

University of California, San Francisco
CURRICULUM VITAE

Name: Ronald Balassanian, MD

Position: HS Associate Clinical Professor, Step 2
Pathology
School of Medicine

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EDUCATION

1984 - 1989	University of Washington, Seattle, WA	BS	Cell Biology
1984 - 1989	University of Washington, Seattle, WA	BA	English Literature
1991 - 1996	University of Vermont, College of Medicine, Burlington, VT	MD	Surgery major
1994 - 1994	University of Vermont, Pathology, Burlington, VT	Student fellow	Pathology
1996 - 1997	New York University, New York, NY	PGY1 Resident	Pathology
1997 - 1998	University of California San Francisco, San Francisco, CA	Resident	Pathology
1998 - 1999	University of California San Francisco, San Francisco, CA	Resident	Pathology & Lab Med
1999 - 2000	University of California San Francisco, San Francisco, CA	Fellow	Surgical Pathology
2000 - 2000	University of California San Francisco, San Francisco, CA	Chief Resident	Pathology
2000 - 2001	University of California San Francisco, San Francisco, CA	Fellow	Cytopathology
2001 - 2002	University of California San Francisco, San Francisco, CA	Resident	Laboratory Medicine

LICENSES, CERTIFICATION

1998	California Physician and Surgeon Medical License #A066054
2002	New York State Medical License #225972-1
2003	American Board of Pathology, Anatomic and Clinical Pathology
2004	Pennsylvania Medical Board Physician and Surgeon License #MD425251
2005	American Board of Pathology, subspecialty certification in Cytopathology
2007	Commonwealth of Massachusetts, Board of Registration in Medicine #231336
2010	Certificate of Special Expertise in Ultrasound-Guided Fine Needle Aspiration, College of American Pathologists

PRINCIPAL POSITIONS HELD

2002 - 2003	Joan and Sanford I. Weill Medical College of Cornell University, New York, NY	Assistant Professor	Pathology and Laboratory Medicine
2002 - 2003	New York-Presbyterian Hospital, Weill-Cornell Medical Center, New York, NY	Assistant Attending	Pathology and Laboratory Medicine
2003 - 2004	Continuum Health Partners , Beth Israel Medical Center, Phillips Ambulatory Cancer Center, Fine Needle Aspiration Biopsy Clinic, New York, NY	Attending Pathologist	Pathology and Laboratory Medicine
2004 - 2007	University of Pittsburgh Medical Center, UPMC Presbyterian-Shadyside, Pittsburgh PA	Attending Pathologist	Pathology and Laboratory Medicine
2004 - 2007	University of Pittsburgh, School of Medicine, Pittsburgh PA	Assistant Professor	Pathology
2006 - 2007	University of Pittsburgh Medical Center, UPMC Shadyside, Pittsburgh PA	Director, FNA Biopsy Clinic	Pathology
2007 - 2010	Harvard Medical School, Boston, MA	Instructor	Pathology
2007 - 2010	Massachusetts General Hospital, Boston, MA	Assistant Attending	Pathology
2011 - 2014	University of California San Francisco, San Francisco, CA	Assistant Clinical Professor	Pathology
2014 - present	University of California San Francisco, San Francisco, CA	Associate Clinical Professor	Pathology
2015 - present	University of California San Francisco, San Francisco CA	Site Director, UCSF Mission Bay Hospital	Pathology

OTHER POSITIONS HELD CONCURRENTLY

2003 - 2004	Continuum Health Partners, Saint Luke's-Roosevelt Hospital, New York, NY	Attending Pathologist	Pathology and Laboratory Medicine
2005 - 2007	University of Pittsburgh Medical Center, UPMC Magee Women's Hospital, Pittsburgh, PA	Attending Pathologist	Pathology and Laboratory Medicine

HONORS AND AWARDS

1991	Honorary Technical Consultant, Cancer Information Service of the Pacific, National Cancer Institute	Fred Hutchinson Cancer Research Center, Seattle, Washington
1995	Robert Lerner, M.D. Medical Student Loan Fund Award, College of Medicine	University of Vermont, Burlington VT
1996	James E. Demeules Surgical Research Prize, Surgery, College of Medicine	University of Vermont, Burlington VT
1998	Medical Student Teaching Award, Pathology	University of California, San Francisco, San Francisco CA
2007	Outstanding Teaching in Anatomic Pathology, Residents and Fellows in Pathology	University of Pittsburgh, Pittsburgh PA
2010	Excellence in Teaching Award in Anatomic Pathology, Residents and Fellows in Pathology	Massachusetts General Hospital, Boston MA
2015	Faculty Award of Excellence, Department of Pathology	University of California San Francisco

KEYWORDS/AREAS OF INTEREST

Pathology, Cytopathology, fine needle aspiration (FNA) biopsy, breast cancer, patient-physician communication, patient-pathologist communication, image analysis, informatics

CLINICAL ACTIVITIES SUMMARY

My primary clinical focus has been the FNA biopsy service. I am currently the Site Director for the new Mission Bay hospital which opened February 1, 2015. In this role, I helped set up a new FNA clinic for outpatients as well as for image guided biopsies. I also cover general cytology sign-out for Mt. Zion and Moffitt-Long hospitals, and I sign-out breast surgical pathology. In June of 2009, I underwent training and certification by the College of American Pathologists for using ultrasound guidance for FNA biopsy and I am currently on faculty for the CAP course. At UCSF, I have focused on expanding ultrasound guidance for FNA biopsy at Mt Zion FNA Clinic and now at the Mission Bay FNA Clinic. I am also working with the UCSF Medical Center to implement APEX notes for FNA patients to improve documentation and billing for FNA clinic patients. In 2016, I worked with IT support services to upgrade our CoPath pathology reporting system to incorporate Microsoft Word functionality. I present at the weekly

UCSF Breast Tumor Board and the UCSF Sarcoma Tumor Board conferences. I cover the Radiology-Pathology Correlation Conference with Dr. Bonnie Joe, Director of Women's Imaging at Mt Zion. I instituted and currently run the UCSF Hematology-Cytology correlation conference, a quality assurance/teaching conference with the UCSF department of Laboratory Medicine.

Prior to joining UCSF in 2011, I was working at Massachusetts General Hospital on the FNA/Cytology service and breast surgical pathology. Prior to working at MGH, I was the director of the UPMC Fine Needle Aspiration Biopsy Clinic and Service at UPMC Shadyside, from Jan 2006 to May 2007.

MEMBERSHIPS

- 1997 - present College of American Pathologists
- 1998 - present American Society for Clinical Pathology
- 2000 - present United States and Canadian Academy of Pathology
- 2004 - present American Society of Cytopathology
- 2009 - present Papanicolaou Society of Cytopathology
- 2016 - present Consortium of Universities for Global Health
- 2016 - present UCSF Helen Diller Family Comprehensive Cancer Center

SERVICE TO PROFESSIONAL ORGANIZATIONS

- | | | |
|----------------|--|-----------------------------------|
| 2014 - present | College of American Pathologists. Ultrasound Guided Fine Needle Aspiration AP3 course. Biannual educational program. | Faculty |
| 2014 - present | National Comprehensive Cancer Network, Breast Cancer Panel | Institutional Representative |
| 2015 - present | American Society of Cytopathology, Scientific Program Committee | Committee Member |
| 2015 - 2015 | American Society of Cytopathology, 63rd Annual Scientific Meeting, Chicago IL | Moderator, Platform Presentations |
| 2016 - 2016 | American Society of Cytopathology, 64th Annual Scientific Meeting, New Orleans LA | Moderator, Platform Presentations |
| 2015 - present | United States and Canadian Academy of Pathology, Immersive Cytopathology Experience (ICE) | Faculty |
| 2017 - present | Papanicolaou Society of Cytopathology, Standards of Practice Task Force | Member |

SERVICE TO PROFESSIONAL PUBLICATIONS

- 2007 - present Ad-hoc referee for Archives of Pathology and Laboratory Medicine
- 2011 - present Ad-hoc referee for Diagnostic Cytopathology

- 2014 - present Ad-hoc referee for Journal of the American Society of Cytopathology
- 2015 - present Ad-hoc referee for Journal of the National Comprehensive Cancer Network
- 2015 - present Ad-hoc referee for Cancer Cytopathology

