence for appropriate and safe use.
- Identify problematic trends in imaging, their potential impacts on patient safety and the healthcare system, and propose solutions.

- Educate healthcare professionals on the current evidence-based techniques for maximizing image quality while simultaneously improving patient safety.
- Engage healthcare providers in purposeful quality initiatives that have an immediate positive impact on the healthcare system and patient safety.

The RORL is dedicated to providing rigorous evidence on the value of medical imaging that uses ionizing radiation to allow patients and their providers to engage in meaningful shared decision making around medical imaging. Our goal is to understand the impacts of diagnostic medical imaging and lessen the impacts of imaging when the costs outweigh the benefits.

ULTRASOUND
Ruth B. Goldstein, MD, Chief

Research Directions:

- Prenatal diagnosis of CNS anomalies with ultrasound and MRI
- Further investigation of clinical manifestations and treatment of twin transfusion syndrome
- Prospective, randomized trial of repair of fetal myelomeningocele
- Prospective, randomized trial for selective ablation of connecting vessels in twin transfusion syndrome

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VETERANS AFFAIRS MEDICAL CENTER: DIAGNOSTIC RADIOLOGY
Stefanie Weinstein, MD, Interim Chief

Research Directions:

- Dose reduction for screening and diagnostic CT colonography
- Stereoscopic 3D imaging- clinical applications
- Spectral imaging, dual energy, and low kVp CT imaging
- CT and MR contrast timing and delivery in the abdomen and pelvis
- Eovist MR for the detection of hepatocellular carcinoma
- High-field MR imaging of the prostate
- Stroke prediction using intimal thickness on carotid ultrasound

VETERANS AFFAIRS MEDICAL CENTER: CENTER FOR IMAGING OF NEURODEGENERATIVE DISEASES
Pratik Mukherjee, MD, PhD, Director

Research Directions:

The Center for Imaging of Neurodegenerative Diseases (CIND) is a Research Center dedicated to studying the causes and effects of neurodegenerative and psychiatric disorders, using imaging such as MRI and PET. We currently have eight full-time faculty performing studies in various fields, including imaging of Alzheimer's disease, Parkinson's disease, Depression, Post-traumatic Stress-Disorder, Gulf War Illness, and substance abuse. We also work on the development of novel powerful methods for brain MR, including spiral imaging and new approaches for processing and multivariate statistical analysis of brain imaging. CIND is located at the San Francisco VA Medical center and has a Bruker 4T MRI scanner, a Siemens 3T Skyra that was recently placed into operation and a 7T scanner.

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Aside from studies at the CIND, faculty are also involved in large international imaging trials, such as the Alzheimer's Disease Neuroimaging Initiative (ADNI) and the Parkinson's Progression Marker Initiative (PPMI). CIND has also been involved in the development of new strategies for the prevention of neurodegenerative diseases. In addition, we have started an initiative, directed by Dr. Michael Weiner, The Brain Health Registry. The purpose of the BHR is to promote healthy brain function through the prevention of brain diseases, disorders and injuries that affect brain function in adults. This is the first neuroscience project to leverage online possibilities in this way and on this large scale.

In the area of MRI and image processing, we work with different techniques including the following:

- Ultra-high resolution structural MRI
- Diffusion spectrum imaging
- Dynamic, arterial-spin-labeling imaging
- Resting-state functional MRI
- Susceptibility-weighted imaging
- Spectroscopic imaging and j-modulated spectroscopy
- Bayesian image reconstruction
- Multivariate image analysis methods

VETERANS AFFAIRS MEDICAL CENTER: VASCULAR IMAGING RESEARCH CENTER

David Saloner, PhD, Director

Research Directions:

- Development of methods for visualization of complex flow in intracranial aneurysms
- Assessment of novel contrast agents in MR angiography
- Development of patient-specific models for review of endovascular therapies
- Analysis of plaque vulnerability using patient-specific image based computational methods
- Development of 4-D MR velocimetry methods for determination in analyzing the impact of hemodynamics on vascular disease progression

ZUCKERBERG SAN FRANCISCO GENERAL HOSPITAL AND TRAUMA CENTER

Mark W. Wilson, MD, Chief

Research Directions:

In addition to being the city's main public hospital and Level 1 Trauma center, Zuckerberg San Francisco General Hospital and Trauma Center is an active teaching hospital, closely allied with UCSF. Faculty and residents from the Department of Radiology & Biomedical Imaging pursue a broad range of clinical and basic science research, including: outcomes of blunt and penetrating injuries treated by embolization; outcomes analysis of tomosynthesis-guided breast biopsy; evaluating the incidence of breast cancer in transgender patients; application of quantitative atlas-based MR imaging techniques in assessing spinal cord injury; virtual classroom for global radiology education; multimodality imaging of traumatic brain injury; molecular MR imaging of liver injury; molecular imaging of infection; evaluation of endothelial abnormalities in brain and pulmonary aneurysms and AVMs; improving the efficiency of stroke diagnosis and triage to therapy; and MR-guided focused ultrasound treatment of musculoskeletal tumors and facet joints.

