

# The UCSF RadOnc Beam

News & Ideas from the UCSF Radiation Oncology Team

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## RESEARCH

### Barcellos-Hoff Lab

The preclinical studies in the Barcellos-Hoff lab fall into two categories: the biology of radiation as a carcinogen and as a therapeutic. The mammary carcinogenesis studies, led by Lin Ma, is studying the effect of age at exposure and whether a relatively mild treatment of anti-inflammatory will prevent—or delay—cancer. On the therapy side, two projects focus on radiation stimulating response to immunotherapy. Jade Moore is evaluating the relationship between the type and composition of mammary tumor immune infiltrates and response to radiation. Oliver Reiner is studying TGF $\beta$  and the response to radiation and anti-PD1. Meanwhile, Qi Liu has returned as a research scientist after a year at Peking University. He authored the project on HPV, TGF $\beta$  and DNA damage, published last year. We welcome two Chinese grad students, Yufei Zheng and Genwen Chen, and two Spanish radiation oncology residents, Isabel Linares Galiana and Miguel Angel Berenguer Frances.

—Mary Helen Barcellos-Hoff, Ph.D

Q What is the most important part of your job?

“Providing the care patients need when it matters most.”

— Catherine Park, MD

### Raleigh Lab

The Raleigh Lab is focused on understanding the genetic diversity of developmental signaling pathways in cancer. Our research encompasses

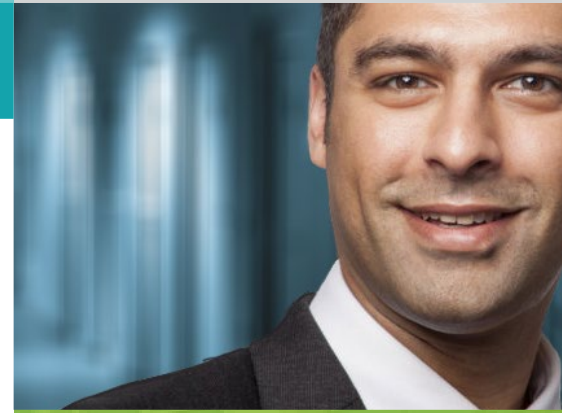
investigations of tumor heterogeneity, and basic studies of lipid signaling in cancer. Recently, our work has revealed novel activators and effectors of oncogenic Hedgehog signaling in medulloblastoma, a common pediatric brain tumor.

Using lipidomic mass spectrometry, we identified cilia-associated oxysterol lipids that bind to smoothed and activate the Hedgehog pathway. This affords us the opportunity to study how lipids drive other Hedgehog associated cancers, and may teach us how they regulate development. We are using single cell technology and cerebral organoids to study heterogeneity in meningioma derived from the neural crest. We have identified an epigenetic basis for intra-tumor heterogeneity in ependymoma; progenitor cell populations in glioblastoma that mimic brain cell types, as well as epigenomic reprogramming mechanisms that underlie neural crest and immune subgroups of schwannoma. —David R. Raleigh, MD, PHD

# Spotlight

## Mekhail Anwar, Ph.D.

Mekhail Anwar's lab focuses on placing physicians and scientists directly within the tumor microenvironment through the deep integration of microelectronics and photonics. He was awarded the NIH Trailblazer Award for An Ultra-Thin Molecular Imaging Skin for Intraoperative Imaging of Microscopic Residual Disease in Cancer. Building on work with chip-based microscopes, Dr. Anwar's lab is developing images that relay real time response for immunotherapy, key to personalizing therapy for patients who don't respond to IO therapy. Dr. Anwar was recently awarded an NSF grant to study methods for cell sensing and actuation using ultra-high frequency electromagnetic fields.



“Advances in Immunology play a critical role in the wellness of our patients”

—Mekhail Anwar

## Gilmer Valdes, Ph.D.

Gilmer Valdes notes that state of the art machine learning algorithms have a marked tradeoff between accuracy and interpretability. In medicine, knowledge representation and validation is as relevant as accuracy, the development of accurate and interpretable algorithms is of paramount importance. Dr Valdes recently received a K08 award, “Development of Accurate and Interpretable Machine Learning Algorithms for their application in Medicine.” He will apply these algorithms to solve a wide spectrum of clinical problems in Radiation Oncology, Hospital Medicine and Intensive Care Unit.



