

University of California, San Francisco
CURRICULUM VITAE

Name: Rageshree Ramachandran, MD, PhD

Position: Professor of Clinical Pathology, Step 1
Pathology
School of Medicine

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EDUCATION

1991 - 1995	Stanford University, (Supervisor: Howard Schulman, Neuroscience)	B.S.	Biological Sciences, Honors & Distinction
1995 - 1995	Stanford University	M.S.	Biological Sciences
1995 - 2003	University of Pennsylvania, (Medical Scientist Training Program, NIH)	M.D.	
1997 - 2002	University of Pennsylvania	Ph.D.	Cell & Molecular Biology (Supervisor: David J. Goldhamer, Developmental Biology)
2004 - 2010	University of California, San Francisco	Resident	Anatomic Pathology; Laboratory Medicine
2007 - 2008	University of California, San Francisco (Director: Linda Ferrell)	Fellow & Chief Resident	Surgical Pathology
2008 - 2009	University of California, San Francisco (Director: Linda Ferrell)	Fellow	GI & Liver Pathology

LICENSES, CERTIFICATION

2006	Medical Licensure, California
2009	Board Certification, Anatomic Pathology. Continuing certification completed through the American Board of Pathology.
2010	Board Certification, Clinical Pathology. Continuing certification completed through the American Board of Pathology.

PRINCIPAL POSITIONS HELD

2010 - 2016	University of California, San Francisco	Assistant Professor	Pathology
2016 - 2021	University of California, San Francisco	Associate Professor	Pathology
2021 - present	University of California, San Francisco	Professor	Pathology

OTHER POSITIONS HELD CONCURRENTLY

2010 - present	University of California, San Francisco	Director of Medical Education	Pathology
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HONORS AND AWARDS

1988	National Spelling Bee Champion
1991	National Merit Scholar
1991	Tenth place nationally, Westinghouse Science Talent Search
1991	USA Today All-American Academic Team
1991	David Starr Jordan Scholar, Stanford University
2010	Bronze prize educational award, UCSF First Annual Pancreas Research Program retreat
2012	Nominee, UCSF Kaiser Award for Excellence in Teaching (medical student-nominated)
2013	UCSF Essential Core Teaching Award for Commitment to Teaching
2013	UCSF Essential Core Teaching Award for Commitment to Teaching (selected by second-year medical students)

2013	Nominee, UCSF MS1 Essential Core Teaching Award (first-year medical student-nominated)	
2014	Nominee, UCSF Kaiser Award for Excellence in Teaching (medical student-nominated)	
2015	Excellence in Teaching Award	Haile T. Debas/UCSF Academy of Medical Educators
2015	Nominee, UCSF Kaiser Award for Excellence in Teaching (medical student-nominated)	
2017	Nominee, UCSF Bridges Curriculum Foundations 1 Teaching Awards (nominated by first-year medical students in categories of Inspirational Teaching and Excellence in Small Group Instruction by Faculty)	
2017	Endowed Chair in Pathology Medical Student Education (5-year term)	Haile T. Debas/UCSF Academy of Medical Educators
2018	Excellence in Teaching Award (1 of 5 clinical faculty recipients, voted on by graduating class)	UCSF School of Medicine Class of 2018
2020	Anatomic Pathology Faculty Teaching Award (1 attending annually, voted on by residents and fellows)	UCSF Dept. of Pathology

KEYWORDS/AREAS OF INTEREST

Surgical pathology, gastrointestinal and liver pathology, medical education, curriculum development

CLINICAL ACTIVITIES

CLINICAL ACTIVITIES SUMMARY

My clinical service (25% time) includes signout of general in-house surgical pathology cases, biopsies, and confirmatory consultation cases from other institutions for patients undergoing surgery at UCSF. In addition, I review intraoperative frozen sections, post-transplant liver biopsies, and am one of six attendings reviewing cases through our gastrointestinal/liver pathology consultation service. Consultation service involves supervising the UCSF Anatomic Pathology specialty fellows in liver and gastrointestinal pathology. Fellows on this service have diagnostic responsibilities in adult and pediatric hepatobiliary and gastrointestinal pathology, liver and small bowel transplant pathology, and pancreatic pathology. I also teach and supervise fellows presenting at multidisciplinary clinical conferences, including liver transplant, hepatology and gastroenterology conferences, pediatric gastroenterology service conference, and other ad hoc conferences pertinent to the GI/liver cases. I review research requests from physicians in other departments to release tissue blocks and slides for ongoing research

studies. I am the site pathologist for San Francisco for the national Hepatitis B Research Network, and I review all local patient biopsies for this research consortium, including biopsies performed at UCSF, San Francisco General Hospital, and California Pacific Medical Center.

In my role as Director of Medical Education for the department of Pathology (50% time), I develop and supervise the pathology curriculum for MS1s through MS4s. I have a leadership role in the Bridges medical curriculum implemented in August 2016 (UCSF was one of 11 medical schools to receive AMA Accelerating Change in Medical Education funding in 2013 for curricular innovation). I am block co-director for Ground School, the first block of MS1, involving direct teaching and administrative oversight for approximately 165 new medical students per year. I also supervise the Pathology 150.03 senior medical student elective courses for third- and fourth-year medical students, geared toward UCSF and visiting students interested in pursuing residency training in anatomic pathology and laboratory medicine (4-week option) and toward UCSF MS4s seeking a survey experience in pathology (2-week option). I am the faculty advisor for the Pathology Student Interest Group, and I served as chair of the Learning Resources Committee (Bridges governance) from 2016-17. I am the departmental career advisor, and I mentor residency applicants from UCSF and other institutions.

In addition, I have 25% time for creative work. My collaborative qualitative educational research includes: (1) a project through the UCSF Academy of Educators on the impact of the endowed chair program on former chairholders, (2) a project with Dr. Ying Qiu (Tsinghua University, Beijing, China) and Dr. Marta Margeta (UCSF Pathology) on innovations in medical school curricula across our institutions, (3) a project with Kara Tanaka (UCSF MS4 taking an education research elective) to report learner experiences from a novel remote Pathology elective offered in 2020, and (4) a project with Dr. Sara Bakhtary (UCSF Laboratory Medicine), on the impact of transfusion medicine teaching on fourth-year medical students. These and other projects are also described in the Research Program section.

CLINICAL SERVICES

2010 - present	Liver/GI Consultation Service (second opinion cases from the United States and occasionally other countries)	Approximately 2 days per month
2010 - present	Liver/GI in-house service (diagnosis of UCSF patient cases)	Approximately 1 day per week
2010 - present	Frozen section attending (intraoperative diagnosis for UCSF patients)	Approximately 2 half-days per week
2010 - present	Night call attending (intraoperative diagnosis for UCSF patients and donor biopsies from the California Tissue Donor Network)	1-2 weeks per year

PROFESSIONAL ACTIVITIES

MEMBERSHIPS

- 2003 - present United States and Canadian Academy of Pathology
- 2003 - present College of American Pathologists

- 2010 - present Undergraduate Medical Educators Section (UMEDS), overseen by Association of Pathology Chairs (APC)
- 2010 - present Group for Research in Pathology Education (GRYPE)
- 2012 - present Rodger C. Haggitt Gastrointestinal Pathology Society (GIPS)

SERVICE TO PROFESSIONAL ORGANIZATIONS

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|----------------|---|--|
| 2009 - 2015 | Market Research Panels, College of American Pathologists | Participant |
| 2011 - 2016 | Group for Research in Pathology Education (GRYPE) | Strategic Action Committee member |
| 2012 - 2018 | Rodger C. Haggitt Gastrointestinal Pathology Society (GIPS) | Journal Watch contributor (abstract summaries from current literature) |
| 2012 - present | United States Hepatitis B Research Network | San Francisco site pathologist |
| 2015 - 2018 | United States and Canadian Academy of Pathology (USCAP) | Lead reviewer, Abstract Subcommittee, Education category |
| 2020 - 2022 | Association of Pathology Chairs - Undergraduate Medical Educators section | Secretary-Elect |