INVITED PRESENTATIONS - INTERNATIONAL

- 2004 "Criteria for Malignancy in Fine Needle Aspiration Biopsy of Mass Lesions in the Setting of Lactation" Platform presentation United States and Canadian Academy of Pathology 93rd Annual Meeting, Vancouver, BC, Canada Speaker
- 2011 "Improving FNA technique with an Introduction to US guidance - A Practical Hands-on Workshop". Workshop presentation. 59th Annual Scientific Meeting, American Society Cytopathology, Baltimore, MD Lead presenter
- 2012 "Optimizing FNA Technique With an Introduction to US Guidance- Practical Hands-on Workshop". Workshop presentation. 60th Annual Scientific Meeting, American Society of Cytopathology, Las Vegas, NV Lead presenter
- 2013 "A Superior Technique for Cell Block Preparation for Fine Needle Aspiration" Platform presentation, United States and Canadian Academy of Pathology 102nd Annual Meeting, Baltimore, MD Speaker
- 2013 "Improving FNA technique with an Introduction to US guidance - A Practical Hands-on Workshop". Workshop presentation. 61st Annual Scientific Meeting, American Society Cytopathology. Orlando, FL Lead presenter
- 2013 "Dealing with Emotional Patients in the FNA Clinic". Roundtable Discussion. 61st Annual Scientific Meeting, American Society Cytopathology. Orlando, FL Roundtable leader
- 2014 "Improving FNA technique with an Introduction to US guidance - A Practical Hands-on Workshop". Diagnostic Cytopathology Update 2014. United States and Canadian Academy of Pathology, Del Mar, CA Lead presenter
- 2014 "Cell Block Techniques and Other Ancillary Tests in Cytology". Diagnostic Cytopathology Update 2014. United States and Canadian Academy of Pathology, Del Mar, CA Faculty speaker
- 2014 "Optimizing FNA Technique With an Introduction to US Guidance- Practical Hands-on Workshop" Diagnostic Cytopathology Update 2014. United States and Canadian Academy of Pathology, Del Mar, CA Lead presenter

2014	"Improving FNA technique with an Introduction to US guidance - A Practical Hands-on Workshop". Workshop presentation. 62nd Annual Scientific Meeting, American Society Cytopathology. Dallas, TX	Lead presenter
2014	"Practical and Proactive Techniques for Working With Patients in the FNA Clinic". Roundtable Discussion. 62nd Annual Scientific Meeting, American Society Cytopathology. Dallas, TX	Roundtable Leader
2015	"Developing a Breast FNA Biopsy Service in Peru". Papanicolaou Society of Cytopathology, Companion Society Meeting, United States and Canadian Academy of Pathology (USCAP), 104th Annual Meeting. Boston, MA	Faculty speaker
2015	"Improving FNA technique- A Practical Hands-on Workshop. Workshop Presentation. 63rd Annual Scientific Meeting, 63rd Annual Scientific Meeting, American Society of Cytopathology, Chicago IL	Lead presenter
2016	Evening Cytopathology Specialty Conference. United States and Canadian Academy of Pathology, 105th Annual Meeting, Seattle, WA	Panelist/presenter
2016	"Improving FNA technique with an introduction to US guidance - A Practical Hands-on Workshop". Workshop presentation. 64th Annual Scientific Meeting, American Society Cytopathology. New Orleans, LA	Lead presenter
2016	"Ask Your Pathologist- How To Communicate With Your Patients In The Era Of Personal Medicine". Workshop presentation. 64th Annual Scientific Meeting, American Society Cytopathology. New Orleans, LA	Lead presenter
2016	"Breast FNA Biopsy with a Focus on Papillary Lesions". Virtual Slide Seminar. 64th Annual Scientific Meeting, American Society of Cytopathology. New Orleans LA	Lead presenter

INVITED PRESENTATIONS - NATIONAL

2000	"Fine Needle Aspiration Biopsy in Diagnosing Breast Cancer" and "Second Opinions in Pathology: How to get one and when are they indicated" Cancer Information Service for the Pacific, National Cancer Institute, Fred Hutchinson Cancer Research Center, Seattle, WA	Speaker
2005	"Decision Making Analysis in Pathology Diagnosis and Reporting" Seminar, Risk Center, Department of Social and Decision Science, Carnegie Mellon University, Pittsburgh, PA	Seminar moderator

2005	"Fine Needle Aspiration Biopsy of the Breast" Department of Pathology, Brigham and Women's Hospital, Boston, MA	Speaker
2005	"Fine Needle Aspiration Biopsy of the Breast" Department of Pathology, University of Rochester, Rochester, NY	Speaker
2007	"Fine Needle Aspiration Biopsy of the Breast" Department of Pathology, Massachusetts General Hospital, Boston, MA	Speaker
2008	"Fine Needle Aspiration Biopsy of the Lung" American Society for Clinical Pathology ASCP- Teleconference	Speaker
2009	"Cytopathology Seminar: Selected Areas with Special Problems" Current Concepts in Surgical Pathology, Harvard Medical School, Massachusetts General Hospital, Boston, MA	Faculty speaker
2009	"Fine Needle Aspiration Biopsy of Lymph Nodes with Ancillary Testing Including Stains, Flow Cytometry, and FISH". Cytopathology for the Practicing Pathologist: Videomicroscopy Tutorials on Selected Topics, Harvard Medical School, Massachusetts General Hospital, Boston, MA	Faculty speaker
2009	"Cytologic Diagnosis of Breast Biopsies" Department of Pathology, University of California San Francisco, San Francisco, CA	Speaker
2010	"Fine Needle Aspiration Biopsy: Small Group Slide Review". Current Concepts in Surgical Pathology, Harvard Medical School, Massachusetts General Hospital, Boston, MA	Faculty speaker
2012	"Athena Breast Health Network: Pathology Harmonization Project". 2012 UCSF Breast Oncology Program Scientific Retreat, San Francisco, CA	Faculty speaker
2012	"Breast Cytology". 2012 28th Annual UCSF Current Issues in Anatomic Pathology, Cytology Seminar, UCSF, San Francisco, CA	Faculty speaker
2013	"Pathology Heterogeneity" 2013 UCSF Breast Oncology Program Scientific Retreat, San Francisco, CA	Faculty speaker
2013	"Diagnosis of Lymphomas by Fine Needle Aspiration". 2013 29th Annual UCSF Current Issues in Anatomic Pathology. UCSF, San Francisco, CA	Faculty speaker
2013	"Interpreting FNA and Core Biopsies of the Breast: The Truth and Its Many Complexities". Women's Imaging in the Wine Country, UCSF Department of Radiology. San Francisco, CA	Faculty speaker

2013	"Lymph Node Fine Needle Aspiration Biopsy with Ancillary Studies Including Flow Cytometry and Molecular Diagnostics". The 66th Annual Meeting, California Society of Pathologists, San Francisco, CA	Faculty speaker
2013	"Expert Roundtable: Skeptical About Cell Phones and Health?" Commonwealth Club of California, San Francisco, CA	Panel speaker
2014	"FNA biopsy of the Breast" 2014 30th Annual UCSF Current Issues in Anatomic Pathology. UCSF, San Francisco, CA	Faculty speaker
2014	"Ultrasound Guided Fine Needle Aspiration" Advanced Practical Pathology Program, College of American Pathologists, Chicago IL	Faculty speaker
2015	"Breast FNA Cytology" 2015 31st Annual UCSF Current Issues in Anatomic Pathology Cytology Seminar, San Francisco CA	Faculty speaker
2015	"Ultrasound Guided Fine Needle Aspiration" Advanced Practical Pathology Program, College of American Pathologists, Englewood NJ	Faculty speaker
2016	"Ultrasound Guided Fine Needle Aspiration" Advanced Practical Pathology Program, College of American Pathologists, Chicago IL	Faculty speaker
2016	"The Spectrum of Breast FNA with a Focus on Papillary Lesions". Lunch Tutorial 2016 32nd Annual UCSF Current Issues in Anatomic Pathology. UCSF, San Francisco, CA	Faculty speaker
2016	"Cancer Patients and Pathology" Cancer Information Service for the National Cancer Institute, Fred Hutchinson Cancer Research Center, Seattle, WA	Faculty speaker
2017	"Lymph Node FNA Node Cytology". 33rd Annual UCSF Current Issues in Anatomic Pathology, Cytology Seminar. UCSF San Francisco, CA	Faculty speaker