Grants and Fellowships

New Awards

Matthew D. Alexander, MD

- The Brain Aneurysm Foundation; Genetic Analysis of Cardiovascular Disease and Inflammation in Individuals with Cerebral Aneurysms: Toward Propensity Scores for Predicting Development and Risk of Rupture, 10/15/2016–09/15/2017, $20,000
- SNIS Foundation; Multi Endpoint Evaluation of a Rabbit Model of Intracranial Atherosclerosis, 12/01/2016–05/31/2018, $20,000

Matthew R. Amans, MD

- NIH Natl. Inst. Deafness & Communications Disorders; MR Imaging of Blood Flow in Pulsatile Tinnitus, 07/17/2017–06/30/2019, $237,750

Matthew D. Bucknor, MD

- Focused Ultrasound Surgery Foundation; MRgFUS vs. CTgRFA for Ablation of Osteoid Osteomas, 11/01/2016–12/31/2019, $447,291
- GE-AUR Radiology Res Acad Fellowship Pgm; Cost-Effectiveness Analysis and Novel Outcomes Assessment of Magnetic Resonance-Guided Focused Ultrasound Ablation of Bone Metastases, 07/01/2017–06/30/2019, $140,000

Andrew J. Burghardt

- University of Colorado Denver; Multi-Parametric Spatial Assessment of Bone with HR-pQCT, 09/01/2016–03/31/2021, $99,838

Linda Chao, PhD

- DOD; Examination of Plasma PON1 Paraoxonase Activity and Genotype in Gulf War Veterans; 9/30/16–9/29/19; $512,227
- DOD; Using Multimodal Imaging to Examine the Neural Mechanisms of an Integrative Exercise Program for Individuals with Dementia; 8/1/17–7/30/20; $712,065
- VA; Pilot Test of Telephone-Delivered Cognitive Behavioral Therapy for Insomnia for Veterans with Gulf War Illness 7/1/16–6/30/19; $974,635

Jesse L. Courtier, MD

- GE Healthcare; Assessing Acoustic Reduction Technique T2 Weighted Propeller Imaging in Pediatric of Abdominopelvic Imaging: Comparison with Standard T2 Weighted Propeller Sequences, 02/01/2017–11/20/2017, $4,737

Michael J. Evans, PhD

- American Brain Tumor Association; Developing 68Ga-citrate PET/MR to Distinguish Viable Tumors from Pseudoprogression, 07/01/2017–06/30/2018, $50,000
- American Cancer Society, Inc.; Development of a Biomarker for imaging mTORC1 Activity with PET, 07/01/2017–06/30/2021, $792,000

Nicholas Fidelman, MD

- Cheery Pharma Co Ltd; Phase I Dose-Escalating Study Of Combining Tirapazamine And Transarterial Embolization (TAE) in Hepatocellular Carcinoma, 03/01/2017–02/28/2020, $868,521

Robert R. Flavell, MD, PhD

- Prostate Cancer Foundation; Detection of Agressive Prostate Cancer through pH Imaging Using Hyperpolarized 13C Magnetic Resonance Spectroscopy, 07/10/2017–07/10/2020, $225,000
- Society of Abdominal Radiology; Imaging of Zinc Metabolism using Hyperpolarized 13C MRI for Detection of Prostate Cancer, 04/01/2017–03/31/2019, $15,000

Benjamin L. Franc, MD

- DOD; DOD - Dual Benefit of TGF Inhibition in the Context of Radiotherapy for Breast Cancer Brain Metastases, 02/01/2017–01/31/2019, $534,522
- UC Irvine; Martinostat sub from UCI, 02/01/2017–05/31/2018, $65,004

Thomas A. Hope, MD

- Education & Research Foundation for Nuclear Medicine & Molecular Imaging; Intra-Arterial Peptide Receptor Radionuclide Therapy (IA-PRRT) using 90Y-DOTA-TOC, 12/01/2016–11/30/2017, $50,000
- NIH Natl. Cancer Inst.; Qualification and Harmonization of PET/MRI for Cancer Clinical Trials, 03/06/2017–02/28/2022, $597,640
- Prostate Cancer Foundation; Redefining M0 CRPC Patients Using PSMA PET, 07/10/2017–07/10/2020, $75,000

Galateia J. Kazakia, PhD

- NIH Natl. Inst. Allergy & Infectious Diseases; Bone Quality and Marrow Adiposity in Subjects with HIV, 12/01/2016–11/30/2021, $558,785
- NIH Natl. Inst. Arthr, Musculoskel & Skin; Progression and Etiology of Cortical Porosity in Diabetic Bone Disease, 03/01/2017–02/28/2022, $518,849

Maureen P. Kohi, MD

- Community Care Physicians, P.C.; Safety and Efficacy of Embozene Microspheres for Uterine Fibroid Embolization Compared to Embosphere Microspheres for Symptomatic Relief from Uterine Fibroids, 03/01/2017–02/28/2022, $97,564

Roland Krug, PhD

- Focused Ultrasound Surgery Foundation; Safety and Effectiveness of Facet and Sacroiliac Joint Palliation in Swine using MRgFUS, 07/01/2017–06/30/2018, $100,000