SERVICE TO PROFESSIONAL PUBLICATIONS

- 2010 - present Reviewer, Journal of Clinical Pathology
- 2011 - present Reviewer, Archives of Pathology and Laboratory Medicine
- 2012 - present Reviewer, Inflammatory Bowel Diseases
- 2016 - present Reviewer, Journal of Pediatric Gastroenterology and Nutrition
- 2020 - present Reviewer, Academic Pathology

INVITED PRESENTATIONS - INTERNATIONAL

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|------|---|--------------------|
| 2018 | Group for Research in Pathology Education Winter Meeting. Las Vegas, Nevada. "Creating an Educator's Portfolio for Academic Success" | Workshop leader |
| 2019 | Group for Research in Pathology Education Winter Meeting. New Orleans, Louisiana. "Best Practices for Incorporating Pathology into Integrated Medical School Curricula" | Workshop co-leader |

2019	International Faculty Development Conference. Ottawa, Canada. "Developing education leaders through an innovative endowed chair program"	Podium talk
2020	Group for Research in Pathology Education Winter Meeting. San Antonio, Texas. "The UCSF Approach to High-Stakes Assessment: Open-Ended Questions"	Workshop co-leader

INVITED PRESENTATIONS - NATIONAL

2015	University of Chicago, Department of Pathology seminar series and slide conference	Speaker
2018	Association of Pathology Chairs annual meeting - Undergraduate Medical Educators section. "Pathology Education in an Integrated Medical School Curriculum: the UCSF Bridges Experience"	Platform presentation and poster
2019	Association of Pathology Chairs annual meeting - Undergraduate Medical Educators section. "Best Practices in Pathology UME Teaching"	Discussion group co-leader
2020	Association of Pathology Chairs annual meeting - Undergraduate Medical Educators section. "How to write and grade an open-ended exam question"	Speaker
2021	Association of Pathology Chairs annual meeting - Undergraduate Medical Educators section. "Inspiring the Next Generation of Pathologists: Designing and Implementing an Impactful Diagnostic Pathology Experience for Medical Students"	Discussion group co-leader
2021	Association of Pathology Chairs annual meeting - Undergraduate Medical Educators section. "e-Learning Best Practices in Electives: Perceptions of a Remote Learning Pathology Elective for Advanced Clinical Medical Students"	Speaker

INVITED PRESENTATIONS - REGIONAL AND OTHER INVITED PRESENTATIONS

2011	Kaiser Permanente San Francisco, Departments of Internal Medicine and Cardiology. Drug-induced liver injury.	Continuing medical education lecture
2011	Philippine Association of Medical Technologists - USA, Northern California chapter. Malaria diagnosis, treatment, and transfusion-related issues.	Continuing medical education lecture
2012	Annual Current Issues in Anatomic Pathology. Drug-induced acute liver failure. San Francisco, California.	Continuing medical education lecture
2013	Annual Current Issues in Anatomic Pathology. Variants of hepatocellular carcinoma. San Francisco, California.	Continuing medical education lecture

2015	Annual Current Issues in Anatomic Pathology. Challenging cases in gastrointestinal and liver pathology. San Francisco, California.	Continuing medical education slide tutorial
2018	Annual Current Issues in Anatomic Pathology. Drug-induced liver injury: problem patterns. San Francisco, California.	Continuing medical education lecture
2018	Association of Pathology Chairs West and Midwest Regional Chairs and Administrators Conference. Kapalua, Hawaii. "Pathologists as leaders in medical education"	Continuing medical education lecture

CONTINUING EDUCATION AND PROFESSIONAL DEVELOPMENT ACTIVITIES

2010	Key Educational Skills and Special Topics Workshop Series, UCSF Office of Medical Education.
2010	Online CME through JAMA and Archives of Pathology and Laboratory Medicine.
2010	Mechanisms of Disease Conference series, UCSF Departments of Pathology and Laboratory Medicine.
2011	Group for Research in Pathology Education Winter Meeting. Huntington, West Virginia.
2011	Association of Pathology Chairs – Undergraduate Medical Educators Section Annual Meeting. Monterey, California.
2011	Mechanisms of Disease Conference series, UCSF Departments of Pathology and Laboratory Medicine.
2012	Group for Research in Pathology Education Winter Meeting. Tampa, Florida.
2012	United States and Canadian Academy of Pathology annual meeting. Vancouver, British Columbia.
2012	Association of Pathology Chairs - Undergraduate Medical Educators Section Annual Meeting. Monterey, California.
2012	South Bay Pathology Society Spring Conference. Monterey, California.
2012	Mechanisms of Disease Conference series, UCSF Departments of Pathology and Laboratory Medicine.
2013	Group for Research in Pathology Education Winter Meeting. Augusta, Georgia.
2013	Association of Pathology Chairs - Undergraduate Medical Educators Section Annual Meeting. Boston, Massachusetts.
2013	Mechanisms of Disease Conference series, UCSF Departments of Pathology and Laboratory Medicine.
2014	Harvard Macy Institute Program for Educators in the Health Professions. Boston and Cambridge, Massachusetts. (competitive application process)

- 2014 Association of Pathology Chairs - Undergraduate Medical Educators Section Annual Meeting. Boston, Massachusetts.
- 2014 Mechanisms of Disease Conference series, UCSF Departments of Pathology and Laboratory Medicine.
- 2015 Group for Research in Pathology Education Winter Meeting. Tallahassee, Florida.
- 2015 Mechanisms of Disease Conference series, UCSF Departments of Pathology and Laboratory Medicine.
- 2015 Association of Pathology Chairs - Undergraduate Medical Educators Section Annual Meeting. San Diego, California.
- 2015 Longitudinal Clinical Experience, UCSF School of Medicine.
- 2016 Group for Research in Pathology Education Winter Meeting. San Diego, California.
- 2016 Mechanisms of Disease Conference series, UCSF Departments of Pathology and Laboratory Medicine.
- 2016 California Tumor Tissue Registry, case study sets (self-study).
- 2017 Mechanisms of Disease Conference series, UCSF Departments of Pathology and Laboratory Medicine.
- 2017 California Tumor Tissue Registry, case study sets (self-study).
- 2017 California Tumor Tissue Registry semi-annual cancer seminar. Santa Ana, California.
- 2018 Group for Research in Pathology Education Winter Meeting. Las Vegas, Nevada.
- 2018 Grand Rounds (formerly Mechanisms of Disease Conference series), UCSF Departments of Pathology and Laboratory Medicine.
- 2018 California Tumor Tissue Registry, case study sets (self-study).
- 2018 United States and Canadian Academy of Pathology annual meeting. Vancouver, British Columbia.
- 2018 Association of Pathology Chairs - Undergraduate Medical Educators Section Annual Meeting. Coronado, California.
- 2019 Group for Research in Pathology Education Winter Meeting. New Orleans, Louisiana.
- 2019 Grand Rounds, UCSF Departments of Pathology and Laboratory Medicine.
- 2019 UCSF Diversity, Equity, and Inclusion Champion Training workshop.
- 2019 Association of Pathology Chairs - Undergraduate Medical Educators Section Annual Meeting. Boston, Massachusetts.

- 2020 Group for Research in Pathology Education Winter Meeting. San Antonio, Texas.
- 2020 Grand Rounds, UCSF Departments of Pathology and Laboratory Medicine.
- 2020 Association of Pathology Chairs - Undergraduate Medical Educators Section Annual Meeting. Held online during COVID pandemic.