“Machine Learning has the potential to become part of every clinical workflow for the benefit of our patients” —Gilmer Valdes

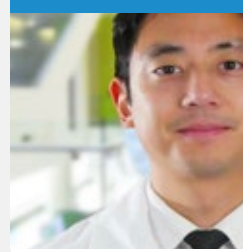
# Welcome

Please  
join us in  
welcoming  
our newest  
medical  
faculty  
members

**Lauren Boreta, MD**, a graduate of our medical residency program joined our faculty as a HS Clinical Instructor in Radiation Oncology and Asst. Quality Assurance Director. Her clinical focus is on adult CNS malignancies and inpatient palliative care; her service is at Parnassus. She received and completed her MD at UCSF and an internship in Internal Medicine at Kaiser.



**Jason Chan, MD**, a graduate of our medical residency program, joined as an Assistant Professor in Radiation Oncology, with a clinical focus on head and neck and thoracic malignancies. His clinical service will be at Mount Zion and Mission Bay. He received his MD from Brown and completed an internship in Internal Medicine at Kaiser Permanente.



**Julian Hong, MD, MS** is joining us as an Asst. Professor in Radiation Oncology and Director of Clinical Informatics, with a joint appointment at Bakar Computational Health. He will provide clinical service at Mission Bay in genitourinary malignancies. He received his MD from Wisconsin-Madison and his MS from Stanford, before moving on to residency at Duke University.



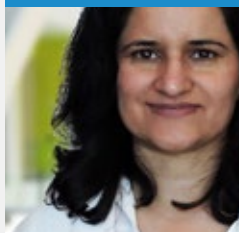
**Osama Mohamad, MD, PhD** will join us an Asst. Professor of Radiation Oncology, with a clinical focus on genitourinary malignancies and brachytherapy. His service will be located at Mission Bay. Dr. Mohamad received his MD and PhD at Emory as part of the MSTP program and recently completed his residency at the University of Texas Southwestern, where he served as Chief Resident.



**Nicolas Prionas, MD, PhD** joins us as an HS Asst. Professor in Radiation Oncology and Assoc. Dir. of Quality Initiatives. Dr. Prionas will provide clinical services at Mount Zion and Mission Bay, and Washington Hospital, Fremont. His clinical service involve breast malignancies. He received his PhD in and MD from UC Davis and completed his residency in Radiation Oncology at Stanford.



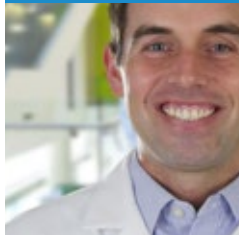
**Manju Sharma, Ph.D** joins us at Mission Bay from the University of Rochester Medical Center as an Assistant Professor and ABR Certified Medical Physicist. Dr. Sharma's clinical interests are in process mapping and standardization of radiation therapy clinical workflow. She received her PhD at Panjab University India and finished a CAMPEP Residency from Virginia Commonwealth University.



**Alon Witztum, DPhil** a graduate of our medical physics residency program, joined as an Asst. Professor of Clinical Radiation Oncology. He serves as a Medical Physicist at Mount Zion and Mission Bay. He received his MMP in Medical Physics from UPenn, his DPhil in Oncology from Oxford. His expertise is in modeling normal tissue toxicity and automation of radiotherapy.



**Benjamin Ziemer, PhD** a graduate of our medical physics residency program, joined as an Asst. Professor of Clinical Radiation Oncology. He serves as a Medical Physicist, primarily at Parnassus. He received his PhD in Experimental Particle Physics at UC, Irvine, and a post-doc at UC San Diego. His expertise is in knowledge-based treatment planning and statistical methods.





**In Physics**, we ensure the highest levels of safe and effective delivery of ionizing radiation. We have developed and/or supported programs in GammaKnife radiosurgery, stereotactic body radiation therapy, high dose rate brachytherapy, permanent radioactive seed implants, intraoperative radiotherapy, hyperthermia, proton therapy for ocular tumors, and x-ray therapy for skin cancers. The team is internationally recognized for clinical, research and development.

**Updates** We initiated clinical operations in the PCMB building, a culmination of a three year project that included facility design, shielding assessment and survey of radiation rooms, installation of two new linear accelerators, the relocation of the HDR system and CT scanner, and the installation of the first Siemens Vida MR scanner in a radiation oncology department. (This provides superior imaging in disease sites.)