John Kurhanewicz, PhD

- DyNuPol, Inc; Improved Hyperpolarization of DHA for Clinically-Relevant Cellular-Redox Imaging, 01/06/2017–06/18/2017, $75,000
- NIH Natl. Cancer Inst.; Clinical Translation of Hyperpolarized 13c-Urea For Cancer MR Molecular Imaging, 03/06/2017–02/28/2022, $684,591
- NIH Natl. Cancer Inst.; Targeting Neuroendocrine Prostate Cancer Using Multi-Probe Hyperpolarized 13C MRI for Improved Treatment and Therapeutic Monitoring, 06/01/2017–05/31/2022, $650,042

Thomas F. Lang, PhD

- Mayo Fdn / Mayo Clinic; Mayo subcontract; Dr. Sundeep Khosla's Dr. Epidemiology of Age-Related Bone Loss and Fractures Grant, 06/01/2016–05/31/2021, $48,236

Yan Li, PhD

- NIH Natl. Inst. Child Health & Human Devlopment; Simultaneous Multi-Slice GABA-edited MRSI in the Developing Brain, 07/15/2017–06/30/2019, $237,750

Jing Liu, PhD

- NIH Natl. Heart, Lung & Blood Inst.; Comprehensive Quantitative Magnetic Resonance Imaging in Assessment of Aortic Valve Disease, 09/15/2016–08/31/2018, $367,331

Tracy L. Luks, PhD

- Brigham and Women's Hospital; Low Grade Glioma: Assessment of Nonenhancing Tumor Volume Change Before and After Chemoradiation Treatment, 10/01/2016–09/30/2017, $60,417

Janine M. Lupo, PhD

- NIH Natl. Inst. Neurological Disord &Stroke; Improved Monitoring Of Premanifest And Early Huntingtons Using 7T Multimodal MRI, 07/01/2017–06/30/2022, $619,418

Hugh C. McGregor, MD

- Radiological Society of North America; In Vivo Endothelial Cell Gene Expression Analysis of Venous Outflow Stenoses in Hemodialysis Arteriovenous Fistulas Utilizing a Novel Endovascular Sampling Technique, 07/01/2016–06/30/2018, $50,000

John T. Mongan, MD, PhD

- Enlitic, Inc; Evaluation of Deep Learning Classifiers for Lung Cancer, 08/29/2016–08/29/2017, $118,875

Dieter Meyerhoff, Dr.rer.nat

- NIH; Neuropsychobiology in Polysubstance Abusers during Abstinence; 4/1/16–1/31/21; $2,781,141

Susanne Mueller, MD

- DOD; The Imprint of Psychogenic Non-Epileptic Seizures on the Brain: A New Model and Imaging Biomarker; 9/30/17–9/29/20; $719,909

Pratik Mukherjee, MD, PhD

- NIH; Highly Accelerated Simultaneous Multi-Slice Phase Contrast MRI; 8/1/16–7/31/18; $70,014
- NIH; Foundations of MRI Corticography for Mesoscale; 7/1/17–6/30/18; $74,990
- VA; Multi-level Assessment and Rehabilitation of Combat Mild Traumatic Brain Injury; 2/1/017–9/30/21; $1,076,796

Srikantan S. Nagarajan, PhD

- NIH Natl. Inst. Neurological Disord &Stroke; Dynamic Brain Imaging of Speech in Primary Progressive Aphasia, 09/15/2017–08/31/2022, $563,185
- UC San Diego; Next Generation Noninvasive Magnetic Neuroimaging, 01/01/2017–12/31/2020, $281,735
- Weill Cornell Medical School; Multimodal modeling framework for fusing structural and functional connectome data, 09/30/2016–06/30/2018, $253,156

Chloe F. Najac, PhD

- American Brain Tumor Association; Metabolic Imaging Biomarkers of Response to Treatment with a Dual Isocitrate Dehydrogenase 1 Inhibitor in Glioma, 06/01/2017–05/31/2019, $100,000

Michael A. Ohliger, MD, PhD

- NIH Natl. Inst. of Biomed Imaging & Bioengineering; Exploring Combined Hyperpolarized 13C MRI with Liver-Specific Gadolinium Contrast Agents for Improved Metabolic Assessment of Liver Tumors, 08/01/2017–05/31/2019, $237,750

Karen G. Ordovas, MD, MAS

- Hospital for Sick Children (SickKids); Myocardial Scarring to Identify Patients at Risk in Childhood Hypertrophic Cardiomyopathy, 09/01/2016–07/31/2017, $375
- National Network of Public Health Inst.ution; Impact of Coronary Calcium Quantification on Patients' Awareness and Engagement on Cardiovascular Risk Reduction in a Lung Cancer Screening Population, 04/01/2017–11/30/2017, $49,966

Matthew F. Parker, PhD

- DOD; A Novel Pro-Drug Strategy to Treat Prostate Cancer by Targeting MYC Driven Nucleotide Biosynthesis, 06/01/2017–05/31/2019, $157,500