INVITED PRESENTATIONS - REGIONAL AND OTHER INVITED PRESENTATIONS

2011	"Breast Cytopathology" UCSF Pathology Resident's Teaching Conference, Annual Lecture	Faculty speaker
2012	"Breast Cytopathology" Resident's Lecture, UCSF Department of Radiation Oncology, San Francisco, CA	Faculty speaker
2012	"Breast Cytopathology" UCSF Pathology Resident's Teaching Conference, Annual Lecture	Faculty speaker

2013	"Interpreting FNA and Core Biopsies of the Breast" Residents and Fellows Lecture, UCSF Department of Radiology and Bioimaging, Women's Imaging	Faculty speaker
2013	"Breast Cytopathology" UCSF Pathology Resident's Teaching Conference, Annual Lecture	Faculty speaker
2013	"Interpreting FNA and Core biopsy of the Breast" UCSF Breast Imaging Fellows Teaching Conference	Faculty speaker
2014	"Breast Cytopathology" Resident's Lecture, UCSF Department of Radiation Oncology, San Francisco, CA	Faculty speaker
2014	"Breast Cytopathology" UCSF Pathology Resident's Teaching Conference, Annual Lecture	Faculty speaker
2014	"Introduction to Pathology" UCSF Carol Franc Buck Breast Care Center Pre-med Intern Program. San Francisco CA	Faculty speaker
2015	"Introduction to Pathology" UCSF Carol Franc Buck Breast Care Center Intern Program. San Francisco CA	Faculty speaker
2015	"Breast Cytopathology" UCSF Pathology Resident's Teaching Conference, Annual Lecture	Faculty speaker
2015	"Ask Your Pathologist- Everything you ever wanted to know about breast pathology" Taste for the Cure: A Taste of Science. UCSF Carol Franc Buck Breast Care Center, San Francisco CA	Faculty speaker
2015	"Ask Your Pathologist" Multi-Headed Microscope Science Demonstration. Taste for the Cure: A Taste of Science. UCSF Carol Franc Buck Breast Care Center, San Francisco CA	Faculty presenter
2016	"Ask Your Pathologist" Multi-Headed Microscope Science Demonstration. Taste for the Cure: A Taste of Science. UCSF Carol Franck Breast Care Center, San Francisco CA	Faculty presenter
2016	University of California Berkeley, College of Chemistry pre- med panel	Panel speaker
2016	"The Spectrum of Breast FNA Cytology: Challenging and Not So Challenging Lesions. Grand Rounds. CellNetix, Seattle WA	
2016	"Fine Needle Aspiration Biopsy of the Breast". Department of Pathology Grand Rounds. University of Washington, Seattle WA	Faculty speaker
2016	"Ask Your Pathologist; Everything You Always Wanted to Know About Pathology But Never Got a Chance to Ask" Fred Hutchinson Cancer Research Center, Cancer Information Service, Seattle WA	Faculty speaker

2017 "Breast Pathology" Resident and Fellows Lecture. UCSF Faculty presenter
Department of Radiation Oncology, San Francisco CA

CONTINUING EDUCATION AND PROFESSIONAL DEVELOPMENT ACTIVITIES

2007 American Society of Cytopathology, 55th Annual Scientific Meeting, Houston, TX

2007 United States and Canadian Academy of Pathology, 96th annual meeting, San Diego, CA

2008 American Society of Cytopathology, 56th Annual Scientific Meeting, Orlando, FL

2008 United States and Canadian Academy of Pathology, 97th annual meeting, Denver, CO

2009 American Society of Cytopathology, 57th Annual Scientific Meeting, Denver, CO

2009 United States and Canadian Academy of Pathology, 98th annual meeting, Boston, MA

2009 CAP USFNA certification workshop, Chicago, IL

2010 United States and Canadian Academy of Pathology, 99th annual meeting, Washington, DC

2011 United States and Canadian Academy of Pathology, 100th annual meeting, San Antonio, TX

2012 2012 UCSF Breast Oncology Program Scientific Retreat, San Francisco, CA

2012 United States and Canadian Academy of Pathology, 101th annual meeting, Vancouver, BC

2012 American Society of Cytopathology, 60th Annual Scientific Meeting, Las Vegas, NV

2013 2013 UCSF Breast Oncology Program Scientific Retreat, San Francisco, CA

2013 American Society of Cytopathology, 61st Annual Scientific Meeting, Orlando, FL

2013 United States and Canadian Academy of Pathology, 102nd annual meeting, Baltimore, MD

2014 2014 UCSF Breast Oncology Program Scientific Retreat, San Francisco, CA

2014 United States and Canadian Academy of Pathology, 103rd annual meeting, San Diego, CA

2014 American Society of Cytopathology, 62nd Annual Scientific Meeting, Dallas, TX

2015 United States and Canadian Academy of Pathology, 104th annual meeting, Boston, MA

- 2015 American Society of Cytopathology, 63rd Annual Scientific Meeting, Chicago IL
- 2016 United States and Canadian Academy of Pathology, 105th annual meeting, Seattle, WA
- 2016 Symposium on Global Cancer Research, 4th Annual, San Francisco CA
- 2016 Consortium of Universities for Global Health, 7th Annual Global Health Conference
- 2016 United States and Canadian Academy of Pathology, Immersive Cytopathology Experience, Palm Springs CA
- 2016 American Society of Cytopathology, 64th Annual Scientific Meeting, New Orleans LA
- 2017 United States and Canadian Academy of Pathology, 106th annual meeting, San Antonio, TX

GOVERNMENT AND OTHER PROFESSIONAL SERVICE

- 2007 - 2007 National Cancer Institute, Thyroid Fine Needle Aspiration State of the Science Conference. Bethesda, MD. Participant
- 2011 - present Breast FNA Biopsy, Train the Trainers Program, Community-based Program for Breast Health, Peru. A collaboration with PATH (Seattle WA), Peru National Cancer Institute (Lima, Peru), the Regional Cancer Institute in Trujillo (Trujillo, Peru), and the Ministry of Health (Lima, Peru) Faculty

SERVICE ACTIVITIES SUMMARY

PATH, a non-governmental organization funded by the Bill and Melinda Gates Foundation and others, is an international health organization with a mission of "driving transformative innovation to save lives". Working with PATH, Dr. Britt-Marie Ljung and I developed a program for breast health in rural Peru with a focus on FNA screening. We helped write and develop a practical curriculum to train trainers who could then train and supervise other health practitioners in Peru in performing and interpreting fine needle aspiration (FNA) biopsies of the breast. The goal is to develop a model for implementing low cost breast cancer screening that can be exported to other low resource settings in the region and around the world. We finalized the curriculum in May 2014. We visited Trujillo, Peru in October 2014 and implemented the second phase of the project, training local physicians to train other physicians to perform and interpret breast FNA biopsies. The project is ongoing and based on the success of our initial results we have been invited by the health ministry to expand the program to the rest of the country. Eventually, the curriculum is intended to serve as an example for developing similar services in other low and middle income countries in Africa and Asia.

