

The UCSF Beam RadOnc

News & Ideas from the UCSF Radiation Oncology Team



Why are you excited about this work?

“I am investigating the role of radiation in oligometastatic disease, with a particular interest in radiotherapy's potential to stimulate the immune system.”

— Anthony C. Wong, MD PhD

- 1 | Focus
- 2 | Research Update
- 3 | Spotlight
- 4 | Welcomes
- 5 | Physics
- 5 | Resident Focus
- 6 | Clinical Trials
- 7 | Coffee Talk
- 7 | OPs/QA

FOCUS

Oligomets and Prostate Cancer

Anthony C. Wong, M.D., Ph.D.

*Assistant Professor
Department of Radiation Oncology*

UCSF is at the forefront of prostate cancer molecular imaging. Using Gallium-68 Prostate Specific Membrane Antigen positron emission tomography (PSMA PET), the most sensitive prostate cancer imaging modality available today, UCSF has improved detection and localization of cancer that may have spread outside the prostate.

Among the many advances are:

- The identification of men with prostate cancer “oligometastases”—limited metastatic disease. Whereas hormone therapy and chemotherapy were once considered the only appropriate interventions, we now know that men with limited metastatic disease may experience benefits from radiation therapy beyond palliation.
- We are investigating the role of radiation in oligometastatic disease, with a particular interest in radiotherapy's potential to stimulate the immune system.
- I am the co-primary investigator of an actively accruing phase 2 clinical trial combining radiation therapy, augmented hormone therapy, and immunotherapy in men with newly diagnosed oligometastatic prostate cancer.

Research Update

Congratulations

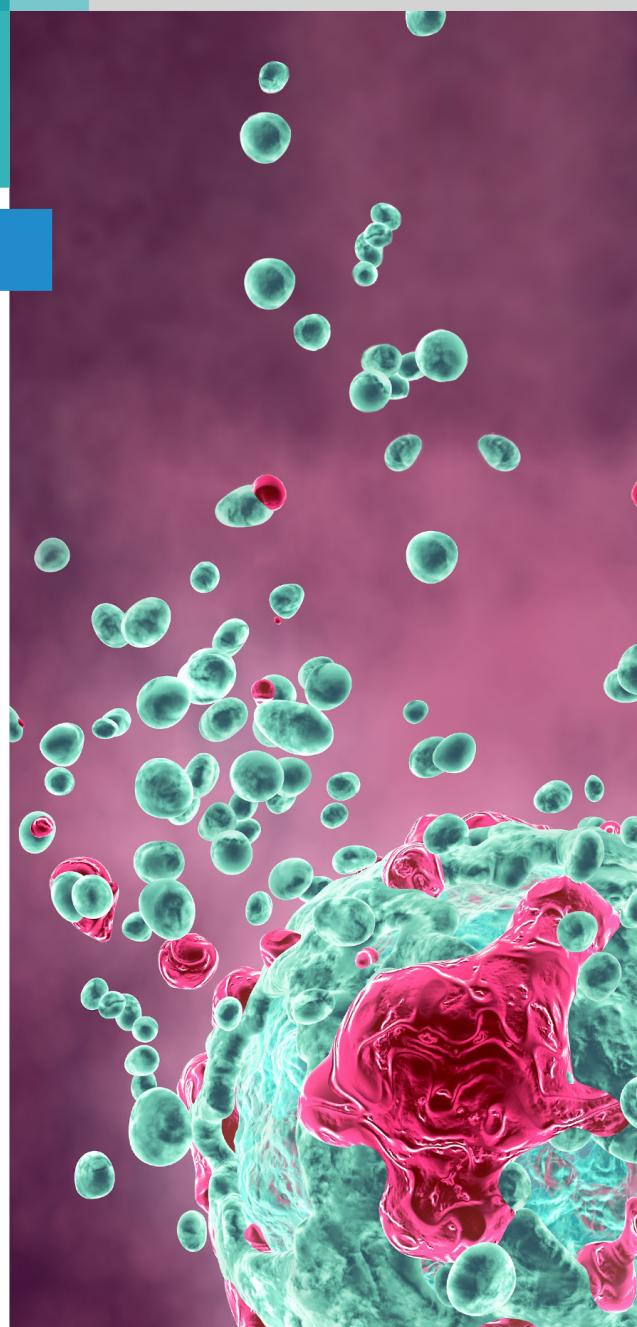
Congratulations to postdoctoral fellow, **Lin Ma, Ph.D.**
on recent acceptance of the manuscript entitled:

Aggressive Mammary Cancers Lacking Lymphocytic Infiltration Arise in Irradiated Mice and Can be Prevented by Dietary Intervention.