Seyedmehdi Payabvash, MD

- Radiological Society of North America; Evaluation of White Matter Microstructural Changes in Children with Sensory Processing Disorders Using Edge Density Imaging, 07/01/2017–06/30/2018, $50,000

Valentina Pedoia, PhD

- NIH Natl. Inst. Arthr, Musculoskel & Skin; Multidimensional MRI-based Big Data Analytics to Study Osteoarthritis, 07/01/2017–06/30/2019, $94,041

Cyrus A. Raji, MD, PhD

- American Society of Neuroradiology; Diffusion MR Imaging based Edge Density Connectome Mapping for Prediction of Alzheimer's Disease, 07/01/2017–06/30/2019, $99,460

David Saloner, PhD

- NIH; MRI of Structure and Function is Assessing Hemodynamic Impact on AAA Evolution, 04/08/17 – 03/31/18, $453,812

Michael A. Samaan, PhD

- NIH Natl. Inst. Arthr, Musculoskel & Skin; Longitudinal Assessment of the Effects of Hip Arthroscopy on Articular Cartilage Biochemistry through a Novel Quantitative MRI-Based Approach, 09/01/2016–08/31/2018, $127,992

Youngho Seo, PhD

- NIH Natl. Heart, Lung & Blood Inst.; Dynamic cardiac SPECT, 05/01/2017–04/30/2021, $585,874

John A. Shepherd, PhD

- GE Healthcare; Quantitative Tomosynthesis Imaging, 04/01/2017–03/31/2020, $149,980
- NIH Natl. Inst. Diabetes & Digest & Kidney; Shape up! Kids, 01/20/2017–12/31/2021, $703,842
- UC Los Angeles; Predictors of Mammary Gland Development & Breast Fibroglandular Volume at Puberty, 07/01/2016–07/31/2016, $814

Renuka Sriram, PhD

- DOD ; Detection and Characterization of Treatment Emergent Neuroendocrine Prostate Cancer Using Hyperpolarized 13C Magnetic Resonance, 08/15/2017–08/14/2020, $435,874

Leo P. Sugrue, MD, PhD

- UC San Diego; ABCD-USA Consortium: Data Analysis Center, 06/01/2016–05/03/2020, $100,000

Celine Taglang, PhD

- DOD; Targeting the Acidic Microenvironment of Prostate Cancer using Chemical Shift-Based, Clinically Translatable Hyperpolarized 13C MRI Biomarkers, 08/01/2017–07/31/2019, $154,934

Jason F. Talbott, MD, PhD

- Circuit Therapeutics, Inc.; Optogenetic Therapy for Pain, 07/01/2017–06/30/2018, $117,224

Elizabeth Tong, MD

- Radiological Society of North America; Effects of Brain Training on Brain Network Connectivity in Pre-clinical Huntington's Disease, 07/01/2017–06/30/2018, $50,000

Duygu Tosun-Turgut, PhD

- Nestec; NOLAN Randomized trial of a Nutritional Blend to Prevent Cognitive Decline in Older Adults, 4/1/17–9/30/23, $4,436,604
- NIH; Predictive model of spread of Parkinson's Pathology using Network Diffusion; $31,042; 7/15/16–4/30/21
- NIH; Efficient statistical methods for Assessing Dementia Risk in Parkinson's Disease; $84,824; 7/1/17–4/30/21
- NIH, Global Alzheimer's Platform Trial-Ready Cohort for Preclinical/Prodromal Alzheimer's Disease; $1,272,364; 5/1/17–4/30/22
- Northern Calif Inst. for Res & Educ, Inc; Alzheimer's Disease Neuroimaging Initiative, 03/01/2017–07/31/2017, $6,930

Henry F. Vanbrocklin, PhD

- Blade Therapeutics, Inc; Imaging Approaches for Fibrosis Therapy Development, 01/15/2017–10/14/2018, $69,670
- Sofie Biosciences, Inc; Fully Automated Enzymatic Radiolabeling of Biomolecules, 09/12/2016–04/11/2017, $49,997
- Trace-Ability, Inc; SBIR #2 Traceability, 01/01/2017–12/31/2017, $25,026

Daniel B. Vigneron, PhD

- NIH Natl. Inst. of Biomed Imaging & Bioengineering; Hyperpolarized MRI Technology Resource Center, 08/01/2016–05/31/2021, $2,876,948
- Univ of Texas M.D. Anderson Cancer Ctr; Multi-Site Development & Evaluation of a Quantitative 3D Hyperpolarized, 03/01/2017–02/28/2022, $263,110

Michael Weiner, MD

- Biogen MA Inc; Master Service Agreement for Recruitment Services from Brain Health Registry, 11/01/2016–03/31/2018, $242,420
- Vrije Universiteit Brussel; European Brain Health Registry/NL, 07/01/2016–12/31/2017, $100,000
- NIH; Alzheimer's Disease Neuroimaging Initiative, 9/15/16–7/31/21; $66,780,250

Chengcheng Zhu, PhD

- NIH Natl. Heart, Lung & Blood Inst.; Characterization of intracranial vessel wall morphology, 05/01/2017–04/30/2019, $90,697