UNIVERSITY SERVICE

UC SYSTEM AND MULTI-CAMPUS SERVICE

- 2015 - present University of California San Francisco, Global Oncology Program, Steering Committee Committee Member

UCSF CAMPUSWIDE

2011 - 2015	Tissue Oversight Committee, University of California San Francisco, San Francisco, CA	Committee member
2012 - 2013	Faculty Search Committee, Breast Pathology, Department of Pathology, University of California San Francisco, San Francisco, CA	Committee member
2013 - 2014	Faculty Search Committee, Breast Imaging, Department of Radiology, University of California San Francisco, San Francisco, CA	Committee member
2014 - 2016	Faculty Search Committee, Director of Cytology, Department of Pathology, University of California San Francisco, San Francisco, CA	Committee member
2014 - present	Clinical Competency Committee, UCSF Cytopathology Fellowship program	Committee member

SCHOOL OF MEDICINE

1992 - 1995	Medical Student Admissions Committee, University of Vermont, College of Medicine Burlington, VT	Member
1998 - 2000	UCSF School of Medicine, Residency Advisory Committee, Pathology and Laboratory Medicine	Member
2000 - 2001	UCSF Medical Staff Training Committee	Member
2000 - 2001	UCSF Chief Resident's Committee	Member
2004 - 2007	Patient Safety & Total Quality Council, UPMC Shadyside, Pittsburgh, PA	Member
2006 - 2007	Residency Committee, Department of Pathology, University of Pittsburgh, Pittsburgh, PA	Member
2009 - 2010	Resident Pathology Training Committee, Department of Pathology, Massachusetts General Hospital, Boston, MA	Member
2014 - present	Admissions Committee, UCSF School of Medicine, San Francisco CA	Member
2016 - present	Confidential Career Advisor, UCSF School of Medicine, San Francisco CA	Advisor

DEPARTMENTAL SERVICE

2015 - 2015	Pathology, CoPath upgrade to Word functionality	Planning and implementation
2016 - present	Pathology and Laboratory Medicine, Grand Rounds Mechanism of Disease faculty feedback group	Faculty mentor

COMMUNITY AND PUBLIC SERVICE

2011 - 2011	UCSF Mt Zion Health Fair. FNA Clinic and Pathology Department Booth	Organizer/Representative
2013 - present	Breast FNA biopsy implementation in Peru, a collaboration with PATH and the Community Based Program for Breast Health, Peru.	Faculty
2014 - present	Tri-Valley Stepping Out for Cancer Kures (SOCKS), Bras for the Cause, Breast Cancer Walk	UCSF participant/fundraiser
2015 - present	"Ask Your Pathologist: Everything you ever wanted to know about breast pathology" Lecture. Taste for the Cure: A Taste of Science. UCSF Carol Franc Buck Breast Care Center, San Francisco CA	Faculty speaker
2015 - present	"Ask Your Pathologist" Annual Multi-Headed Microscope Science Demonstration. Taste for the Cure: A Taste of Science. UCSF Carol Franc Buck Breast Care Center, San Francisco CA	Faculty speaker

CONTRIBUTIONS TO DIVERSITY

I have contributed to diversity at UCSF personally by being an openly gay man since I first visited UCSF as a medical student in 1994, when I started residency in 1997, and when I joined the faculty in 2011. I have been involved with lesbian, gay bisexual and transgender (LGBT) organizations affiliated with UCSF during all of these times. In the mid-nineties, UCSF was still formulating policies around LGBT inclusion and some trainees and even faculty were not comfortable with being open about their sexual identity. As an openly gay man at UCSF, I served as an example, a role model and a mentor to other LGBT members of the UCSF community, including students, residents, fellows, faculty and staff. Informal mentorship has included helping UCSF colleagues at all levels address issues relating to real and perceived anti-LGBT discrimination both in the workplace and in social settings.

Beginning in 1998 when we were residents, my partner and I organized and hosted an annual gay pride party to acknowledge and celebrate the LGBT community at UCSF. We revived the tradition as UCSF faculty in 2011. In 2013, I took a lead role with the Pathology department to organize a memorial in recognition of a gay pathology resident when he died of AIDS during his training.

I am very proud to be a faculty member and to represent the LGBT community at UCSF where diversity is welcomed and celebrated with pride.

Memberships and community involvement:

1997 Bay Area Physicians for Human Rights, member

1997 UCSF Out-list, member

2011 Gay-Straight Alliance, member

2011 UCSF LGBT List-serve, member.

2013 San Francisco Aids Foundation, member and board advisor

2015 Start-OUT LGBT Entrepreneurs Association

2016 UCSF Committee on LGBT Issues

TEACHING SUMMARY

I teach residents and fellows during their rotations in the FNA clinic and on the cytology and breast services. In cytology I conduct one-on-one FNA biopsy practice sessions, called "FNA Boot Camp" with residents and fellows at the beginning of their cytology rotation using cow liver for demonstration. I also instruct them on ultrasound guidance techniques using phantoms. For the Resident's Teaching Conference, I present an annual formal didactic lecture on breast cytology. At the Mission Bay campus, I instituted a weekly noon cytology conference reviewing interesting FNA cases from the prior week. With the department of Laboratory Medicine, I have instituted a monthly cytology-hematology correlation conference reviewing cytology cases and corresponding hematology samples which serves as both a teaching and quality assurance conference. I lecture the pre-med interns in the UCSF Carol Franc Buck Breast Care Center on breast pathology and FNA biopsy once a year.

FORMAL TEACHING

	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
	2011 - present	"Breast Cytopathology" UCSF Pathology Resident's Teaching Conference, Annual Lecture	Faculty presenter	Medicine	15
	2012 - present	"Breast Pathology" UCSF Radiation Oncology Residents and Fellows Teaching conference	Faculty presenter	Medicine	10
	2013 - present	Cytology-Hematology Correlation Conference. Monthly review of interesting cytology and correlating hematology cases. UCSF Laboratory Medicine Residents and Fellows	Faculty presenter	Medicine	10
	2013 - present	"Interpreting FNA and Core biopsy of the Breast" UCSF Breast Imaging Fellows Teaching Conference	Faculty presenter	Medicine	10
	2016 - present	"Classification of Neoplasms" MS1 USCF Bridges Medical Curriculum.	Faculty	Medicine	12

	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
	2016 - present	University of California Berkeley, College of Chemistry pre- med panel (Invited)	Faculty	Medicine	46
	2017 - present	Pathology Student Interest Group. Live FNA session	Faculty (Invited)	Medicine	10
	2017 - present	MS1 Medical Student ABC Block Myocardial Pathology; Obstructive & Restrictive Lung Disease; Lung Cancer.	Faculty (Invited)	Medicine	10
	2017 - present	MS2 Medical Student Life Stages Prostate Disease; Breast Disease; Ovarian & Endometrial Disease Infammation; Ischemic Injury; Neoplasia	Faculty (Invited)	Medicine	10

INFORMAL TEACHING

- 1994 - 1994 Second Year Medical Student Pathology Course, University of Vermont, College of Medicine, Department of Pathology, Laboratory Assistant, 90 medical students, 2-6 hours per week.
- 1996 - 1997 Second Year Medical Student Pathology Course, New York University, Department of Pathology, Laboratory Assistant, 30 medical students, 2-6 hours per week.
- 1997 - 1998 Second Year Medical Student Pathology Course, University of California San Francisco, Department of Pathology, Laboratory Assistant, 30-60 medical students, 2-6 hours per week.
- 1999 - 2000 Fellow, Surgical Pathology, Responsible for supervising junior residents in pathology, Estimate of hours per year: 1560 hours per year (30-60 hours per week).
- 2000 - 2001 Fellow, Cytopathology, Responsible for supervising junior residents in cytopathology, Estimate of hours per year: 520 hours per year (10 hours per week).

- 2002 - 2003 Assistant Professor, Weill Medical College of Cornell University/NY Presbyterian Hospital, Responsible for training residents and fellows in cytopathology, Estimate of hours per year: 1040 hours per year (20 hours per week).
- 2003 - 2004 Attending Pathologist, Beth Israel Medical Center, Continuum Health Partners, Responsible for training visiting residents in cytopathology, Estimate of hours per year: 104 hours per year (2 hours per week).
- 2004 - 2007 Assistant Professor, University of Pittsburgh/UPMC, Responsible for training residents and fellows in cytopathology, Estimate of hours per year: 1560 hours per year (30-60 hours per week).
- 2006 - 2007 Cytology Rotation Director, University of Pittsburgh/UPMC Shadyside, Responsible for overseeing resident rotations through the UPMC FNA biopsy clinic and general cytology service.
- 2007 - 2010 Instructor in Pathology, Harvard Medical School/Massachusetts General Hospital, Responsible for training residents and fellows in pathology, Estimate of hours per year 1560 hours per year (30 hours per week).
- 2011 - 2014 Assistant Clinical Professor, UCSF, Responsible for training and supervising residents and fellows on the cytology service and breast pathology service. Estimate of hours per year 1560 hours per year (30 hours per week).
- 2014 - present Associate Clinical Professor, UCSF, Responsible for training and supervising residents and fellows on the cytology service and breast pathology service. Estimate of hours per year 1560 hours per year (30 hours per week).