The hypothesis is that radiation effects on the immune system and chronic low level inflammation drive the aggressive breast cancers observed in childhood cancer survivors treated with radiotherapy. Dr. Ma presented an invited talk at the Radiation Research Society annual meeting this month on preliminary results from her large NIH funded mouse study on whether low dose aspirin can ameliorate the effect of radiation on cancer development.

Her paper reports radiation-induced carcinogenesis studies using a model in which the mammary glands of aged (10-month-old) mice were transplanted with Trp53-null mammary tissue 3 days after exposure to low doses of sparsely ionizing -radiation or densely ionizing particle radiation. This demonstrates a significant radiation-quality difference in cancer incidence in aged mice and that both types of radiation exposure can fuel carcinogenesis by repressing antitumor immunity in cancer. Aggressive, fast-growing tumors lacking lymphocytic infiltrate were evident only in irradiated mice, but were prevented by dietary intervention with a non-toxic, immunomodulatory agent known as CAPE, which is derived from a honeybee product.

Lin is co-first author with Coral Omene, M.D./Ph.D. whose K08 research was conducted at NYU. She is now an assistant professor at Rutgers Cancer Institute of New Jersey. Most of the mouse experiments were conducted by lab manager and co-author William Chou under NASA funding while at NYU. This is the first Barcellos-Hoff lab publication on which postdoc Jade Moore, Ph.D. is co-author for providing bioinformatics analysis along with Dr. Jian-Hua Mao, who is long standing collaborator at Lawrence Berkeley National Lab.



Shout Out!

Harish Vasudevan was recently highlighted in *The Newsletter of the Childrens' Tumor Foundation*.

He was the recipient of funding of a Young Investigator Awards for his work on malignant peripheral nerve sheath tumors.

Malignant peripheral nerve sheath tumors (MPNSTs) are rare but aggressive tumors associated with NF1. There are currently no molecular biomarkers or targeted therapies available for MPNSTs due to the rarity of these tumors and incomplete understanding of their molecular composition. The overall aim of Dr. Vasudevan's proposed work is to use high throughput sequencing in single cells to characterize the molecular heterogeneity in MPNSTs at the DNA, RNA, and protein levels as well

as evaluate the functional effect of these changes in primary Schwann cells. Given the heterogeneous nature of MPNSTs, single cell analyses will be critical to define clinically relevant tumor subpopulations, mutational co-occurrence, and rare genetic variants.

We will hear directly from Dr. Vasudevan in our next issue.

Spotlight

Manju Sharma, PhD

Assistant Professor
Division of Physics
Department of Radiation Oncology

Dr. Manju Sharma is an Assistant Professor and ABR Certified Medical Physicist at the UCSF Department of Radiation Oncology. Dr. Sharma has previously worked at the Radiation Oncology Department at the University of Rochester Medical Center (URMC) where she was an Assistant Professor. At URMC Dr. Sharma's work focused

Dr. Sharma's clinical interests include developing and implementing new methodologies to streamline physics quality assurance and easy access to database.

Dr. Sharma's research interests are in the adaptive radiation therapy and outcome analysis for hypo-fractionated treatments. She extends her work to evaluate the maximum benefit limits of adaptive image-guided radiation therapy, as well as the modeling of pre-clinical studies.