Continuing Awards

Anthony Barkovich, MD

- Boston Children's Hospital; Human Epilepsy Genetics Neuronal Migration Disorders, 08/01/2017–07/31/2018, $60,962

Andrew Burghardt

- Ultragenyx Pharmaceutical Inc; Analysis of HR-pQCT Images from the UX023-CL201 and UX023T-CL201 Trials, 01/01/2016–06/30/2018, $36,616
- Stanford University; Patient Oriented Research in Vitamin D Deficiency in CKD, 08/01/2016–07/31/2017, $16,835

Linda Chao, PhD

- VA; Longitudinal Assessment of Gulf War Veterans with Suspected Sarin Exposure; 10/1/16–9/30/17; $353,454

Daniel Cooke, MD

- American Heart Assn; Bevacizumab Therapy for Brain Arteriovenous Malformation, 07/01/2017–06/30/2018, $77,000
- Siemens Medical Solutions USA, Inc; Siemens Medical Solutions - 4D-DSA prototype software project (UCSF_2014-AX-HETTS-C217068)20150505,06/11/2015–05/31/2017, $92,711

Rahul Desikan, MD, PhD

- Radiological Society of North America; An Automated Atlas of the Human BraInst.em and Cerebellum, 07/01/2016–06/30/2017, $50,000
- American Society of Neuroradiology; Multi-dimensional Prediction of Alzheimer's Disease Risk, 01/01/2017–12/31/2017, $108,416

Michael J. Evans, PhD

- Memorial Sloan-Kettering Cancer Center; Annotating Oncogene Status in Prostate Cancer with Zr-89-transferrin PET, 04/01/2017–03/31/2018, $124,053
- DOD; Development of a Radioligand to Detect Glucocorticoid Receptor Expression in Enzalutamide Resistant Prostate Cancer with Positron Emission Tomography, 09/30/2016–09/29/2017, $136,102

Nicholas Fidelman, MD

- Sirtex Medical Inc; Radiation-Emitting SIR-Spheres in Non-resectable (RESIN) Liver Tumor Patient Registry, 08/01/2016–07/31/2021, $177,555
- Sirtex Medical Inc; Phase I Study of TAS-102 and Radioembolization with 90Y Resin Microspheres for Chemo-refractory Colorectal Liver Metastases, 08/16/2016–08/16/2019, $150,000

Robert R. Flavell, MD, PhD

- DOD; Detection of Aggressive Prostate Tumors using Novel PET and Hyperpolarized 13C Probes Targeting Interstitial Acidity, 09/01/2016–08/31/2020, $823,901

Christopher P. Hess, MD, PhD

- Quest Diagnostics Incorporated; Dementia Pathway Neuroimaging Core Phase 1A, 01/31/2016–05/31/2018, $407,683

Steven W. Hetts, MD

- Stryker Neurovascular; Stryker - Safety and Effectiveness of the Treatment of Wide Neck, Intracranial, Saccular Aneurysms with the Neuroform Atlas Stent System (ATLAS Trial) 20150302, 03/01/2016–10/09/2020, $32,495
- NIH Natl. Cancer Inst.; Endovascular Chemofiltration: Optimizing Removal of Chemotherapeutics and Nanoparticles from the Blood to Reduce Toxicity, 06/01/2017–05/31/2018, $513,934
- Siemens Medical Solutions USA, Inc; Siemens -AX-CBF Prototype Software Project (UCSF-2015-AX-Hetts-C218829) 20150720, 02/02/2016–02/02/2018, $124,798
- Stryker Neurovascular; Evaluation of Safety and Performance of the Neuroform AtlasTM Stent System for Intracranial Aneurysm Treatment - Post Market Clinical Follow-up (ATLAS EU PMCF), 10/01/2016–01/31/2019, $245,873
- Stryker Corporation; Stryker Neurovascular - Surpass IntraCranial Aneurysm EmbolizatioN System Pivotal Trial to Treat Large OR Giant Wide Neck Aneurysms (SCENT Trial) 20150224, 10/10/2014–10/10/2020, $7,371

Michael D. Hope, MD

- NIH Natl. Heart, Lung & Blood Inst.; Hemodynamic and Inflammatory Imaging in Evaluation of Abdominal Aortic Aneurysms, 01/01/2017–12/31/2017, $390,044

Nola M. Hylton, PhD

- NIH Natl. Cancer Inst.; Real-time In Vivo MRI Biomarkers for Breast Cancer Pre-Operative Treatment Trials, 07/01/2017–06/30/2018, $487,259
- University of Pennsylvania; Multi-parametric 4-D Imaging Biomarkers for Neoadjuvant Treatment Response, 04/01/2017–03/31/2018, $42,722

Priyanka Jha, MD

- RSNA Research & Education Foundation; Noninvasive In Vivo Hyperpolarized 1-13C Pyruvate Magnetic Resonance Imaging to Detect Alterations in Placental Metabolism in Gestational Hypertensive Disorders in a Small Animal Model, 07/01/2016–06/30/2017, $38,187