GOVERNMENT AND OTHER PROFESSIONAL SERVICE

- 1990 - 1991 California State Board of Education. I was appointed by Governor George Deukmejian to this body governing K-12 public education statewide. I had full voting rights on public education mandates. Student member
- 2003 - 2003 Study of Exceptional Talent (SET) at Johns Hopkins University. I was identified as a participant in SET, formerly the Study of Mathematically Precocious Youth, based on my SAT score of 1440 at age 12 in 1988, the highest combined score in this age group in the Western United States. Former participants are now recruited as academic mentors for young students. Mentor for students
- 2011 - 2018 Group for Research in Pathology Education. Multiple Choice Question committee member (intermittent)

UNIVERSITY AND PUBLIC SERVICE

SERVICE ACTIVITIES SUMMARY

Through leadership roles in my department and in the Bridges medical school curriculum, I focus on curriculum development, oversight, and shared governance for my internal university service. I participated in numerous working groups as a result of Essential Core and Bridges leadership roles. In June 2015, I finished a 3-year term on the Academic Senate Committee on Library and Scholarly Communications. I served on the Custom Comprehensive Exam Working Group (CCE) to plan and design the USMLE boards-style exam taken by UCSF first-year medical students to assess their cumulative progress in the preclinical curriculum. I oversaw Prepilogue, a course run in parallel with our last preclinical block for second-year medical students in the prior medical curriculum (the Essential Core); the goal of Prepilogue was to review key concepts from years 1 and 2 and prepare the students for USMLE Step 1. I chaired the Essential Core Course Committee for one year prior to the initiation of Bridges. I then chaired the Learning Resources Committee for one year as part of Bridges governance. This committee was dissolved due to larger-scale changes in governance structure. I then served as a member of the Mapping and Integration Committee in my role as topic steward for Pathology.

**UNIVERSITY SERVICE
UC SYSTEM AND MULTI-CAMPUS SERVICE**

2019 - 2020	UC Davis School of Medicine, Curriculum Review Subcommittee	External member
2021 - present	UC Davis School of Medicine, Curriculum Steering Subcommittee	External member

UCSF CAMPUSWIDE

2012 - 2015	Academic Senate Committee on Library and Scholarly Communication (completed 3-year term)	Member
2016 - present	UCSF Academy of Medical Educators	Member (competitive application process)
2016 - 2020	UCSF Academy of Medical Educators, Scholarship Committee	Member
2017 - 2018	UCSF Academy of Medical Educators, Search Committee, Sexton Sutherland Endowed Chair in Human Anatomy	Member
2020 - 2020	Stewardship Review Committee	Appointed member
2020 - present	Department Diversity Leaders Committee (chair-designated individuals carrying out diversity work in their units)	Member

SCHOOL OF MEDICINE

2005 - 2006	Graduate Medical Education Council (GMEC)	Resident representative
2009 - 2015	Essential Core Course Committee (ECCC)	Member
2011 - 2016	Integrated Curriculum Steering Committee (ICSC)	Member
2012 - 2014	Custom Comprehensive Exam Working Group	Member
2014 - 2014	Bridges Institute Steering Committee	Member
2014 - present	Bridges Design Team Lead - Ground School (first block of new MS1 year)	Co-lead for curricular oversight and block planning
2015 - present	Bridges Design Team - Renal Endocrine GI Nutrition (REGN) MS1 block	Team member (curriculum planning)

2015 - 2015	Evaluations Review Task Force	Chair (assessing role and utility of instructor evaluations by students)
2015 - 2016	Essential Core Course Committee (ECCC)	Chair
2015 - 2016	Committee on Curriculum and Educational Policy (CCEP)	Member (ex officio)
2015 - 2016	Medical Knowledge Assessment Working Group & Assessment Procedures Working Group	Member
2016 - 2016	Bridges Evaluation Policies and Procedures Working Group	Member
2016 - present	Medical Knowledge Categories faculty	Category co-representative (Pathology, Multi-System)
2016 - 2017	Bridges Governance, Learning Resources committee	Chair
2016 - 2017	Search Committee, Associate Dean for Curriculum	Member
2017 - 2018	Search Committee, Chair of Pathology	Member
2017 - present	Bridges Design Team - Life Stages MS2 block	Team member (curriculum planning)
2017 - 2018	Liaison Committee on Medical Education (LCME) Educational Programs Subcommittee	Member
2017 - 2019	Bridges Governance, Mapping and Integration committee	Member
2017 - present	Bridges Governance, F1 Operations committee	Member
2019 - 2019	Asian Pacific American Medical Students Association	One of two invited faculty members at MS1 mixer

DEPARTMENTAL SERVICE

2007 - 2008	Department of Pathology	Chief Resident
2012 - present	Department of Pathology	Research Request Specialty Physician, Gastrointestinal Pathology
2012 - present	Department of Pathology. Quality Improvement Committee	Member

2013 - 2016	Department of Pathology. Mechanisms of Disease Conference series	Co-director (responsible for scheduling, oversight of speaker mentoring program, and speaker feedback)
2016 - present	Department of Pathology Grand Rounds (formerly Mechanisms of Disease Conference series)	Speaker feedback (Anatomic Pathology representative)
2019 - present	Departments of Anatomic and Clinical Pathology. Diversity, Equity, and Inclusion Committee	Co-chair
2020 - present	Department of Pathology. Faculty-Trainee Mentorship Program	Faculty mentor

COMMUNITY AND PUBLIC SERVICE

1992 - 1992	Research Science Institute (RSI), Massachusetts Institute of Technology (MIT). I was a participant in RSI at the University of California, San Diego, in 1990. My research at the San Diego Supercomputer Center and the Scripps Institute of Oceanography was the basis of my paper for the Westinghouse Science Talent Search. Former RSI participants serve as counselors to supervise current students in an academic residential setting.	Counselor
1995 - 1995	Philadelphia Special Olympics	Volunteer
2011 - 2011	UCSF/Dar es Salaam collaboration (Drs. Katherine Van Loon and Michael Orest) to rebuild a population-based cancer registry in Tanzania	Collaborator
2012 - 2014	UCSF Pathology advising group designing a modern pathology curriculum for the new Koc University Medical School in Turkey	Advisor
2013 - 2015	UCSF Kirkham Child Development Center, helped organize and participated on a panel discussing the kindergarten application process	Parent volunteer
2013 - present	The Hamlin School, a K-8 independent school in San Francisco, CA	Parent volunteer
2015 - 2015	UCSF-Lowell Science Research Program, Lowell High School, San Francisco, CA	Invited speaker (career paths in science and medicine)

2017 - 2018	Capital Campaign, Center for Excellence in Education (www.cee.org), a group that runs high school and university enrichment programs in STEM fields. I am an alum of their Research Science Institute high school summer program.	Class Co-captain
2019 - present	Alumni Annual Fund campaign, Center for Excellence in Education (also see above).	Class representative
2020 - 2021	The Hamlin School, a K-8 independent school in San Francisco, CA	Middle school class parent

CONTRIBUTIONS TO DIVERSITY

CONTRIBUTIONS TO DIVERSITY

Diversity, equity, and inclusion (DEI) are emerging topics in academic pathology that have important ramifications for recruitment and retention of a diverse pathology workforce. In addition, and less intuitively, DEI through the lens of pathology may have an impact on health care delivery. This is a novel area of inquiry and an evolving interest of mine.

I started exploring what DEI means for pathologists by completing DEI Champion training at UCSF in 2019. This was immersive training on fundamentals such as implicit bias, microaggressions, and allyship. In this role, I support institutional and departmental DEI initiatives, and I am available to colleagues or students who seek a supportive ear.

I am participating in the Teach for UCSF Certificate Program in the new certificate track on Teaching for Equity and Inclusion. I am a co-chair of our new DEI Committee, which includes faculty, resident, and staff membership from the departments of Anatomic and Clinical Pathology (Laboratory Medicine). One of our first events was Unconscious Bias training facilitated by Dr. LaMisha Hill from the Office of Diversity and Outreach (ODO) for both departments on 6/18/20, with 97 people in attendance. I coordinated a follow-up event on 8/21/20 for residents and fellows on Affirming our Commitments to Equity, again facilitated by Dr. Hill from the ODO, with 34 trainees in attendance. I am working with colleagues including the resident member of our DEI Committee to survey the Pathology and Laboratory Medicine communities on the current climate around diversity, equity, and inclusion, and desired improvements we can make.

I am designated by my departmental chair to participate on the Department Diversity Leaders Committee. We meet quarterly with the Vice Chancellor of Diversity and Outreach to discuss resources and our work in DEI and share ideas.