MENTORING SUMMARY

I have closely trained and advised a number of residents and fellows through collaboration on research projects as well as direct supervision of their clinical work as the attending on service. Several trainees have progressed on to faculty positions; some are continuing their training, and some are in private practice.

I am a member of the faculty feedback group for the UCSF Pathology and Laboratory Medicine resident conference "Mechanism of Disease".

PREDOCTORAL STUDENTS SUPERVISED OR MENTORED

Dates	Name	Program or School	Mentor Type	Role	Current Position
2014 - present	Abhi Jairam	UCSF Carol Franc Buck Breast Care Center	Project Mentor	Pre-med Intern	Medical Student, University of California Davis

Dates	Name	Program or School	Mentor Type	Role	Current Position
2013 - 2014	Timothy Henderson	UCSF Carol Franc Buck Breast Care Center	Project Mentor, Career Mentor	Pre-med Intern	Medical Student, University of Vermont College of Medicine
2012 - 2013	Katherine Serrurier	UCSF Carol Franc Buck Breast Care Center	Career Mentor	Pre-med Intern	Medical Student, Drexel University College of Medicine

POSTDOCTORAL FELLOWS AND RESIDENTS MENTORED

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2005 - 2006	Olga Navolotskaia, MD	Fellow	Project Mentor, Career Mentor, Co-Mentor/Clinical Mentor	Attending	UPMC faculty
2006 - 2007	Sara Monaco, MD	PGY4	Research/Scholarly Mentor, Project Mentor, Career Mentor, Co-Mentor/Clinical Mentor	Attending	UPMC faculty
2007 - 2008	Stewart Knoepp, MD PhD	Fellow	Project Mentor, Career Mentor	Attending	Private practice
2007 - 2011	Jill Ono, MD	Fellow	Career Mentor, Co-Mentor/Clinical Mentor	Attending/research collaborator	Private practice, Las Vegas, NV
2007 - 2008	Kenan Sauder, MD	Fellow	Career Mentor, Co-Mentor/Clinical Mentor	Attending, research collaborator	Private practice NWH, Newton, MA

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2007 - 2011	Johanna Baran, MD	Resident	Career Mentor, Co-Mentor/Clinical Mentor	Attending/research collaborator	Private practice, San Luis Obispo, CA
2011 - 2014	Sara Barcia, MD	Fellow	Career Mentor, Co-Mentor/Clinical Mentor	Attending	Private practice, Boston MA
2011 - 2014	Brandie Firetag	Fellow	Career Mentor, Co-Mentor/Clinical Mentor	Attending	Clinical Instructor, UCSF/SFGH
2012 - 2014	Sarah Calkins	Fellow	Project Mentor	Research collaborator	UCSF Faculty
2012 - present	Dianna Ng	Fellow	Research/Scholarly Mentor, Project Mentor, Co-Mentor/Clinical Mentor	Research collaborator	UCSF Fellow

FACULTY MENTORING

Dates	Name	Position while Mentored	Mentor Type	Mentoring Role	Current Position
2014 - present	Sarah Calkins, MD	Faculty	Research/Scholarly Mentor, Project Mentor, Career Mentor	Research collaborator	Faculty UCSF

RESEARCH AND CREATIVE ACTIVITIES SUMMARY

Current Research Activities

As an academic cytopathologist, my career goal is to create a bridge between pathology and clinical practice through patient communication. My research at UCSF is focused on two areas, FNA biopsy and breast pathology, which reflects my clinical expertise and responsibilities. My research in breast cancer is often patient centered and patient driven. Similarly, underlying my work with FNA biopsy is my goal of improving patient communication and education.

“ Ask Your Pathologist” is a project I initiated and oversee. The goal of this project is to allow patients to review their pathology reports and slides with a pathologist at a multi-headed microscope. Working with the Breast Care Center pre-med intern program, and the FNA clinic, we identify patients who have questions about their pathology diagnosis and how it relates to their prognosis and treatment decisions. We invite these patients to review their

slides at a multi-headed microscope and discuss the findings in their reports. Following the session, the patients receive a written summary, an audio recording of the session and are surveyed about their experience. At the close of the study, we will measure outcomes in patient satisfaction and understanding of their diagnosis. The project is currently funded through the Athena Program, the UCSF Breast Care Center and through a donation from an individual UCSF donor directed to me. We intend to expand the project and apply for larger grant funding in 2015.

The Athena Breast Health Network is a multicenter collaboration involving all five UC medical centers (UCSF, UCLA, UCI, UCSD and UCD). The program is patient driven with registration on-line through the Athena web site. The project seeks to enroll 150,000 breast cancer patients with standardization of all aspects of their breast care including prevention, diagnosis, pathology, imaging, treatment and prognosis. I am one of the UCSF site pathologists. I have taken a lead role in developing and implementing the pathology standardization component of this study. We are attempting to harmonize the interpretation of breast biomarker assays for estrogen and progesterone receptors, Her-2 expression and Ki-67 across all sites. I presented a poster detailing our work at the 2013 United States and Canadian Academy of Pathology (USCAP) meeting, and I am currently the lead author drafting the manuscript. Additional projects include developing a web based training tool to help harmonize pathology interpretation called "score the core". The manuscript for this project was recently published in Human Pathology. I am the third author on the paper and wrote most of the text related to pathology findings. Additionally, in collaboration with the Karolinska Institute (Stockholm, Sweden) we are conducting a prospective study on the prognostic value of IHC4 for breast cancer on 700 cases of archival breast cancer tissue from women who were not treated with Tamoxifen. With up to 40 year follow-up data for this cohort, we are measuring the prognostic utility of IHC-4 scoring, gene based arrays and routine grading.

The I-SPY2 is a prospective study for women who present with advanced breast cancer. Using MRI and core biopsies of the breast, along with molecular profiling, the breast patients are screened for neo-adjuvant therapy with various investigational drugs. My role in this project is to assist with reviewing frozen sections of core biopsies to determine adequacy for molecular profiling. I also review mastectomy specimens following neo-adjuvant therapy to record the residual cancer burden for the patient following treatment. I expect my role in this study to expand over time.

PATH is a non-governmental organization based in Seattle, with a mission to improve global health. Working with Dr. Britt-Marie Ljung at UCSF, we developed a training program for FNA biopsy as a primary diagnostic modality for breast cancer patients in rural and under-served areas of Peru. We developed a manual for rapid interpretation of breast FNA biopsies and helped write a curriculum for training the trainers. We visited Peru in October 2014 and began phase 2 of the project, training physicians as trainers of other physicians on how to perform an FNA biopsy. Based on our success so far, the Peruvian Ministry of Health and the Peruvian National Cancer Institute have invited us to expand the program and develop a breast FNA biopsy program for the rest of the country. This program can be easily adapted to other low resource settings in other parts of the world. Our long-term goal is to work with PATH to expand this program to other low and middle income countries around the world.

Working with Drs. Gregory Krings and Yunn-Yi Chen, we are reviewing immunohistochemical staining in triple negative breast cancers on tumor micro-arrays (TMA). We are correlating the staining patterns with TMAs derived from pleural effusion samples. Aberrant staining for mesothelial and lung markers in triple negative breast cancer might lead

to a false positive or negative diagnosis of metastasis when present in pleural effusions. My role was to review the breast and cytology samples, accrue the data and analyze the results. We presented a poster at the USCAP in 2014 and will follow up with a manuscript.

Working with Dr. Amie Lee in Women's Imaging at UCSF, we are reviewing imaging studies and breast FNA biopsies in patients with breast mass lesions. The goal of this project is to identify cytologic and radiologic characteristics of invasive and in-situ breast cancers. Working with Drs. Sarah Calkins and Anna Berry at UCSF we performed a validation of FISH testing on direct FNA smears of synovial sarcoma. The technique is broadly applicable to other sarcomas and will allow for improved diagnostic work up of soft tissue lesions by FNA. Our findings were presented as a poster at USCAP 2014 and will follow up with a manuscript.

I am a principle investigator for a multi-institutional project working with Miguel Sanchez (Englewood, New Jersey) and Celeste Powers (Virginia Commonwealth University), examining the long-term outcome of breast biopsy techniques. The project will examine the rate of lymph node and distant metastasis in women diagnosed with breast cancer by FNA versus core biopsy. The project is a follow up to a smaller study at the Karolinska (Stockholm, Sweden), which demonstrated a higher rate of lymph node metastasis in women who were diagnosed with breast cancer by core biopsy rather than by FNA. Our goal is to repeat the study with a larger cohort of patients across different institutions in a more controlled and statistically rigorous study.