John Kurhanewicz, PhD

- DOD; Metabolic Reprogramming of Cancer and Anti-Tumor Immunity by Targeting LDH-A, 09/30/2017–09/29/2018, $117,404
- NIH Natl. Cancer Inst.; Novel Hyperpolarized MR Markers of Advanced Prostate Cancer, 08/01/2016–07/31/2017, $620,489

Thomas F. Lang, PhD

- NIH Natl. Inst. Arthr, Musculoskel & Skin; CT-based Modeling to Analyze Variation in Skeletal Response to Osteoporosis Drugs, 06/01/2016–05/31/2017, $295,938
- Universities Space Research Association; Bisphosphonates as a Countermeasure to Space Flight Induced Bone Loss, 10/01/2016–02/28/2017, $10,000

Peder E. Larson, PhD

- NIH Natl. Inst. of Biomed Imaging & Bioengineering; Hyperpolarized C-13 Diffusion MRI Measures of Cellular Transport and Metabolism, 06/01/2017–05/31/2018, $500,000
- NIH Natl. Inst. Neurological Disord &Stroke; Novel Ultrashort Echo Time Sequences for Brain MRI, 04/01/2017–03/31/2018, $23,775

Thomas M. Link, MD, PhD

- NIH Natl. Inst. Arthr, Musculoskel & Skin; Impact of Weight loss on Knee Joint Biochemical and Structural Degeneration, 08/01/2017–07/31/2018, $317,103
- O.N. Diagnostics, LLC; Robust BCT for Clinical Use - Phase II, 05/01/2016–04/30/2017, $32,367
- NIH Natl. Inst. of Biomed Imaging & Bioengineering; Biomedical Imaging for Clinician Scientists, 07/01/2017–06/30/2018, $284,438

Jing Liu, PhD

- NIH Natl. Inst. of Biomed Imaging & Bioengineering; 4D MRI Development for Cardiovascular Imaging, 09/01/2016–08/31/2017, $168,386

Janine M. Lupo, PhD

- NIH Natl. Inst. Child Health & Human Development; Microbleeds as a Marker of Radiation-Induced Brain Injury in Pediatric Patients, 02/01/2017–01/31/2018, $499,938

John D. MacKenzie, MD

- NIH Natl. Inst. Arthr, Musculoskel & Skin; Molecular Imaging for Detection and Treatment Monitoring, 07/01/2016–06/30/2017, $171,720

Sergey G. Magnitsky, PhD

- NIH Natl. Inst. Arthr, Musculoskel & Skin; Development of in vivo MR Imaging Technique for Monitoring Mesenchymal Stem Cell Therapy for Bone Pathologies, 02/01/2017–01/31/2018, $144,729

Sharmila Majumdar, PhD

- GE Healthcare; Development of PET MR Imaging and Processing, 06/01/2016–06/30/2018, $509,575
- GE Healthcare; Quantitative and Fast MR Imaging and MR Image Processing, 06/01/2017–05/31/2018, $255,792
- NIH Natl. Inst. Arthr, Musculoskel & Skin; Evaluating Disease Progression in Hip Osteoarthritis, 05/01/2017–04/30/2018, $750,687
- GE Healthcare; PET/MR, C13, Cyclotron showsite agreement, 12/01/2015–12/31/2017, $120,000

Alastair J. Martin, PhD

- MRI Interventions, Inc; Technical Evaluation of Novel Hardware and Software Developments, 02/01/2017–01/31/2018, $35,561

Dieter Meyerhoff, Dr.rer.nat

- DOD; Brain MR Spectroscopy Biomarkers in a Clinical Trial of PTS Patients with Comorbid AUD; 5/1/17–4/30/18; $164,997
- NIH/NIAAA; The Biological Basis of Alcohol-and Smoking-Induced Brain Injury; 9/1/16–8/31/17; $422,156
- NIH; Cell Aging in Major Depression, 3/1/17–2/28/18; $35,331

Susanne Mueller, MD

- NIH; SUDEP Research Alliance: Clinical Network Core; 8/1/17–7/31/18; $38,325

Pratik Mukherjee, MD, PhD

- NIH; MRI Corticography (MRCoG): Micro-scale Human Cortical Imaging; 6/1/17–5/30/18; $187,793

Donna E. Murray, PhD

- NIH Natl. Inst. Alcohol Abuse & Alcoholism; Self-Regulation and Neural Networks in Alcohol Use Disorders, 09/03/2016–09/02/2017, $60,702

Srikantan S. Nagarajan, PhD

- NIH Natl. Inst. Deafness & Communications Disorders; Imaging sensorimotor adaptation and compensation in speech, 07/01/2017–06/30/2018, $336,813

Sarah Nelson, PhD

- NIH Natl. Cancer Inst.; MR Metabolic Markers for Evaluation of Patients with Recurrent Glioma, 06/01/2017–05/31/2018, $351,621

David Newitt, PhD

- Regents of the University of Michigan; Elimination of Instrumental Bias for Quantitative Diffusion Imaging in Clinical Oncology Trials, 08/01/2017–07/31/2018, $153,445