Osama Mohamad, MD, PhD

Assistant Professor
Department of Radiation Oncology

Dr. Osama Mohamad received his undergraduate degree at the American University of Beirut, in Beirut, Lebanon in 2006 with the highest honors. He then enrolled in the medical scientist training program at Emory University in Atlanta, and successfully finished his MD PhD (PhD in stem cells and regenerative medicine) in 2014. During his PhD, he received a Howard Hughes Medical

Institute Fellowship award and completed a certificate program in clinical and translational research. He completed a transitional year internship at the University of Hawaii, then finished residency training in radiation oncology at the University of Texas Southwestern Medical Center. During residency, he spent a year pursuing a research fellowship at the National Institute of Radiological Sciences in Japan studying carbon ion radiotherapy for prostate cancer. Over his years in training, he received many awards including the resident of the year award and the RSNA Roentgen research award during his chief resident year at UTSW. He presented his research at multiple national and international meetings and published over 45 publications including a first author original research paper in *Lancet Oncology*.

At UCSF, he will be specializing in the treatment of genitourinary cancers with special focus on prostate and kidney cancers using intensity modulated radiotherapy, stereotactic radiotherapy, and HDR brachytherapy. He is building on the strong interdisciplinary prostate cancer clinical programs in the departments of urology, radiation oncology, and medical oncology at UCSF to develop clinical research, clinical trials, and translational research in prostate cancer.

My number one priority is my patients. I'm interested in healthcare innovation with a focus on oncology, and am passionate about clinical care and bringing cutting-edge research and innovation to my patients.

Welcome

Joanna C. Yang, MD, MPH

Assistant Professor, Department of Radiation Oncology

Dr. Joanna Yang specializes in the treatment of breast cancers and lymphomas. Through clinical care, research, and policy work, her goals are to improve long-term outcomes for all of her patients by improving efficacy, minimizing toxicity, ensuring treatment value and affordability, and exploring the potential synergies of radiation therapy with novel drugs. In her first six months, Joanna is already leading and innovating and advancing patient having put several trials.

She earned a medical degree from the Mount Sinai School of Medicine in New York City, where she graduated with Distinction in Research and Distinction in Education. She then completed a transitional year internship and radiation oncology residency at Memorial Sloan Kettering Cancer Center. At MSKCC, Dr. Yang served as chief resident and completed a lymphoma fellowship. Dr. Yang has an MPH from the Harvard School of Public Health in the Clinical Effectiveness Track. She was selected as a Health Policy Fellow for the American Society of Clinical Oncology from 2017-2018 and remains active with ASCO as a member of the Clinical Practice Committee. She is also an active council member of the International Lymphoma Radiation Oncology Group.



Being at UCSF allows us to incorporate the latest artificial intelligence advancements into personalized medicine.

Nicolas D. Prionas, MD, MPH

Assistant Professor, Associate Director of Quality Initiatives,
Department of Radiation Oncology

Dr. Nicolas Prionas is a native of the San Francisco Bay Area and received a Bachelor's Degree in Biomedical Computation and a Master's Degree in Biomechanical Engineering from Stanford University. He completed joint MD/PhD training in Biomedical Engineering at the University of California, Davis School of Medicine where his research focused on quantitative imaging and radiotherapy using a novel dedicated breast computed tomography platform. Prior to arriving at UCSF, he completed Radiation Oncology Residency training at Stanford University where he was awarded the Malcolm A. Bagshaw Award.

His research focuses on technologies that increase timely and efficient access to care with an emphasis on breast cancer care. He is particularly interested in automation and the use of machine learning algorithms to improve the quality and efficiency of healthcare delivery. His work with colleagues has concentrated on dedicated breast platforms for improved breast cancer detection, diagnosis, and treatment, quantitative imaging, mobile technologies for physician connectivity, and tele-medicine."

I am passionate about clinical care and bringing cutting-edge research and innovation to my patients.

Physics

Chris J. Diederich, Ph.D.

Professor, Director of Clinical Hyperthermia Physics Section & Thermal Therapy Research Group, Department of Radiation Oncology

Dr. Diederich's clinical expertise includes treatment planning, quality assurance, and delivery of hyperthermia therapy (thermal therapy) in conjunction with radiation therapy and chemotherapy. He has been faculty at UCSF since 1990 as a Medical Physicist in the field of Hyperthermia Therapy, with experience in applications of ultrasound and electromagnetic systems for delivering superficial, interstitial, and deep hyperthermia.