Improving learner access to advising resources is critical in diversifying our workforce. I participated in the 2020 GME Diversity Virtual 1st Look program to welcome residency applicants who are interested in UCSF Pathology. In the 2020 cycle, I mentored 3 out-of-state applicants I met through this program as they put together their application materials and prepared for interviews, which were held remotely nationwide during the COVID pandemic.

Due to the COVID pandemic, our F2 students were removed from the clinical environment in March 2020 and participated in clerkship didactics and newly designed remote Extended Mastery Learning Rotations (EMLRs). MS3s and MS4s had a great need for additional

elective options to continue learning while adhering to public safety guidelines. To support equity in resource access in the COVID learning environment, I converted the Pathology 150.03 senior medical student elective into a remote learning experience in April and May of 2020. A total of 37 students took this course, and I mentored Kara Tanaka, then an MS4 who was our teaching assistant, now a Pathology resident, to report our experience with this novel teaching format (Tanaka and Ramachandran, Perceptions of a Remote Learning Pathology Elective for Advanced Clinical Medical Students. Acad Pathol 2021). As of mid-July 2020, students completed their EMLRs and are back in the clinical environment. Interest in our remote resources has grown, and by request of the class of 2021, I shared these resources with all UCSF students.

My lived experience as an immigrant and member of a multi-ethnic household has been central to my development. I lived in India, Tanzania, and the Philippines as a young child, prior to migrating to the United States with my parents when I was 5 years old. I served as an advising associate for new undergraduates at Stanford in my junior year, when I lived in Ujamaa, an ethnic theme house with a Black Culture focus. As a woman in science who benefited from having family role models in academics, I can vouch for the importance of mentorship. It is my privilege to support learners to become aware of career opportunities and to achieve their individual goals.

TEACHING AND MENTORING

TEACHING SUMMARY

My Educator Portfolio is available as a separate document.

My formal interest in education policy began in 1990, when I was appointed by Governor George Deukmejian to be the student member of the California State Board of Education. As a high school senior, I had full voting rights on mandates regarding K-12 public education statewide. Our first meeting in Sacramento culminated in a heated public forum on the adoption of new history textbooks. This role underscored to me the importance of a strong and inclusive educational curriculum.

I graduated from Stanford University in 1995, with a B.S. with highest honors and an M.S. in biological sciences. I voluntarily served as a teaching assistant for four quarters in the biology core lab courses. I learned how to teach in a team with my colleagues, and run an hours-long lab session smoothly. I also helped prepare the written curriculum for the plant germination section of the labs.

After graduating from California public schools, I trained at private universities on the West and East coasts as an undergraduate, medical, and PhD student. I bring this multidimensional perspective to my current position as Director of Medical Education for the Department of Pathology at UCSF, the flagship medical campus of the University of California system. I enjoy providing clinical service to the department and taking a leading role in developing and implementing pathology curriculum in the medical school. I find it particularly rewarding to work with my talented and bright junior colleagues, residents, and medical students to enhance the UCSF educational experience. In addition, I am a staunch supporter of Interprofessional Education (IPE). I have taught UCSF IPE small groups in the past, and since 2012 I have worked with UCSF School of Nursing faculty to support attendance of the Bridges Placental Pathology lab by Nurse-Midwife/Women's Health Nurse Practitioner graduate students.

FORMAL TEACHING

	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
	2005 - 2006	UCSF Laboratory Medicine Rotations, Tech Talks given to laboratory technical staff. Topics included: heavy metal toxicity, Wiskott-Aldrich syndrome, celiac disease, malaria detection in peripheral blood smears	Multiple CME lectures		
	2009 - 2010	UCSF Laboratory Medicine Rotations, Tech Talks given to laboratory technical staff. Topics included: heavy metal toxicity, Wiskott-Aldrich syndrome, celiac disease, malaria detection in peripheral blood smears	Multiple CME lectures		
	2010 - present	Pathology 150.03 (electives in Surgical and Autopsy Pathology)	course director	Medicine	2-3 medical students per month
	2010 - 2015	Interdepartmental Studies 101 (Prologue block)	2 lectures (live and/or online), 1 lab session	Medicine	~150 medical students
	2010 - 2016	UCSF Gastroenterology/Transplant fellowship Core Conference	One yearly lecture on liver histopathology		

	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
	2011 - 2015	Interdepartmental Studies 102 (Organs block)	multiple lab sessions	Medicine	~150 medical students
	2011 - 2016	Interdepartmental Studies 103 (Metabolism & Nutrition block)	4-5 lab sessions including content design	Medicine	~150 medical students
	2011 - 2016	Interdepartmental Studies 106 (Methods, Mechanisms, & Malignancies block)	5 lab sessions, 1 small group	Medicine	~150 medical students
	2011 - 2016	Teaching, Learning, and Communication Skills (TLCS)	small group leader for first- and second-year medical students	Medicine	~12-15 medical students
	2012 - 2016	Interprofessional Education seminar	small group leader for first-year medical, dental, nursing, pharmacy, and physical therapy students		~12-15 students
	2013 - 2017	Prepilogue (ran in parallel with Life Cycle, Interdepartmental Studies 107)	block director	Medicine	~150 medical students
	2013 - 2013	Med 170.03, Medical research interest elective (first-year medical student noontime elective)	Faculty advisor	Medicine	

	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
	2015 - 2016	Pathology 170.01 (Introduction to Pathology)	Advisor and speaker (MS1 elective through Pathology Student Interest Group)	Medicine	~25 students annually (more auditing)
	2015 - 2016	Foundations of Patient Care (FPC) selective	1 of 2 Pathology attendings scheduling and mentoring students in a clinical elective for value-added care (50 hours of service)	Medicine	4 first-year medical students
	2016 - present	Interdepartmental Studies 121A (Ground School block and Inquiry element)	block co-director, lecturer, small group facilitator	Medicine	~150 medical students
	2016 - present	Interdepartmental Studies 121B (Airways, Blood, and Circulation block)	small group facilitator	Medicine	~13 small group students
	2017 - present	Interdepartmental Studies 121C (Renal, Endocrine, GI, and Nutrition block)	small group facilitator, lecturer for 2019, and block team member	Medicine	~13 small group students
	2017 - present	Interdepartmental Studies 121D (Pathogens and Host Defenses block)	small group facilitator	Medicine	~13 small group students
	2017 - present	Interdepartmental Studies 122A (Life Stages block)	small group facilitator, review session leader, and block team member	Medicine	~13 small group students

INFORMAL TEACHING

- 2004 - 2010 Multiple opportunities during residency, including blood smear reviews (daily with rotating medical students) and Microbiology rotations, Plate Rounds, SFGH and San Francisco VAMC (weekly with infectious diseases team, pharmacy staff).
- 2008 - 2009 Gastrointestinal case conference at San Francisco VAMC (weekly with clinical team), Liver case conference at Moffitt Hospital (monthly with clinical team), Liver transplant biopsy conference (twice monthly with transplant surgeons and post-transplant coordinators).
- 2010 - present Regular teaching at the microscope during signout of clinical cases (general surgical pathology, GI/liver consults). Audience includes fellows, residents, and UCSF and visiting medical students.
- 2012 - present Pathology Student Interest Group, UCSF School of Medicine, Faculty Advisor. I support event planning by the students and speak on the career panel we host each year. As of Fall 2015, I am faculty advisor for a student-created MS1 elective through the Interest Group called Introduction to Pathology.
- 2015 - present Career Advisor, Dept. of Pathology. I have counseled medical students and some visiting undergraduate students on an ad hoc basis since 2010, and in 2015 I became our department's official Career Advisor.
- 2017 - 2017 Training workshop co-facilitator. The UCSF Bridges Curriculum, F1 small group leader orientation. August 3, 2017.
- 2018 - 2018 Coordinated and taught in a 1-hour Pathology career panel and hands-on lab demo for 21 rising high school juniors through UCSF PITCH (Program for Investigation and Training for Careers in Health). PITCH students may be the first in their family to attend college and include underrepresented minorities.
- 2019 - 2019 Pathology Student Interest Group, UCSF School of Medicine. Student-invited lecture on Perspectives in Pathology: Life as a Surgical Pathologist, 24 MS1s and MS2s in audience.