Susan Noworolski, PhD

- Verily Life Sciences, LLC; Retrospective Study of Prostate MR Imaging, 01/26/2016–01/26/2021, $68,387
- Touro University; Lipogenesis, Lipoprotein Flux & CVD Risk: Role of Meal Composition & Frequency, 06/01/2017–05/31/2018, $34,768

Sabrina M. Ronen, PhD

- NIH Natl. Cancer Inst.; Hyperpolarized Arginine Imaging of Inflammatory Cells and Their Inhibition In GBM, 12/01/2016–11/30/2017, $172,369
- NIH Natl. Cancer Inst.; Metabolic Reprogramming in Brain Tumors, 02/01/2017–01/31/2018, $614,680
- NIH Natl. Cancer Inst.; Metabolic Imaging of Brain Tumor Response to Therapy, 04/01/2017–03/31/2018, $631,792

Youngho Seo, PhD

- NIH Office of the Director; Combined Dual-Modality SPECT/CT for Small Animal Imaging Research at UCSF, 09/23/2015–09/22/2017, $1,185,177

John A. Shepherd, PhD

- University of Hawaii; Obesity, Body Fat Distribution and Cancer Risk in the Multiethnic Cohort (Core C), 09/01/2016–08/31/2017, $98,497
- Cincinnati Children's Hospital Med Ctr; Bone Mineral Accretion in Young Children, 08/01/2016–07/31/2017, $73,013
- Johns Hopkins University; International Maternal Pediatric Adolescent AIDS Clinical Trials Group Leadership Award, 12/01/2016–11/30/2017, $117,995
- PHS Centers for Disease Control; Dual Energy X-Ray Absorptiometry (DXA) Scan Analysis and Quality Control Review for NHANES 2015–2019, 01/01/2017–12/31/2017, $241,767
- California Breast Cancer Research Program; Localized Probability of Mammographic Masking, 09/01/2016–02/28/2017, $33,773
- NIH Natl. Cancer Inst.; Lesion Composition and Quantitative Imaging Analysis, 03/01/2017–02/28/2018, $728,273
- Hologic, Inc.; Hologic Grant Request: Ultra-DXA, 03/11/2016–03/10/2017, $2,000
- NIH Natl. Inst. Diabetes & Digest & Kidney; Optical Body Composition and Health Assessment, 05/01/2017–04/30/2018, $651,796
- UC Los Angeles; Environmental chemicals and postpubertal breast composition in a Latino cohort, 07/01/2017–06/30/2018, $27,747

Rebecca Smith-Bindman, MD

- Patient-Centered Outcomes Research Inst.; UCSF CT Radiation Dose Registry to Ensure a Patient Centered Approach for Imaging, 03/01/2017–09/21/2018, $76,245
- NIH Natl. Cancer Inst.; CT DOSE Collaboratory, 01/01/2017–12/31/2017, $1,271,484
- NIH Natl. Cancer Inst.; Risk of Pediatric and Adolescent Cancer Associated with Medical Imaging, 06/01/2017–05/31/2018, $2,177,040
- Kaiser Foundation Research Inst.; Pragmatic Trial of More Versus Less Intensive Strategies for Active Surveillance of Patients with Small Pulmonary Nodules, 08/01/2016–07/31/2017, $286,824

Leo P. Sugrue, MD, PhD

- American Roentgen Ray Society; Imaging Biomarkers of Obsessive Compulsive Disorder, 07/01/2017–06/30/2018, $75,000

Wyatt M. Tellis, PhD

- Radiological Society of North America; Medical Image Sharing Through a Patient Controlled Exchange System, 04/01/2017–03/31/2018, $256,733

Duygu Tosun-Turgut, PhD

- Michael J. Fox Foundation for Parkinson's Research; Diffusion Tensor Imaging Processing and Group Analysis, 09/09/2017–09/08/2018, $160,000
- NIH; Multimodal MRI Characteristics of Psychotherapy Response in Late Life Depression; 3/1/17–2/28/18; $160,428
- UC Davis; Determinants and Consequences of White Matter Degeneration in Alzheimer's Disease, 07/01/2016–06/30/2017, $43,150

Charles J. Truillet, PhD

- DOD; Detection and Treatment of Advanced Prostate Cancer with Radiolabeled Transferrin Molecules, 08/01/2016–07/31/2018, $125,000

Olga Tymofiyeva, PhD

- NIH Natl. Ctr Complementary & Integ Hlth; A Network Approach to Study Brain Plasticity in Children with Cognitive Training, 12/01/2016–11/30/2017, $237,750

Henry F. Vanbrocklin, PhD

- CellSight Technologies; Pre-Clinical Molecular Imaging, 06/01/2017–05/31/2018, $85,009
- Trace-Ability, Inc; Mitigation of Quality and Compliance Risks in Radio-Pharmaceutical Production by Implementation of an Automated Release Testing Technology, 09/01/2016–08/31/2017, $196,394
- University of Montana; Molecular Imaging of Chemical Threats and Countermeasures, 08/01/2016–07/31/2017, $285,746
- BioLaurus, Inc. Radio-labelling and Small Animal Testing of (TBA), 11/05/2015–11/04/2018, $55,152