Dr. Diederich describes his current research programs



In his words

Our current programs include experimental and theoretical development of ultrasound devices, image-guidance and monitoring approaches, and treatment planning for therapeutic ultrasound applications (hyperthermia, thermal ablation, mechanical) for local tumor treatment in sites such as pancreas, prostate, spine, and cervix.

Areas of basic investigation include the use of ultrasound energy and/or thermal therapy to induce remodeling of damaged intervertebral discs, enhance immunotherapy, drug delivery, targeting of agents through the BBB and BRB, and high-dose fractionated radiotherapy with small animal SRS systems.

The lab is currently funded for: 1 interstitial ultrasound technology for precision ablation of localized prostate cancer with ultrasound image guidance and procedure monitoring; 2 endoluminal deployable ultrasound devices based upon fluid lenses or phased-arrays, along with MRI and US guidance techniques, to deliver hyperthermia, thermal ablation, or mechanical ultrasound to the pancreas directly from the GI tract, bladder wall from within the bladder, or for laparoscopic therapies; 3 preliminary investigations developing endobronchial ultrasound devices for image-guided thermal ablation of pulmonary tumors; 4 investigation of low-intensity pulsed ultrasound for treatment of discogenic back pain and acute damage; and collaborative roles 5 investigating ultrasound for enhanced drug delivery to the eye (Stewart), 6 applications of ultrasound to transiently open the BBB for augmenting treatment strategies of GBM (Barcellos-Hoff), and 7 methods for MR guided hyperthermia with the Insightec Platform (Ozhinsky).

Resident Focus

Nam Woo Cho, MD, PhD

Radiation Oncology Residency, UCSF

Nam Woo was born in South Korea, then moved to Vancouver, BC when he was 11 years old. He received his B.A. in Biology at Harvard College, then completed his M.D., Ph.D. at the University of Pennsylvania where he studied mechanisms of DNA repair at telomeres under his graduate thesis advisor, Dr. Roger Greenberg. He is currently a resident in the Department of Radiation Oncology at UCSF. He is also engaged in postdoctoral research in the Spitzer lab, where he is investigating how alterations of DNA repair systems in cancer regulate antitumor immunity.

Nam shares his experience of his residency



In his words

Working at UCSF has been an incredibly enriching experience. I joined the Radiation Oncology Department in 2018 as a resident, and have had the privilege of taking care of patients at the Helen Diller Family Cancer Center, alongside world-leading expert physicians and fantastic staff. It takes an important combination of skill and human compassion to care for cancer patients who are going through one of the most uncertain and trying times in their lives.

I have also engaged in basic science research in the laboratory of my advisor Matt Spitzer, studying how tumor cells repair their DNA can affect how the body's immune system responds to them. The team at UCSF Radiation Oncology has been a role model for my personal and professional growth; I am blessed with the overwhelming amount of expertise and technology at my disposal. As an aspiring physician scientist, I am feeling right at home at UCSF as I learn to translate lessons from the clinic to innovations at the bench.

Clinical Trials



Open clinical trials with Radiation Oncology Faculty PI

PI	Protocol #	Short Title	Funding	6 Mo. Accrual
Catherine Park	187513	Hypofractionation After Breast Reconstruction for Breast Cancer (FABREC)	DFCI/PCORI	9
Steve Braunstein (written by Rose Li)	189820	Ride to care: Eliminating transportation barriers for disadvantaged cancer patients undergoing RT	Mount Zion Fund	0
Steve Braunstein	176515	METIS: Radiosurgery with or without tumor treating fields for brain metastases from NSCLC	Novocure	0
Sue Yom	162010	Nivolumab + ChemoRT for Patients with Nasopharyngeal Cancer	BMS	4
Sue Yom	166520	PembroX: Pembrolizumab +/- SBRT prior to surgery for NSCLC	Merck	2
Sue Yom	18201	A Phase 1/2 Trial of Concurrent RT, Cisplatin, and BMX-001 in Locally Advanced Head and Neck Cancer	BioMimetix	3
Sue Yom	NRG-HN001	Phase II and Phase III Studies of Individualized Treatment for Nasopharyngeal Cancer Based on Biomarker EBV DNA	NRG	1
Sue Yom	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	NRG	0
Sue Yom	NRG-HN005	NRG-HN005: Phase II/III trial of de-intensified RT for patients with Favorable oropharyngeal cancer	NRG	0