RESEARCH AWARDS - CURRENT

1.	Co-investigator/ Lead author on current manuscript in draft		Laura van 't Veer, Phd Laura Esserman, MD (PI)
	University of California Office of the President	1/1/2010	present
	Athena Breast Health Network	\$ 5.3M direct/yr 1	
	A prospective study with 5 UC hospitals, including Davis, UCSF, UCLA, UCI, UCD, to create a network of 150,000 breast patients with standardization of all aspects of breast health including prevention, detection, diagnosis, treatment, prognosis and survivorship.		
2.	Co-Investigator		Hope Rugo, MD (PI)
	Komen PLX3397 and Eribulin Study	01/01/2015	present
	UCSF Breast oncology Program		
3.	DPA 404939 DepCode 400961	Principle Investigator	
	Foundation. Directed donation to UCSF in support of research activities of Dr. Balassanian	01/01/2014	present
	Balassanian Research Fund		\$ 20,000 total
4.	Co-Investigator		

	PATH- A catalyst for global health Implementing FNA biopsy in Peru	01/01/2013	present
	Working with PATH we are developing a template for implementing FNA biopsy to diagnose breast cancer in rural under-served areas of Peru. This template will be used to implement similar programs in other countries.		
5.	1R01CA204797-01 National Institutes of Health	Co-investigator 12% % effort 09/01/2016	Fejerman (PI) 09/01/2021
	Biological implications of breast cancer protective variants in Latin American women with high Indigenous American ancestry This project will investigate the 6q25 region in Peruvian breast tumors to determine if there is a protective effect. I will be reviewing pathology and immunohistochemical staining on 2000 breast cancer cases from Peru to confirm pathology and determine the IHC4 score.		
6.	Athena Breast Health Network.	Principle Investigator 01/01/2014	Present
	"Ask Your Pathologist" A study providing direct access for patients to a pathologist to review slides at a multiheaded microscope. The patients will be surveyed to determine if there is any benefit.		
7.	NIH/NCI	Co-investigator 01/01/2014	Laura Esserman, MD (PI) Present \$ Salary support per case reviewed total
	I-SPY-2 (Investigating Serial Studies to Predict Your Therapeutic Response using Image analysis and molecular analysis) Women with advanced breast cancer receive serial MRI and core biopsies during neoadjuvant therapy with molecular profiling used to screen for investigational drugs. My role is asses core biopsies for molecular profiling.		
8.		Principle investigator 01/01/2014	Dorota Wisner, MD PhD (PI) Present
	Metaplastic Brest Carcinoma Review of metaplastic breast cancer with emphasis on diagnostic imaging features.		
9.		Co-investigator 01/01/2013	Yunn-Yi Chen (PI) Present

Immunohistochemical features of triple negative breast cancer correlated with benign and malignant pleural effusions

Using tissue micro arrays of triple negative breast cancers and cell blocks of pleural effusion samples, we are comparing immunohistochemical staining patterns to identify potential aberrant staining and misdiagnosis.

10.	Principle investigator	01/01/2014	Present
	FNA biopsy with Radiology Pathology Correlation		
	Review of FNA breast biopsies with imaging correlation to determine the rate of invasive versus in-situ breast cancer and determining cytomorphologic and imaging characteristics of invasive breast cancer diagnosed by FNA biopsy.		

RESEARCH AWARDS - PAST

1.	R01-HS13321	expired		
	Project: Improving Patient Safety by Examining Pathology Errors. Ongoing projects examining efficacy of FNA biopsy of the thyroid, lung lymph nodes and breast. Role: Co-investigator.		01/01/2005	01/01/2007
2.	Recipient			Balassanian (PI)
	National Institutes of Health		07/01/2007	06/30/2009
	Loan Repayment Program		\$ 35,000 direct/yr 1	\$ 70,000 total
	The NIH Loan Repayment Program provides direct payment for medical school loans for individuals with a 50% commitment to clinical research.			
3.	MGH Vickery Fund			
	Project: Optimizing cell block assays from FNA biopsy samples. Role: Project Investigator		09/1/2008	12/01/2010
4.	R43 CA114896			
	NIH/NCI (STTR through Physical Sciences Inc)		04/01/2009	03/01/2011
	High Resolution Smart Probe for Breast Biopsy Guidance. PI: Nick Iftima. Role: Co-investigator		\$ 39,047 direct/yr 1	

5.	Principle Investigator	1/1/2013	12/31/2014
	Direct Cytologic Smears Are An Accurate And Reliable Substrate For Fluorescence In Situ Hybridization Testing In Synovial Sarcoma		
	Application of FISH to direct FNA smears for diagnosis of synovial sarcoma.		
6.	11-PIR-11	Co-Investigator/Pathologist	Balassanian (PI)
	Nektar Therapeutics	5/1/2012	6/30/2015
	Nektar Beason TAP Study	\$ 5% salary support direct/yr 1	\$ 5% salary support total
	TAP (Tissue Acquisition Protocol) involves obtaining tumor samples with FNA biopsy and collodion bag cell block for protein expression analysis.		

PEER REVIEWED PUBLICATIONS

1. Baehner R, Magrane G, **Balassanian R**, Chang C, Millward C, Wakil AE, Osorio RW, Waldman FM. Donor origin of neuroendocrine carcinoma in 2 transplant patients determined by molecular cytogenetics. *Hum Pathol.* 2000 Nov; 31(11):1425-9. PMID: 11112220
2. Chou SH, Chawla A, Lee TH, Zhou Y, Busch MP, **Balassanian R**, Ferrell L, Cowan MJ. Increased engraftment and GVHD after in utero transplantation of MHC-mismatched bone marrow cells and CD80low, CD86(-) dendritic cells in a fetal mouse model. *Transplantation.* 2001 Dec 15; 72(11):1768-76. PMID: 11740386
3. Gendler LS, Feldman SM, **Balassanian R**, Riker MA, Frencher SK, Whelan DB, Anne S, Gross JD, Cohen JM, Boolbol SK. Association of breast cancer with papillary lesions identified at percutaneous image-guided breast biopsy. *Am J Surg.* 2004 Oct; 188(4):365-70. PMID: 15474427
4. Valdes EK, Feldman SM, **Balassanian R**, Cohen JM, Boolbol SK. Diagnosis of recurrent breast cancer by ductoscopy. *Breast J.* 2005 Nov-Dec; 11(6):506. PMID: 16297117
5. Nodit L, **Balassanian R**, Sudilovsky D, Raab SS. Improving the quality of cytology diagnosis: root cause analysis for errors in bronchial washing and brushing specimens. *Am J Clin Pathol.* 2005 Dec; 124(6):883-92. PMID: 16416738
6. Raab SS, Vrbin CM, Grzybicki DM, Sudilovsky D, **Balassanian R**, Zarbo RJ, Meier FA. Errors in thyroid gland fine-needle aspiration. *Am J Clin Pathol.* 2006 Jun; 125(6):873-82. PMID: 16690487