MENTORING SUMMARY

I mentor students, residents, and faculty colleagues with whom I have overlapping interest in medical education and/or subspecialty expertise in GI/liver disease. Our discussion includes general career mentoring, discussion of difficult clinical cases, and discussion and planning of pathology curriculum for the School of Medicine.

PREDOCTORAL STUDENTS SUPERVISED OR MENTORED

Dates	Name	Program or School	Mentor Type	Role	Current Position
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Dates	Name	Program or School	Mentor Type	Role	Current Position
1998 - 1999	Robyn Friedman Wetter	UPenn undergraduate	Research/Scholarly Mentor	Supervised undergraduate research	Practicing dermatologic surgeon, Park Nicollet Health Services, St. Louis Park, MN
2001 - 2002	Sameem Abedin	UPenn undergraduate	Research/Scholarly Mentor	Trained and supervised laboratory assistant	Assistant professor, Medical College of Wisconsin, Milwaukee, WI
2001 - 2002	Leonid Cherkassky	UPenn undergraduate	Research/Scholarly Mentor	Trained and supervised laboratory assistant	Practicing surgeon, Providence, RI
2011 - 2014	(Names kept confidential.) Two students each summer in Option B study program for additional USMLE Step 1 preparation.	UC San Francisco School of Medicine	Career Mentor	Mentor for USMLE Step 1 preparation	Advanced to 3rd-year standing
2012 - 2013	Jaclyn Watkins	UC San Francisco School of Medicine	Co-Mentor/Clinical Mentor	Pathways research supervisor and career advisor	Assistant professor, Vanderbilt University, Nashville, TN
2013 - present	Julia Ye	UC San Francisco School of Medicine, Medical Scientist Training Program	Project Mentor, Career Mentor	Supervisor, longitudinal clinical elective in Pathology and curriculum development	Resident, UCSF Pathology

Dates	Name	Program or School	Mentor Type	Role	Current Position
2017 - 2017	(Name kept confidential.) One student in summer Option B study program for additional USMLE Step 1 preparation	UC San Francisco School of Medicine	Career Mentor	Mentor for USMLE Step 1 preparation	Advanced to 3rd-year standing
2018 - 2018	Marco Troiani	Des Moines University	Project Mentor, Career Mentor	Supervisor, curriculum development	DO student

POSTDOCTORAL FELLOWS AND RESIDENTS MENTORED

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2010 - 2012	Soo-Jin Cho	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Associate professor, UCSF Pathology
2010 - 2011	Amanda Doherty	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Private practice, Kaiser Permanente, Santa Clara, CA
2010 - 2011	Ryan Gill	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Professor, UCSF Pathology
2011 - 2012	Gregor Krings	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Associate professor, UCSF Pathology
2011 - 2012	Daniel Phillips	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Private practice, Pathology Associates, Clovis, CA

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2012 - 2013	Thuy Nguyen	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Private practice, Peninsula Pathology Medical Group, Burlingame, CA
2012 - 2013	Samip Patel	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Staff physician, VA Medical Center, Atlanta, GA
2013 - 2014	Mojgan Hosseini-Varnamkhasti	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Associate professor, UC San Diego Pathology
2013 - 2014	Menaka Raju	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Private practice, Kaiser Permanente, San Jose, CA
2014 - 2015	Gillian Hale	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Assistant professor, Univ. of Utah
2014 - 2015	Carolyn Sangokoya	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Clinical instructor and postdoctoral scholar, UCSF
2014 - 2015	Sarah Umetsu	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Assistant professor, UCSF Pathology
2015 - 2016	Rock Adams	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Private practice, Greenville, SC

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2015 - 2016	Won-Tak Choi	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, conference preparation	Associate professor, UCSF Pathology
2015 - 2016	Christos Tsokos	UCSF Surgical Pathology/GI fellowship	Co-Mentor/Clinical Mentor	Supervision of signout	Postdoctoral scholar, Massachusetts General Hospital
2015 - 2017	Zhen Yan	UCSF Surgical Pathology/GI fellowship	Co-Mentor/Clinical Mentor	Supervision of signout	Private practice, Sacramento, CA
2016 - 2017	Su-Yang Liu	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout	Postdoctoral scholar, UCSF
2017 - 2018	Daniel Roberts	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout	Attending physician, Cleveland Clinic, OH
2017 - 2018	Kwun Wah Wen	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout	Assistant professor, UCSF Pathology
2017 - present	Daniel Martig	AP/CP resident	Career Mentor	Education research and leadership	Assistant professor, Univ. of Washington Pathology
2018 - 2019	Kester Haye	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout	Assistant professor, Univ. of Pennsylvania Pathology
2018 - 2019	Dana Balitzer	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout	Assistant professor, UCSF Pathology

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2018 - present	Calixto-Hope (CJ) Lucas	AP/NP resident	Career Mentor	Supervision of medical education, instructional approach	Fellow, UCSF Neuropathology (supervised as a UCSF medical student also)
2019 - 2020	Christopher Bowman	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout, medical education	Fellow, UCSF Pathology
2019 - 2020	Rachael Fels Elliott	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout	Thoracic Fellow, Univ. of Michigan Pathology
2020 - 2021	Hsiang-Chih (Sean) Lu	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout	Private practice, Sacramento, CA
2020 - 2021	Nigar Khurram	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout	Assistant professor, Northwestern Pathology
2020 - present	Neslihan Kayraklioglu	AP/CP resident	Career Mentor	Regular mentoring meetings	PGY-3, UCSF
2021 - present	Ruth Zhang	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout	Current fellow, UCSF
2021 - present	Raymond Yip	UCSF GI/liver fellowship	Co-Mentor/Clinical Mentor	Supervision of signout	Current fellow, UCSF

FACULTY MENTORING

Dates	Name	Position while Mentored	Mentor Type	Mentoring Role	Current Position
2012 - 2016	Kuang-Yu Jen	Assistant Professor	Co-Mentor/Clinical Mentor	Curriculum development for School of Medicine, clinical case discussion	Associate Professor, UC Davis Pathology

Dates	Name	Position while Mentored	Mentor Type	Mentoring Role	Current Position
2013 - 2015	Kimberley Evason	Clinical Instructor, Assistant Adjunct Professor	Co-Mentor/Clinical Mentor	School of Medicine teaching, clinical case discussion	Assistant Professor, University of Utah School of Medicine
2015 - 2017	Aras Mattis	Clinical Instructor, Assistant Adjunct Professor	Co-Mentor/Clinical Mentor	School of Medicine teaching, clinical case discussion	Assistant Professor, UCSF Anatomic Pathology
2015 - 2016	Tara Saunders	Clinical Instructor	Co-Mentor/Clinical Mentor	Clinical case proctoring	Assistant Professor, UCSF Anatomic Pathology
2017 - present	Sara Bakhtary	Assistant Professor, Associate Professor	Career Mentor	School of Medicine teaching and curriculum development	Associate Professor, UCSF Laboratory Medicine
2017 - present	Rebecca Wolsky	Assistant Professor	Career Mentor	School of Medicine teaching and curriculum development	Assistant Professor, Univ. of Colorado Pathology

VISITING FACULTY MENTORED

2018 - 2019 Ying Qiu Tsinghua University School of Medicine, Beijing, China

RESEARCH AND CREATIVE ACTIVITIES

RESEARCH AND CREATIVE ACTIVITIES SUMMARY

(manuscript in preparation) I am collaborating with Dr. Ying Qiu (Tsinghua University, Beijing, China) and Dr. Marta Margeta (UCSF Pathology) to report innovations in medical school curricula across our institutions, specifically in the area of Pathology education. Dr. Qiu visited our department in 2019 for several months to observe and participate in our curriculum, and has modified her curriculum based on our best practices. The result has been innovative change in medical education at what is considered the top research science university in China, Tsinghua University.