Studies in the pipeline with Radiation Oncology PI

PI	Protocol #	Short Title	Funding	Status
Anthony Wong	18551	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)	DFCI/Janssen	IRB Approved
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	IRB Approved
Steve Braunstein	Pending	Phase 1 trial of Osimertinib with SRS in Patients with brain metastases from EGFR positive NSCLC	Case Cancer Center	at PRC
Felix Feng (National PI)	194522	Phase II Trial of Palliative Hypofractionated RT Followed by Durvalumab +/- Tremelimumab for Advanced Hepatocellular Carcinoma after Progression on Prior PD-1 Inhibition	Astra Zeneca	at PRC
Anthony Wong	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	RTOG Foundation	Site Committee Approved
Joanna Yang	Pending	Phase II Trial to assess the Efficacy of Low Radiation Dose of 20 Gy for the Treatment of Marginal Zone Lymphoma or Follicular Lymphoma Stage I-II localized in the Stomach or the Duodenum	University Hospital Muenster	Site Committee Approved
Joanna Yang	Pending	Phase II trial of hypofractionated whole breast and nodal RT	Internal Grant	Site Committee Approved
Steve Braunstein	Pending	Phase II study of SRS in conjunction with Nivolumab for the treatment of recurrent meningioma	BMS	Site Committee Approved
Steve Braunstein	Pending	A phase II study of stereotactic radiosurgery in conjunction with the PD-1 inhibitor, pembrolizumab for the treatment of recurrent meningioma	UCSF	Site Committee Approved

Coffee Talk

Emi J. Yoshida, M.D.

Assistant Professor,
Department of Radiation Oncology



What is the most interesting part of your job?

The most interesting part is the ability to continuously learn. And to be challenged in complex patient care and in clinical research



What's the best spot for lunch?

The best spot for lunch is B. on the Go!



What do you do to unwind?

To unwind, I like to do reformer pilates, or meet friends and family for a casual meal out.



QA Update

workflow for each team in an effort to understand the dependencies and areas of opportunities in the process. The next step is to bring these boards back to each site and work with the site-specific teams and Rad Onc Operations Leadership to help improve workflows for all areas. If you are interested in learning more about this project, please connect with your site's managers or Drs. Lauren Boreta and Nicolas Prionas. Involvement from everyone encouraged and welcome!

Ops

Congratulations to our Mount Zion and Parnassus sites for completing their inaugural True North Leader Rounds!

True North is a physical representation of UCSF Health's long-term objectives wherein each department shares its tactics and progress to achieving these goals with Medical Center Leadership. These goals are presented on a board displayed at each site's clinic. Our Mission Bay site has been participating in True North for ~2 years and, prior to MZ and ML participation, was the sole representation for Rad Onc. Please take the time out to visit your site's True North Board attend the next Leader Rounds.

Site	Leader Rounds Rotation	Next Leader Rounds	Time
Mount Zion	4th Thursday every 3 months	1/23/2020	11 – 11:25am
Parnassus	1st Thursday every 3 months	2/6/2020	11 – 11:25am
PCMB	3rd Thursday every 3 months	12/19/2019	8:30 – 8:55am

If you are interested in participating in True North, contact your site's Practice Manager

Parnassus continues to make improvements on its physical environment for both patients and staff. The most recently upgrade has been the Gamma Knife Holding Room remodel. New flooring, updated privacy curtains, refreshed paint, welcoming art work, and newly upholstered furniture have been transformed the space where patients spend hours on end with their families and caregivers. We have installed brand new iPads for personalized patient entertainment to make their time spent in our clinic more enjoyable.

At this year's Faculty Retreat the attendees took part in a Lean exercise focused on one of our department's most important and complex processes: treatment planning. The task during this work was to review and update a swim lane diagram to include every treatment planning

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