7. Raab SS, Grzybicki DM, Sudilovsky D, **Balassanian R**, Janosky JE, Vrbin CM. Effectiveness of Toyota process redesign in reducing thyroid gland fine-needle aspiration error. *Am J Clin Pathol*. 2006 Oct; 126(4):585-92. PMID: 16938657
8. Raab SS, Grzybicki DM, Sudilovsky D, **Balassanian R**, Janosky JE, Vrbin CM. Effectiveness of Toyota process redesign in reducing thyroid gland fine-needle aspiration error. *Am J Clin Pathol*. 2006 Oct;126(4):585-92.
9. Owonikoko T, Agha M, **Balassanian R**, Smith R, Raptis A. Gemtuzumab therapy for isolated extramedullary AML relapse following allogeneic stem-cell transplant. *Nat Clin Pract Oncol*. 2007 Aug; 4(8):491-5. PMID: 17657254
10. Pazarentzos E, Giannikopoulos P, Hrustanovic G, St John J, Olivas VR, Gubens MA, **Balassanian R**, Weissman J, Polkinghorn W, Bivona TG. Oncogenic activation of the PI3-kinase p110 β isoform via the tumor-derived PIK3C β (D1067V) kinase domain mutation. *Oncogene*. 2015 May 18. PMID: 25982275
11. Engelberg JA, Retallack H, **Balassanian R**, Dowsett M, Zabaglo L, Ram AA, Apple SK, Bishop JW, Borowsky AD, Carpenter PM, Chen YY, Datnow B, Elson S, Hasteh F, Lin F, Moatamed NA, Zhang Y, Cardiff RD. "Score the Core" Web-based pathologist training tool improves the accuracy of breast cancer IHC4 scoring. *Hum Pathol*. 2015 Nov;46(11):1694-704. doi: 10.1016/j.humpath.2015.07.008. Epub 2015 Jul 29. PMID: 26410019
12. Gradishar WJ, Anderson BO, **Balassanian R**, Blair SL, Burstein HJ, Cyr A, Elias AD, Farrar WB, Forero A, Giordano SH, Goetz M, Goldstein LJ, Hudis CA, Isakoff SJ, Marcom PK, Mayer IA, McCormick B, Moran M, Patel SA, Pierce LJ, Reed EC, Salerno KE, Schwartzberg LS, Smith KL, Smith ML, Soliman H, Somlo G, Telli M, Ward JH, Shead DA, Kumar R. Breast cancer version 2.2015. *J Natl Compr Canc Netw*. 2015 Apr; 13(4):448-75. PMID: 25870381
13. Gradishar WJ, Anderson BO, **Balassanian R**, Blair SL, Burstein HJ, Cyr A, Elias AD, Farrar WB, Forero A, Giordano SH, Goetz M, Goldstein LJ, Hudis CA, Isakoff SJ, Marcom PK, Mayer IA, McCormick B, Moran M, Patel SA, Pierce LJ, Reed EC, Salerno KE, Schwartzberg LS, Smith KL, Smith ML, Soliman H, Somlo G, Telli M, Ward JH, Shead DA, Kumar R. Breast Cancer, Version 1.2016. *J Natl Compr Canc Netw*. 2015 Dec; 13(12):1475-85. PMID: 26656517
14. Ly A, Ono JC, Hughes KS, Pitman MB, **Balassanian R**, Fine Needle Aspiration Biopsy of Palpable Breast Masses: Patterns of Clinical Utilization and Patient Experience. *JNCCN* 2016; 14(5):527-536. PMID: 27160231
15. Valdes EK, Boolbol SK, Cohen JM, Balassanian R, Feldman SM. Clinical Experience With Mammary Ductoscopy. *Ann Surg Oncol*. 2016 Dec; 23(Suppl 5):9015-9019. PMID: 16897273
16. **Balassanian R**, Wool GD, Ono JC, Olejnik-Nave J, Mah MM, Sweeney BJ, Liberman H, Ljung BM, Pitman MB. A superior method for cell block preparation for fine-needle aspiration biopsies. *Cancer Cytopathol*. 2016 Jul; 124(7):508-18. PMID: 27105161
17. Gradishar WJ, Anderson BO, **Balassanian R**, Blair SL, Burstein HJ, Cyr A, Elias AD, Farrar WB, Forero A, Giordano SH, Goetz M, Goldstein LJ, Hudis CA, Isakoff SJ, Marcom PK, Mayer IA, McCormick B, Moran M, Patel SA, Pierce LJ, Reed EC, Salerno KE, Schwartzberg LS, Smith KL, Smith ML, Soliman H, Somlo G, Telli M, Ward JH, Shead DA, Kumar R. Invasive Breast Cancer Version 1.2016, NCCN Clinical Practice Guidelines in Oncology. *J Natl Compr Canc Netw*. 2016 Mar; 14(3):324-54. PMID: 26957618

18. Ly A, Ono JC, Hughes KS, Pitman MB, **Balassanian R**. Fine-Needle Aspiration Biopsy of Palpable Breast Masses: Patterns of Clinical Use and Patient Experience. *J Natl Compr Canc Netw*. 2016 May; 14(5):527-36. PMID: 27160231
19. **Balassanian R**, Wool GD, Ono JC, Olejnik-Nave J, Mah MM, Sweeney BJ, Ljung B-M, Pitman MB. A Superior Method for Cell Block Preparation for Fine Needle Aspiration Biopsies. *Cancer Cyto* 2016. Apr 124(15). PMID:27105161
20. Rugo HS, Olopade OI, DeMichele A, Yau C, van 't Veer LJ, Buxton MB, Hogarth M, Hylton NM, Paoloni M, Perlmutter J, Symmans WF, Yee D, Chien AJ, Wallace AM, Kaplan HG, Boughey JC, Haddad TC, Albain KS, Liu MC, Isaacs C, Khan QJ, Lang JE, Viscusi RK, Puzstai L, Moulder SL, Chui SY, Kemmer KA, Elias AD, Edmiston KK, Euhus DM, Haley BB, Nanda R, Northfelt DW, Tripathy D, Wood WC, Ewing C, Schwab R, Lyandres J, Davis SE, Hirst GL, Sanil A, Berry DA, Esserman LJ; **I-SPY 2 Investigators**. Adaptive Randomization of Veliparib-Carboplatin Treatment in Breast Cancer. *N Engl J Med*. 2016 Jul 7;375(1):23-34. PMID: 27406347 [Collaborator]
21. Park JW, Liu MC, Yee D, Yau C, van 't Veer LJ, Symmans WF, Paoloni M, Perlmutter J, Hylton NM, Hogarth M, DeMichele A, Buxton MB, Chien AJ, Wallace AM, Boughey JC, Haddad TC, Chui SY, Kemmer KA, Kaplan HG, Isaacs C, Nanda R, Tripathy D, Albain KS, Edmiston KK, Elias AD, Northfelt DW, Puzstai L, Moulder SL, Lang JE, Viscusi RK, Euhus DM, Haley BB, Khan QJ, Wood WC, Melisko M, Schwab R, Helsten T, Lyandres J, Davis SE, Hirst GL, Sanil A, Esserman LJ, Berry DA; **I-SPY 2 Investigators**. Adaptive Randomization of Neratinib in Early Breast Cancer. *N Engl J Med*. 2016 Jul 7;375(1):11-22. PMID: 27406346 [Collaborator]
22. Maglione, KD, Lee AY, Ray, KM, Joe, BN, Balassanian, R. Radiologic-Pathologic Correlation for Benign Results after MRI-guided Breast Biopsy. *Am J Roent* 2017; 209: 1-12.

OTHER PUBLICATIONS

1. **Balassanian R**, Regina A, Molinda M, Liberman H. The collodion bag cell block technique: the method of Mah. <https://youtu.be/nfR17d5-bol>. Access date 5 Mar. 2015.

This is a youtube video describing a technique for making cell blocks from FNA biopsies.

SIGNIFICANT PUBLICATIONS

1. Baehner R, Magrane G, **Balassanian R**, Chang C, Millward C, Wakil AE, Osorio RW, Waldman FM. Donor origin of neuroendocrine carcinoma in 2 transplant patients determined by molecular cytogenetics. *Hum Pathol*. 2000 Nov; 31(11):1425-9. PMID: 11112220

Working in Fred Waldman's laboratory at UCSF, we performed fluorescence in-situ hybridization (FISH), polymerase chain reaction (PCR) and comparative genomic hybridization (CGH) to identify donor-derived tumors in FNA biopsies of transplant patients. My role included performing the molecular diagnostic assays and writing and editing the final paper.

2. Gendler LS, Feldman SM, **Balassanian R**, Riker MA, Frencher SK, Whelan DB, Anne S, Gross JD, Cohen JM, Boolbol SK. Association of breast cancer with papillary lesions identified at percutaneous image-guided breast biopsy. *Am J Surg*. 2004 Oct; 188(4):365-70. PMID: 15474427

I assisted with an institutional review of 9310 papillary lesions of the breast, diagnosed by FNA or core needle biopsy, and correlated the results with surgical outcome. My role included reviewing the pathology and writing and editing the final paper. This study was completed at Beth Israel Medical Center, New York, NY.