Our faculty work at the boundary of tech and medicine, we have invested heavily in recruiting top AI talent.

**Investing in AI** The Division excels in AI, Machine learning, Radiomics, Monte Carlo techniques, hyperthermia, and stereotactic radiosurgery and stereotactic body radiation therapy. Our faculty work at the boundary of tech and medicine; we have invested heavily in recruiting top AI talent. Additionally, faculty have been

productive in attracting funding, especially Chris Diederich, Bruce Faddegon, Atchar Sudhyadhom, Gilmer Valdes, and Olivier Morin. Dr. Chris Diederich was awarded Fellow of American Association of Physicists in Medicine, and Dr. Vasant Kearney was given the Science Council best paper award at the 2019 AAPM meeting.

Finally, Physics' new members! Dr. Manju Sharma, Dr. Benjamin Ziemer, and Dr. Alon Witztum, Asst. Professors; Monica Hira and Junhan Pan, Hospital Radiation Physicists; Keith Lupu and Kiran Hudka, Sr. Dosimetrists.

—Timothy Solberg

## Meet our new residents!



### Katherine Chen, MD

I grew up in Ellicott City, Maryland and went to medical school at the University of Pittsburgh. Despite my east coast upbringing, I'm happy my journey has led me to UCSF. I get to be closer to my family in the Bay Area, and I'm truly looking forward to

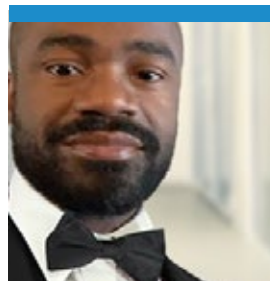
learning from my new radiation oncology family over the next few years!



### William Chen, MD

I was born in Singapore and my hometown is Lino Lakes, Minnesota. I came to UCSF for medical school and was lucky enough to find my way to the UCSF residency program. I'm looking forward to meeting and getting to know my fellow residents

and everyone else in the department.



### Horatio Thomas, MD, MSc

I am from Jamaica and grew up North Carolina. I went to Harvard Medical School and am excited to join the amazing physicians and researchers at UCSF. I was drawn to the Radiation Oncology Department's excellent clinical care to

diverse populations, innovative spirit, and immeasurable warmth. I am looking forward to delivering top-notch care to patients, exploring research interests, resident board game nights, and exploring San Francisco.



### Benjamin Li, MD, MBA

I am from Lompoc, California and went to Vanderbilt Medical School. I'm excited by the opportunities to learn about leadership, organizational growth, and building solutions in a connected world. UCSF has outstanding opportunities and energy

that align with my passions; it attracts experienced physicians and model clinical teams who will help me become the best doctor I can be.

# Clinical Trials

## Open clinical trials with Radiation Oncology Faculty PI

PPI	Protocol #	Protocol Title	Open to Accrual	6 Month Accrual
Catherine Park	187513	Hypofractionation After Breast Reconstruction for Breast Cancer (FABREC)	02/19/2019	6
Steve Braunstein (written by Rose Li)	189820	Ride to care: Eliminating transportation barriers for disadvantaged cancer patients undergoing RT	05/14/2019	0
Steve Braunstein	176515	METIS: Radiosurgery with or without tumor treating fields for brain metastases from NSCLC	07/19/2018	0
Sue Yom	162010	Nivolumab + ChemoRT for Patients with Nasopharyngeal Cancer	12/12/2017	4
Sue Yom	166520	PembroX: Pembrolizumab +/- SBRT prior to surgery for NSCLC	08/14/2017	2
Sue Yom	18201	A Phase 1/2 Trial of Concurrent RT, Cisplatin, and BMX-001 in Locally Advanced Head and Neck Cancer	04/03/2019	3
Sue Yom	CTSU-NRG-HN001	Phase II and Phase III Studies of Individualized Treatment for Nasopharyngeal Cancer Based on Biomarker EBV DNA	10/23/2014	1
Sue Yom	CTSU-NRG-HN004	Phase II/III Trial of RT and Concurrent Durvalumab vs. RT and Concurrent Cetuximab in Head and Neck Cancer patients with a Contraindication to Cisplatin	03/12/2019	0