(project in progress) I am part of a multi-institution collaborative study titled A Comprehensive Exploration of Open-Ended Questions in UME: Perceptions and Psychometrics. We created open-ended exam questions for students at Case Western Reserve University School of

Medicine, Hofstra University, and UCSF and will compare the student and grader experience across institutions for this novel testing format.

(project in progress) I am working with Dr. Sara Bakhtary, UCSF Laboratory Medicine, to assess the impact of a transfusion medicine didactic session and bench training session on the understanding of key transfusion-related topics. The learners are UCSF and visiting MS4s, some of whom are applying for Pathology residency. Transfusion medicine is not taught consistently in medical school curricula, and this is an area in which education-related research is lacking.

(project essentially complete) I worked with Dr. Linda Ferrell, UCSF Pathology, to study cavernous hemangioma (CH) cases of the liver with rare features of similar CH lesions documented outside the liver, as well as very large CH lesions that involve essentially the entire liver. These are relatively rare entities, and we are collecting cases from our national and international collaborators for publication.

RESEARCH AWARDS - PAST

1.	Key personnel		MacKenzie (PI)
	National Academies Keck Futures Initiative Imaging Science	07/01/2011	06/30/2013
	Multiscale biomedical imaging for autoimmune disease.		\$ 50,000 total
	The major goal of this project is to foster a multidisciplinary team that will develop and combine new biomedical imaging methods in order to better detect, analyze, and track autoimmune diseases such as rheumatoid arthritis. The team includes scientists in pathology at UCSF, computer science at Notre Dame, biophotonics at NSF CBST at UC Davis, and radiology at UCSF (PI John MacKenzie, MD). The team will focus on producing advanced imaging tools that can probe molecules and peer inside both living cells and humans.		
2.	Co-investigator		Finkbeiner (PI)
	UCSF Haile T. Debas Academy	07/01/2014	06/30/2015
	Paper-Mounted Organ Sections for Medical Education, Education Innovations Funding Seed Grant (\$3992.60 awarded)		
3.	U01DK082944	Site pathologist	3% % effort
	National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)	06/01/2018	Terrault (PI)
	Hepatitis B Research Network (HBRN): Natural History and Treatment Studies		05/31/2019
			\$ 975,626 total

The following is an excerpt from the project information abstract text. The San Francisco HBV Consortium together with other Hepatitis B Research Network (HBRN) investigators has implemented 5 clinical protocols (2 observational studies and 3 clinical trials) and 16 ancillary studies including quality of life, epidemiology, immunology, virology, and genomics. Approximately 1,875 adults and 375 children are in longitudinal follow-up and the biorepository acquired 191,000 aliquots of serum/plasma, 9,300 aliquots of DNA, 1,800 liver biopsy slides and 120 liver tissue specimens for translational studies.

I am the San Francisco site pathologist analyzing liver biopsy slides from study patients, and I attend national two-day consensus meetings with other consortium pathologists approximately twice yearly.

PEER REVIEWED PUBLICATIONS

1. Chen JC, **Ramachandran R**, Goldhamer DJ. Essential and redundant functions of the MyoD distal regulatory region revealed by targeted mutagenesis. *Dev Biol.* 2002 May 1;245(1):213-223.
2. **Ramachandran R**, Lee HS, Matthews B, Shatzel A, Tihan T. Intradural extramedullary leptomeningeal hemangioblastomatosis and paraneoplastic limbic encephalitis diagnosed at autopsy: an unlikely pair. *Arch Pathol Lab Med.* 2008 Jan;132(1):104-108.
3. Lounev VY, **Ramachandran R**, Wosczyzna MN, Yamamoto M, Maidment DA, Shore EM, Glaser DL, Goldhamer DJ, Kaplan FS. Identification of progenitor cells that contribute to heterotopic skeletogenesis. *J Bone Joint Surg Am.* 2009 Mar 1;91(3):652-663.
4. Schafer AL, Vittinghoff E, **Ramachandran R**, Mahmoudi N, Bauer DC. Laboratory reproducibility of biochemical markers of bone turnover in clinical practice. *Osteoporosis Int.* 2010 Mar;21(30):439-445. (Appeared in Research Highlights of Nature Reviews Endocrinology, 2009 Nov;5:587.)
5. Behrends M, Martinez-Palli G, Niemann CU, Cohen S, **Ramachandran R** Hirose R. Acute hyperglycemia worsens hepatic ischemia/reperfusion injury in rats. *Journal of Gastrointestinal Surgery. J Gastrointest Surg.* 2010 Mar;14(3):528-535.
6. Xiao TZ, Singh K, Dunn E, **Ramachandran R**, Cowan MJ. T and B cell immunity can be reconstituted with mismatched hematopoietic stem cell transplantation without alkylator therapy in Artemis-deficient mice using anti-NK antibody and photochemically-treated sensitized donor T Cells. *Biol Blood Marrow Transplant.* 2012 Feb;18(2):200-209.
7. Ashouri J, Davis J, Farkas A, Durack J, **Ramachandran R**, Dall'Era M. A young woman with systemic lupus erythematosus and extensive mesenteric vasculitis involving small and medium vessels. *Arthritis Care and Research.* 2012 Dec;64(12):1928-1933.
8. Singh A, Mahadevan U, **Ramachandran R**, Velayos F. Heterotopic gastric mucosa mimicking rectal neoplasm on colonoscopy (Image of the month). *Am J Gastroenterology* 2013;108:476.
9. Krings G, **Ramachandran R**, Jain D, Wu TT, Yeh MM, Torbenson M, Kakar S. Immunohistochemical pitfalls and the importance of glypican 3 and arginase in the diagnosis of scirrhous hepatocellular carcinoma. *Mod Pathol.* 2013 Jun;26(6):782-91.
10. Wang J, MacKenzie JD, **Ramachandran R**, Chen DZ. Identifying neutrophils in H&E staining histology tissue images. *Med Image Comput Assist Interv.* 2014;17(Pt 1):73-80.

11. Wang J, MacKenzie JD, **Ramachandran R**, Chen DZ. A Deep Learning Approach for Semantic Segmentation in Histology Tissue Images. In: Ourselin S., Joskowicz L., Sabuncu M., Unal G., Wells W. (eds) Medical Image Computing and Computer-Assisted Intervention – MICCAI 2016. MICCAI 2016. Lecture Notes in Computer Science, vol 9901, Springer.
12. Zhang Y, Yang L, MacKenzie JD, **Ramachandran R**, Chen DZ. A seeding-searching-ensemble method for gland segmentation in H&E-stained images. *BMC Med Inform Decis Mak.* 2016 Jul 21;16 Suppl 2:80. doi: 10.1186/s12911-016-0312-5.
13. Phelps A, **Ramachandran R**, Courtier J, Perito E, Rosenthal P, MacKenzie JD. Ultrasound elastography: is there a shear wave speed cutoff for pediatric liver fibrosis and inflammation? *Clin Imaging.* 2016 Oct 17; 41:95-100. PMID: 27840268
14. Perito E, Vase T, **Ramachandran R**, Phelps A, Jen KY, Lustig R, Feldstein V, Rosenthal P. Hepatic steatosis after pediatric liver transplant. *Liver Transpl.* 2017 Jul;23(7):957-967.
15. Khalili M, Kleiner DE, King WC, Sterling RK, Ghany M, Chung RT, Bhan A, Rosenthal P, Lisker-Melman M, **Ramachandran R**, Lok AS and the Hepatitis B Research Network (HBRN). Hepatic Steatosis and Steatohepatitis in a Large North American Cohort of Adults with Chronic Hepatitis B. *Am J Gastroenterol.* 2021 Apr 8. doi: 10.14309/ajg.0000000000001257. Online ahead of print.
16. Tanaka KS and **Ramachandran R**. Perceptions of a Remote Learning Pathology Elective for Advanced Clinical Medical Students. *Acad Pathol.* 2021 Jan-Dec; 8. Published online 2021 Apr 23. doi: 10.1177/23742895211006846.
17. Chin-Hong P, Loeser H, Peterson A, **Ramachandran R**, O’Sullivan P. Impact of an innovative endowed chair program on medical educator recipients. (accepted, 2021 *Academic Medicine*)

REVIEW ARTICLES

1. **Ramachandran R** and Kakar S. Histological patterns in drug-induced liver disease. *J Clin Pathol.* 2009 Jun;62(6):481-492.
2. **Ramachandran R** and Kakar S. Fibrolamellar hepatocellular carcinoma. *Diagn Histopathol.* 2010 Aug;16(8):388-396.
3. **Ramachandran R** and Kakar S. Budd-Chiari syndrome mimicking chronic biliary disease. *Pathology Case Reviews* 2010 May/June;15(3):96-99.
4. Choi WT, **Ramachandran R**, Kakar S. Immunohistochemical approach for the diagnosis of a liver mass on small biopsy specimens. *Hum Pathol.* 2017 May;63:1-13. doi: 10.1016/j.humpath.2016.12.025. Epub 2017 Jan 11.