3. Nodit L, **Balassanian R**, Sudilovsky D, Raab SS. Improving the quality of cytology diagnosis: root cause analysis for errors in bronchial washing and brushing specimens. *Am J Clin Pathol*. 2005 Dec; 124(6):883-92. PMID: 16416738

See #5 below.

4. Raab SS, Vrbin CM, Grzybicki DM, Sudilovsky D, **Balassanian R**, Zarbo RJ, Meier FA. Errors in thyroid gland fine-needle aspiration. *Am J Clin Pathol*. 2006 Jun; 125(6):873-82. PMID: 16690487

See #5 below.

5. Raab SS, Grzybicki DM, Sudilovsky D, **Balassanian R**, Janosky JE, Vrbin CM. Effectiveness of Toyota process redesign in reducing thyroid gland fine-needle aspiration error. *Am J Clin Pathol*. 2006 Oct;126(4):585-92.

These 3 papers were a result of working with Dr. Stephen Raab, the principle investigator for a grant titled Improving Patient Safety by Examining Pathology Errors (R01 HS13321). We studied ways to reduce medical errors through immediate cytologic diagnosis with direct communication to the clinician and patient. We developed an intervention for thyroid FNA biopsies, with immediate diagnosis and standardization of criteria, which resulted in a significant reduction in false negative and non-diagnostic biopsies. My role included developing new protocols for improving the quality of FNA samples, reviewing the pathology, as well as writing and editing the final papers. This work was completed at UPMC, Pittsburgh PA.

6. Engelberg JA, Retallack H, **Balassanian R**, Dowsett M, Zabaglo L, Ram AA, Apple SK, Bishop JW, Borowsky AD, Carpenter PM, Chen YY, Datnow B, Elson S, Hasteh F, Lin F, Moatamed NA, Zhang Y, Cardiff RD. "Score the Core" Web-based pathologist training tool improves the accuracy of breast cancer IHC4 scoring. *Hum Pathol*. 2015 Nov;46(11):1694-704. doi: 10.1016/j.humpath.2015.07.008. Epub 2015 Jul 29. PMID: 26410019.

This paper is the first in a series of papers we are publishing from the Athena project, a collaboration between 5 UC hospitals. We developed an on-line training tool for pathologists for pathologists to improve the accuracy of IHC-4 stain interpretation. My role in this project included designing the study, collecting data, writing the manuscript and editing the drafts following reviews at the journal.

7. Ly A, Ono JC, Hughes KS, Pitman MB, **Balassanian R**, Fine Needle Aspiration Biopsy of Palpable Breast Masses: Patterns of Clinical Utilization and Patient Experience. JNCCN 2016; JNCCN 2016; 14(5):527-536. PMID: 27160231

This project involved a comparative review of breast biopsy performed by FNA versus core biopsy at two academic medical centers with comparable patient populations. We found patients who were offered FNA biopsy had a shorter wait time for diagnosis, had smaller tumors at initial presentation and following treatment, and had a higher rate of benign lesions that did not need follow up imaging. As principle investigator my role was to design the study, obtain IRB approval, review data collection and analysis, and write the final paper. We presented our findings as a poster at the USCAP meeting in 2012. The paper was published in Journal of the National Comprehensive Cancer Network and with an invited commentary.

8. **Balassanian R**, Wool GD, Ono JC, Olejnik-Nave J, Mah MM, Sweeney BJ, Ljung B-M, Pitman MB. A Superior Method for Cell Block Preparation for Fine Needle Aspiration Biopsies. Cancer Cyto 2016. Apr 124(15). PMID:27105161

This project was a statistically validated comparative review of 3 different techniques for preparing cell block samples from FNA biopsies. This is the first controlled study of its kind in the cytology literature to address the differences between cell block procedures at different cytology laboratories. As the principle investigator, I oversaw all aspects of this project, including designing the project, securing funding and IRB approval, overseeing data collection and analysis, statistical interpretation and writing all sections of the manuscript. The findings were presented as a platform presentation at the USCAP 2014 annual meeting. We also produced a YouTube video demonstrating our findings which has been viewed greater than 2400 times (<https://youtu.be/nfR17d5-bol>).

9. Maglione, KD, Lee AY, Ray, KM, Joe, BN, **Balassanian, R**. Radiologic-Pathologic Correlation for Benign Results after MRI-guided Breast Biopsy. Am J Roent 2016 [In Press]

This project involved direct comparison of benign breast pathology with corresponding lesions identified using breast MRI. My role was to help develop the project and perform the pathology review as well as the radiology-pathology correlation. I also helped write and edit the manuscript. Our findings were presented at the American Roentgen Ray Society in 2016. A manuscript of our findings was accepted for publication by the American Journal of Roentgenology in 2016 and the paper is in press.

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2. **Balassanian R**, Vazquez M. Efficacy of endoscopic ultrasound guided fine needle aspiration (EUG-FNA) of the pancreas. Modern Pathology 2004 Mar; 17: 62(A).
3. **Balassanian R**, Sudilovsky D. Criteria for malignancy with fine needle aspiration biopsy of mass lesions during lactation. Modern Pathology 2004 Mar; 17: 62(A).
4. **Balassanian R**, Vazquez M. Cryoablation induced changes in a fibroadenoma, diagnosed by FNA biopsy. Cancer Cytopathology 2005 Nov. 105 (S5): 337(A).

5. Navolotskaia O, Parwani A, Dhir R, Hrebinko R, **Balassanian R**. Xanthogranulomatous pyelonephritis diagnosed by FNA biopsy, a case report. *Cancer Cytopathology* 2006: 108 (S5): 409 (A), 2006.
6. **Balassanian R**, Dhir R, Vrbin C, Raab SS, Parwani AV. Utility of UroVysion™ testing in the setting of atypical urine cytology. *Modern Pathology*. 20 (S2): 64(A), 2007.
7. Dhir R, Parwani AV, **Balassanian R**, Hrebinko R, Franks M, Bastacky SI, Vrbin C, Raab SS. Comparison of UroVysion™ testing, conventional cytology and surgical biopsy in evaluation for recurrent bladder cancer. *Modern Pathology* 2007: 20 (S2): 142(A).
8. Dhir R, Parwani AV, **Balassanian R**, Bastacky SI, Hrebinko R, Franks M, Cieply K, Vrbin C, Raab SS. Role of UroVysion™ fluorescence in-situ hybridization (FISH) in the evaluation of atypical urine cytology from patients under surveillance for recurrent bladder cancer. *Modern Pathology* 2007: 20 (S2): 142(A).
9. **Balassanian R**, Sauder KJ, Vrbin CM, Raab SS. Review of False Negative UroVysion Test on cytologically atypical urine samples. *Modern Pathology* 2008: 21(S): 69(A).
10. Rao RA, Wilbur DC, Tambouret RH, Shen J, **Balassanian R**, Staats PN, Sauder K, Belsley NA, Faquin WC, Deshpande V. Significance of the atypical category in urine cytology: An Intraobserver Study. *Modern Pathology* 2008: 21(S): 83(A).
11. Knoepp SM, Mino-Kenudson M, **Balassanian R**. Distinguishing squamous cell carcinoma from adenocarcinoma in lung fine needle aspiration biopsy: A cytologic/histologic review of 109 cases. *Cancer Cytopathology* 2008: 114 (S5): 409(A).
12. Ly A, Ono JC, Hughes K, Pitman MB, **Balassanian R**. Fine Needle Aspiration Biopsy of Palpable Breast Masses Is Associated with Shorter Length of Time to First Treatment Compared with Core Biopsy. *Modern Pathology* 2012: 25(S2): 97(A).
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14. **Balassanian R**, Engelberg JA, Bishop JW, Borowsky AD, Cardiff RD, Carpenter PM, Chen YY, Datnow B, Elson S, Hasteh F, Lin F, Moatamed NA, Perkovich B, Zhang Y, Apple SK. Harmonization of Immunohistochemical Stains for Breast Cancer Biomarkers - An Athena Pathology Collaboration. *Modern Pathology* 2013: 26(S2): 29(A).
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16. Calkins SM, **Balassanian R**, Hou J, Berry AB. Direct Cytologic Smears Are An Accurate And Reliable Substrate For Fluorescence In Situ Hybridization Testing In Synovial Sarcoma. *Modern Pathology* 2014: 27(S2): 388 (A).
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