## Studies in the pipeline with Radiation Oncology Faculty PI

PPI	Protocol #	Protocol Title	Sponsor
Anthony Wong	8551	Phase II Study of Salvage XRT + ADT +/- Abiraterone Acetate and Apalutamide (ARN-509) for Rising PSA after Radical Prostatectomy with Adverse Features. (FORMULA-509 Trial)	Janssen; DFC
Mary Feng (written by Melody Xa)	19721	Phase II study of hypofractionated RT to Augment immune Response in patients with Metastatic GI cancers progressing on immune therapy (ARM-GI)	Varian
Steve Braunstein	Pending	Phase 1 trial of Osimertinib with SRS in Patients with brain metastases from EGFR positive NSCLC	Case Comprehensive Cancer Center
Felix Feng (National PI)	RTOG-3506	STEEL: Phase II Trial of Salvage RT with Standard vs Enhanced ADT (with Enzalutamide) in Patients with Post-Prostatectomy PSA Recurrences with Aggressive Disease Features	NRG
Sue Yom (National PI)	NRG-HN005	Phase II/III trial of de-intensified RT for patients with Favorable oropharyngeal cancer	NRG
Mary Feng	Pending	Phase II Trial of Palliative Hypofractionated RT Followed by Durvalumab +/- Tremelimumab for Advanced Hepatocellular Carcinoma after Progression on Prior PD-1 Inhibition	AstraZeneca
Steve Braunstein	Pending	Phase II study of stereotactic radiosurgery in conjunction with the PD-1 inhibitor Nivolumab for the treatment of recurrent meningioma	Bristol Myers Squibb

# Coffee Talk

## Steve Braunstein, MD, PhD

Associate Professor, Department of Radiation Oncology

### Q What is the most interesting part of your job?

The most interesting and inspiring component to my profession is routinely bearing witness to the ability of our team to mobilize together to offer outstanding care for our patients. Our care pathway is tremendously complex, both logistically and technically, drawing upon diverse expertise of a truly interdisciplinary team: physicians, nurses, medical assistants, therapists, physicists, dosimetrists, and a large administrative team. Incredibly, this process is often a seamless experience for our patients thanks to the diligence and professionalism of our team.



### Q What's the best spot for lunch?

Admittedly, the best spot for lunch is usually the top draw of my desk where I have a family-sized bag of trail mix. However, on those occasional lighter academic days, I recommend SF Kebab on the Mission Bay Campus. They have a menu of healthy and less-healthy Mediterranean fare. They are conveniently located right across from our PCMB clinic, so you can pickup your food in under three minutes and remain ACR-compliant should your services be needed to check a cone beam CT.

### Q What do you do to unwind?

Hiking, cycling, and running are amongst my favorites. Recently, I've been working on tuning up my juggling skills to impress my niece and nephew. My current ability level is somewhere between laughable and pitiful.

## We want to showcase **You!**

If your team is doing something newsworthy, we want to know. To share your success in this newsletter, contact Mekhail Anwar at [mekhail.anwar@ucsf.edu](mailto:mekhail.anwar@ucsf.edu)

## Ops/ QA

There is so much going on in Operations, we can't fit it all in this column! First, we want to say we appreciate everyone in the department for all your amazing work and partnership.

### Here's the latest

**PCMB** MRI and Hyperthermia mock state licensing review took place August 13th. It went very well; Thank you PCMB Team! Additionally, Siemens was on site for our MRI applications; I am excited to say that we are closer to having a go live date for MRI Sim!

**MTZ** We are finalizing the project plan for our CT replacement and look forward to starting construction in the winter/spring of this year. We also plan to roll out our MTZ True North Board this fall.

**Parnassus** Maybe the most exciting update is that the new Parnassus main waiting room is ready! We are waiting for art and our double door, but the floors, furniture and paint look great. A HUGE thank you to the Parnassus team who did a great job of working through the construction. And a special shout out to the IT team who helped keep us connected during the process!

**QA** We are excited to announce that Dr. Lauren Boreta joined the QA Leadership Committee in August 2019 and will undertake the role of Assistant Quality Assurance Director. Quite a few tactics in the department's FY20 IAP Goal are related to Patient Experience and tie in with QA. For example, updating the treatment summary workflows and finalizing the implementation of service line specific directives to adhere to ACR mandates, as well as refining the Rad Onc Apex Pools to improve patient – provider/ staff communication. Please continue to submit IRs for any variances in standard protocol or to report unsafe conditions. For any questions regarding the QA Leadership Committee or any QA projects, reach out to Dr. Boreta, Emily Hirata, Nina Pitts, or Lindsay Williams.