BOOKS AND CHAPTERS

1. **Ramachandran R** and Kakar S. Consultant Pathology Series: Liver Pathology (textbook). Acute Liver Failure (chapter). Demos Medical Publishing, LLC. New York, NY. This textbook focuses on diagnostic problems in liver pathology through examples of challenging cases.
2. **Ramachandran R** and Kakar S. Consultant Pathology Series: Liver Pathology (textbook). Metastatic Tumors: Illustration of Immunohistochemical Workup (chapter). Demos

Medical Publishing, LLC. New York, NY. This textbook focuses on diagnostic problems in liver pathology through examples of challenging cases.

3. **Ramachandran R.** Bone and Soft Tissue Pathology: High-Yield Pathology (textbook). Myofibroblastic Tumors (chapter). Elsevier. This is a review and photographic atlas of key disease entities in bone and soft tissue pathology.

OTHER PUBLICATIONS

1. **Ramachandran R** and Kakar S. Fibrolamellar hepatocellular carcinoma. Performance Improvement Program in Surgical Pathology (PIP) study set case 2010-27. College of American Pathologists.
2. **Ramachandran R.** Role of residents in medical student teaching (letter to the editor). Archives of Pathology & Laboratory Medicine. 2013 Oct;137(10):1325

SIGNIFICANT PUBLICATIONS

1. Lounev VY, **Ramachandran R**, Wosczyzna MN, Yamamoto M, Maidment DA, Shore EM, Glaser DL, Goldhamer DJ, Kaplan FS. Identification of progenitor cells that contribute to heterotopic skeletogenesis. J Bone Joint Surg Am. 2009 Mar 1;91(3):652-663.

This project involved a mouse model for the human disease fibrodysplasia ossificans progressiva, and it was a significant component of my Ph.D. thesis research at the University of Pennsylvania. The research was extended after I graduated, and my initial data are included in the paper.

2. **Ramachandran R** and Kakar S. Histological patterns in drug-induced liver disease. J Clin Pathol. 2009 Jun;62(6):481-492.

I worked with one of my fellowship mentors, Dr. Sanjay Kakar, to write a comprehensive review of patterns seen in drug-related liver damage; such drugs include prescription medications, chemotherapy, and self-prescribed herbal and supplemental agents. This material also formed the basis of a CME lecture I gave for the Department of Internal Medicine and Cardiology fellowship at Kaiser San Francisco in March 2011.

3. Khalili M, Kleiner DE, King WC, Sterling RK, Ghany M, Chung RT, Bhan A, Rosenthal P, Lisker-Melman M, **Ramachandran R**, Lok AS and the Hepatitis B Research Network (HBRN). Hepatic Steatosis and Steatohepatitis in a Large North American Cohort of Adults with Chronic Hepatitis B. Am J Gastroenterol. 2021 Apr 8. doi: 10.14309/ajg.0000000000001257. Online ahead of print.

I collaborated with hepatology and pathology colleagues nationally to interpret data and report our findings on fatty liver disease in adults and children with chronic hepatitis B. This research is supported by the Hepatitis B Research Network (HBRN) through the NIH/NIDDK. I am the San Francisco site pathologist for the HBRN, a consortium of hospitals with expertise in care for individuals with chronic infection with the hepatitis B virus.

4. Tanaka KS and **Ramachandran R**. Perceptions of a Remote Learning Pathology Elective for Advanced Clinical Medical Students. *Acad Pathol*. 2021 Jan-Dec; 8. Published online 2021 Apr 23. doi: 10.1177/23742895211006846.

I mentored UCSF MS4 Kara Tanaka, now a PGY-1 in our department, to report the student experience with a novel remote Anatomic Pathology elective. The coursework was designed for students to continue their clinical studies while adhering to public health guidelines during the early response to the COVID-19 pandemic. Our MS3s and MS4s were eager to continue their clinical studies despite the temporary hold on in-person clinical work. Together, Kara and I designed both 2-week and 4-week elective options, created new lectures given mainly by faculty with some resident and fellow involvement, and leveraged some existing resources such as digital slides in our sessions. We had a total of 37 enrolled students over April and May of 2020. This project formed the basis of Kara's creative work in a Health Professions Education elective in the fall of 2020. She presented the work at the 2021 UCSF Education Showcase, as a poster at a large international professional society meeting through the US and Canadian Academy of Pathology, and as a joint recorded lecture for the 2021 Association of Pathology Chairs conference, where she also is an invited panelist.

5. Chin-Hong P, Loeser H, Peterson A, **Ramachandran R**, O'Sullivan P. Impact of an innovative endowed chair program on medical educator recipients. (accepted, 2021 *Academic Medicine*)

I collaborated with UCSF colleagues Drs. Helen Loeser, Pat O'Sullivan, Peter Chin-Hong, and Alissa Peterson on a qualitative research project on the impact of the endowed chair program run by the Academy of Medical Educators. I helped edit the interview guide and interviewed former chairholders about the impact of the program on themselves and their academic colleagues. A separate group is analyzing the impact of the program on the institution. I performed data interpretation and helped write the manuscript.

PATENTS ISSUED OR PENDING

- 1.Chen D, Wang J, MacKenzie J, **Ramachandran R**. Identification of inflammation in tissue images. US20170076448 A1. March 16, 2017.

CONFERENCE ABSTRACTS

- 1.Chen JC, Love CM, **Ramachandran R**, Goldhamer DJ. The core enhancer and distal regulatory region are essential for MyoD expression. 2000 Molecular Biology of Muscle Development and Disease meeting. Asilomar, CA. (non-presenting author, poster)
2. **Ramachandran R**, Love CM, Goldhamer DJ. Contribution of myoblasts to BMP-induced ectopic bone formation in mice. 2000 International Symposium on Fibrodysplasia Ossificans Progressiva. Philadelphia, PA. (poster)
3. Glaser DL, **Ramachandran R**, Shore EM, Lin TW, Yeh PC, Beredjiklian P, Kaplan FS, Goldhamer DJ, Soslowsky LJ. The origin of cells within a healing tendon. 2003 Orthopaedic Research Society Annual Meeting. New Orleans, LA. (non-presenting author, abstract)
4. **Ramachandran R**, Leong S, Bracci P, Florero M, Esserman L, Ewing C, Hwang E, Treseler P. Sentinel lymph node factors predicting disease recurrence in breast cancer