Daniel B. Vigneron, PhD

- NIH Natl. Cancer Inst.; Translating HP 13C MRI as a Novel Paradigm for Assessing Drug Target Inhibition, 03/01/2017–02/28/2018, $657,802
- NIH Natl. Inst. of Biomed Imaging & Bioengineering; New Inst.rumentation and Techniques for Hyperpolarized Metabolic and Perfusion MRI, 06/01/2016–05/31/2017, $712,949
- NIH Natl. Inst. of Biomed Imaging & Bioengineering; Development and Translation of Hyperpolarized C-13 Prostate Cancer MRI Methods, 08/01/2017–07/31/2018, $1,185,440

Cornelius J. Von Morze, PhD

- NIH Natl. Inst. Diabetes & Digest & Kidney; Molecular Imaging of Renal Transport and Metabolism using Hyperpolarized C-13 MRI, 04/01/2017–03/31/2018, $163,994

Z. Jane Wang, MD

- NIH Natl. Inst. Diabetes & Digest & Kidney; Hyperpolarized 13C Markers of Diabetic Nephropathy, 08/01/2107–07/31/2018, $237,750

Michael Weiner, MD

- Alzheimer's Association, Inc.; Using the Brain Health Registry to Facilitate the Imaging Dementia-Evidence for Amyloid Scanning (IDEAS) Study, 09/01/2017–08/31/2018, $218,493
- Alzheimer's Drug Discovery Foundation; Brain Health Registry Trial-Ready Cohort, 02/01/2016–01/31/2017, $100,000
- CA H&W Dept of Public Health; Elucidating Effects of Alzheimer's Caregiving Using the Brain Health Registry, 07/01/2017–06/30/2018, $145,748
- DOD; Effects of Traumatic Brain Injury (TBI) and Post Traumatic Stress Disorder (PTSD) on Alzheimer's Disease (AD) in Veterans Using Imaging and Biomarkers in the Alzheimer's Disease Neuroimaging Initiative (ADNI) 9/30/16–9/29/17; $487,879
- DOD; Effects of Traumatic Brain Injury and Post-Traumatic Stress Disorder on Alzheimer's Disease (AD) in Veterans with Mild Cognitive Impairment (MCI) Using the Alzheimer's Disease Neuroimaing Initiative (ADNI) 9/30/16–9/29/17; $903,302
- DOD; Effects of Traumatic Brain Injury and Post-Traumatic Stress Disorder and Alzheimers Disease on Brain Tau in Vietnam Veterans using ADNI; 9/22/16–9/21/17, $441,145
- Janssen Pharmaceuticals; Online Neuropsychological Test Validation Project with Imaging Pilot; 3/1/17–2/28/18, $165,429
- The Larry L. Hillblom Foundation; Full Application - The Hillblom California Brain Health Registry Network, 01/01/2017–12/31/2017, $300,000
- Mayo Fdn / Mayo Clinic; Weiner Sub Mayo Alzheimer's Disease Patient and Caregiver Powered Network, 10/01/2016–09/30/2017, $214,795
- Monell Chemical Senses Center; Olfaction as a Biomarker for Health and Cognitive Decline, 02/12/2016–02/11/2017, $32,776
- VA Mental Illness Research, Education and Clinical Center Imaging Core10/1/16–9/30/17; $231,241

Duan Xu, PhD

- NIH Natl. Inst. Child Health & Human Development; Towards Baby Brain Connectome: a Study of Newborn Brain Networks, 12/01/2016–11/30/2017, $598,576

Benjamin Yeh, MD

- GE Global Research; Nanoparticle CT Contrast Agents for Reduced Radiation Dose and New Imaging Applications, 05/01/2016–04/30/2017, $380,437

Xiaoliang Zhang, PhD

- NIH Natl. Inst. of Biomed Imaging & Bioengineering; Improved Sensitivity and Safety for Endovascular MR Imaging at 3T, 02/01/2017–01/31/2018, $198,125

The Department of Radiology and Biomedical Imaging
is grateful to the many alumni
who give back with a gift to the department.

"Contributing to our department keeps us together as a community, sharing the pride in all of our successes. I like being a part of a big team, since I know that one person cannot do it alone. Together, our clinical and research work helps people of all ages and ailments. We find answers."

—*Andrew S. Phelps, MD*
Assistant Professor Clinical Radiology
UCSF Department of Radiology and Biomedical Imaging
Residency, '11

"As biomedical imaging advances in leaps and bounds, it is truly a joy to give and be part of this exciting journey!"

—*Annie P. Lai, MD*
Bay Imaging Consultants
Fellowship, '02

"I am incredibly proud to be a UCSF radiology alumnus, and I will always care deeply about the legacy of the training program. By donating to the Margulis Society, I hope to continue encouraging future UCSF radiology residents to achieve their maximum potential in radiologic knowledge, research, and leadership."

—*Luis B. Gutierrez, MD*
Current Fellow, Musculoskeletal Imaging
UCSF Department of Radiology and Biomedical Imaging
Residency, '16

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