- patients. 2006 International Association of Pathology Congress. Montreal, Canada. (poster)
5. **Ramachandran R**, Pang J, Tabatabai L. Pancreatic Intraductal Papillary Mucinous Tumor (IPMT): A Cytomorphologic Study with Histopathological Correlation. 2007 United States and Canadian Academy of Pathology annual meeting. San Diego, CA. (poster)
 6. **Ramachandran R**, Browne LW, Kakar S. Advantages and pitfalls of glypican-3 immunohistochemistry in the distinction of hepatocellular carcinoma and metastatic carcinomas. 2009 United States and Canadian Academy of Pathology annual meeting. Boston, MA. (poster)
 7. **Ramachandran R**, Pang J, Tabatabai L. Pancreatic Intraductal Papillary Mucinous Tumor (IPMT): A Cytomorphologic Study with Histopathological Correlation. 2010 First Annual Pancreas Research Program Retreat. San Francisco, CA. (poster)
 8. **Ramachandran R**, Browne LW, Mehdi I, Chen YY, Kakar S. Evidence-based immunohistochemical panel for the distinction of hepatocellular carcinoma and metastatic carcinoma. 2010 United States and Canadian Academy of Pathology annual meeting. Washington, DC. (poster)
 9. Singh A, Mahadevan U, **Ramachandran R**, Velayos F. Heterotopic gastric mucosa (HGM) mimicking rectal neoplasm on colonoscopy. 2011 American College of Gastroenterology annual meeting. Washington, DC. (non-presenting author, poster)
 10. Wang J, MacKenzie JD, **Ramachandran R**, Wang H, Chen DZ. Segmenting and classifying plasma cells and lymphocytes in histology images. 2013 Medical Image Computing and Computer Assisted Intervention Society (MICCAI) meeting. Nagoya, Japan. (non-presenting author, paper)
 11. Sangokoya C, Mattis A, **Ramachandran R**, Haron J. Expression of the iron-regulating microRNA miR-485-3p in hepatic cirrhosis. 2014 United States and Canadian Academy of Pathology annual meeting. San Diego, CA. (non-presenting author, poster)
 12. Vase T, Perito E, **Ramachandran R**, Rosenthal P. Hepatic steatosis in pediatric liver transplant recipients: single-center review of post-transplant liver biopsies. Digestive Disease Week (American Association for the Study of Liver Disease). Boston, MA. (non-presenting author, poster)
 13. Sangokoya C, Mattis A, **Ramachandran R**, Baron J. Hepatic iron homeostasis: immunolocalization of iron regulatory factors in human liver. 2015 United States and Canadian Academy of Pathology annual meeting. Boston, MA. (non-presenting author, poster)
 14. Sangokoya C, Mattis A, **Ramachandran R**, Baron J. MicroRNA in situ hybridization analysis of MIR-485-3p and MiR-122 expression in human liver development and disease. 2015 United States and Canadian Academy of Pathology annual meeting. Boston, MA. (non-presenting author, poster)
 15. Phelps A, **Ramachandran R**, Courtier J, Perito E, Rosenthal P, MacKenzie J. Quantitative Ultrasound Elastography for Pediatric Liver Disease: Can shear wave speed be estimated from a single image? 2015 Society for Pediatric Radiology National Meeting. Seattle, WA. (non-presenting author, oral presentation)

16. Wang J, MacKenzie J, **Ramachandran R**, Zhang Y, Wang H, Chen D. Segmenting subcellular structures in histology tissue images. 2015 IEEE International Symposium on Biomedical Imaging. New York, NY. (non-presenting author, paper)
17. Wang J, MacKenzie JD, **Ramachandran R**, Chen DZ. Neutrophils identification by deep learning and Voronoi diagram of clusters. 2015 Medical Image Computing and Computer Assisted Intervention Society (MICCAI) meeting. Munich, Germany. (non-presenting author, paper)
18. Wang J, MacKenzie JD, **Ramachandran R**, Chen DZ. Detection of glands and villi by collaboration of domain knowledge and deep learning. 2015 Medical Image Computing and Computer Assisted Intervention Society (MICCAI) meeting. Munich, Germany. (non-presenting author, paper)
19. Zhang Y, Yang L, MacKenzie JD, **Ramachandran R**, Chen DZ. A seeding-searching-ensemble method for gland segmentation and detection. 2015 IEEE International Symposium on Bioinformatics and Biomedicine. New York, NY. (non-presenting author, paper, subsequently invited for publication in the BMC Medical Informatics and Decision Making special issue.)
20. Wang J, MacKenzie JD, **Ramachandran R**, Chen DZ. A deep learning approach for semantic segmentation in histology tissue images. 2016 Medical Image Computing and Computer Assisted Intervention Society (MICCAI) meeting. Athens, Greece. (non-presenting author, paper)
21. Kruidering-Hall M, Gindi J, Burch H, Crawford J, Wlodarczyk S, **Ramachandran R**, Fulton T, Hauer K. Checkpoints: assessment for learning in action. 2017 Western Group on Educational Affairs (WGEA) meeting. Salt Lake City, UT. (non-presenting author, poster)
22. Sewell J, Rolon L, **Ramachandran R**, Mitrovic I, Fulton T. Spaced- versus massed-content approaches to curricular design in multi-organ-system courses: which better for learning? 2018 International Association of Medical Science Educators (IAMSE) meeting. Las Vegas, NV. (non-presenting author, focus session)
23. Khalili M, Kleiner D, King WC, Sterling R, Ghany M, Chung RT, Rosenthal P, Lisker-Melman M, **Ramachandran R**, Bhan A, Lok A. Hepatic fat and steatohepatitis in a large multiethnic North American cohort of adults and children with chronic hepatitis B. 2019 The Liver Meeting (American Association for the Study of Liver Diseases). Boston, MA. (non-presenting author, platform presentation)
24. Kleiner D, Wahed A, Bhan A, Nalesnik M, Choi E-Y, **Ramachandran R**, Leonard K, Di Bisceglie A, Ghany M, Chung RT, Lisker-Melman M. Association between immunohistochemical staining for HBV antigens in liver biopsies and circulating HBV DNA and other characteristics of HBV viral infection. Digestive Disease Week (American Association for the Study of Liver Disease). Chicago, IL. (non-presenting author, platform presentation)
25. Peterson A, Chin-Hong P, **Ramachandran R**, Loeser H, O'Sullivan P. Impact of an innovative endowed chair program on medical educator recipients. UCSF Education Showcase. San Francisco, CA. (non-presenting author, Medical Education Grand Rounds oral presentation, competitive selection)

26. Tanaka K and **Ramachandran R**. Perceptions of a Remote Learning Pathology Elective for Advanced Clinical Medical Students. 2020 United States and Canadian Academy of Pathology annual meeting. Online. (non-presenting author, poster)

OTHER CREATIVE ACTIVITIES

1. Research Science Institute, University of California, San Diego, CA. Project at San Diego Supercomputer Center and Scripps Institute of Oceanography under the supervision of Drs. Reagan Moore and Hassan Aref. Research topic: Computer Modeling of the El Niño-Southern Oscillation. Research submitted to the 1991 Westinghouse Science Talent Search, won 10th place nationally.
2. Brigham and Women's Hospital, Boston, MA. Developed immunostaining protocols in the Laboratory of Biologic Cancer Therapy, Division of Surgical Oncology, Department of Surgery, under the supervision of Drs. Timothy Eberlein and Peter Goedegebuure.
3. Contributed original photomicrographs to latest edition of Zakim and Boyer's Hepatology: A Textbook of Liver Disease (Saunders, 6th ed., 2011), Recurrent viral diseases after liver transplantation (chapter). Authors of chapter: Jennifer C. Lai and Norah A. Terrault.
4. Interviewed for Smithsonian Indian American Heritage Project. The Washington, DC exhibit ran from February 2014 to August 2015 and the exhibit toured the United States. Curators: Dr. Pawan Dhingra and Dr. Masum Momaya.
5. Began ongoing creation of organ-specific normal histology interactive lessons for Bridges curriculum use and for resident teaching. These are archived within the UCSF Collaborative Learning Environment with the goal of publishing to an online repository in the future. These are also used at other institutions for UME Pathology teaching.

ADDITIONAL RELEVANT INFORMATION

I was selected through a competitive application process to participate in the 2014 Harvard-Macy program for Medical Educators, a residential professional development program held in Cambridge and Boston, MA. I was one of approximately 80 participants from an international application pool of approximately 160 health professionals with academic affiliations. My project proposal outlined systems-based areas of improvement in pathology education primarily related to a new campus site at Mission Bay in San Francisco, CA. The skills I learned at Harvard-Macy have been invaluable in Bridges curriculum leadership. I also mentored a UCSF resident who participated in a Harvard-Macy program in December 2017. This resident is now Associate Director of Hematopathology at the University of Washington and closely involved in trainee education.