

BIOGRAPHICAL SKETCH

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NAME: JABBOUR, SALMA K.

eRA COMMONS USER NAME (credential, e.g., agency login): JABBOUSK

POSITION TITLE: Professor of Radiation Oncology, Vice Chair of Clinical Research and Faculty Development

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Virginia	B.A.	05/1996	Biology
University of Maryland School of Medicine	M.D.	05/2001	Medicine
University of Maryland School of Medicine	Internship	06/2002	Internal Medicine
John Hopkins University School of Medicine	Residency	05/2006	Radiation Oncology

A. Personal Statement

I am Professor and Vice Chair of Clinical Research and Faculty Development and Clinical Chief in the Department of Radiation Oncology at Rutgers Cancer Institute, Robert Wood Johnson School of Medicine, Rutgers University. I completed my undergraduate training at the University of Virginia as an Echols Scholar awarded to the top 5% of students and subsequently earned my medical degree at the University of Maryland, where I graduated in the top 20 students in the class. Following my internal medicine internship, I accomplished residency training in radiation oncology at the Johns Hopkins School of Medicine, where I served as Chief Resident in my final year. I currently treat patients with lung and gastrointestinal cancers, perform clinical research, and educate and mentor junior faculty, residents and students. I have considerable experience in clinical research involving radiotherapy, focused on phase I/II studies, with significant experience in late phase studies, and combining novel agents with radiation and the study of lung cancer and gastrointestinal cancers.

Given my significant involvement in clinical and translational research, I participate in the Rutgers Cancer Institute Cancer Center Support Grant as a Co-Chair of the Scientific Review Board and previously as Co-Chair of the Human Research Oversight Committee (DSMB) (P30CA072720). I serve as Contact PI in ongoing early clinical trials through the ETCTN (UM1CA186716-05, 2UM1CA186644-06).

I was one of the earliest investigators to conduct investigator-initiated trials evaluating PD-1 checkpoint inhibition with curative intent chemoradiation in the setting of Stage III non-small cell lung cancer. My career has focused on 1) evaluating new combinations of immunotherapy and novel radiosensitizers with radiotherapy and I have served as PI on several groundbreaking trials combining chemoradiation and immunotherapy; 2) improving outcomes of radiation therapy in combination with systemic therapy; 3) mitigating toxicity from radiotherapy; 4) novel agent development in combination with radiation therapy. Examples of my clinical trial and translational work which has been focused heavily on early clinical trials are demonstrated below:

- a. Monjazeb AM, Giobbie-Hurder A, Lako A, Thrash EM, Brennick RC, Kao KZ, Manuszak C, Gentzler RD, Tesfaye A, **Jabbour SK**, Alese OB, Rahma OE, Cleary JM, Sharon E, Mamon HJ, Cho M, Streicher H, Chen HX, Ahmed MM, Mariño-Enríquez A, Kim-Schulze S, Gnjatic S, Maverakis E, Marusina AI, Merleev AA, Severgnini M, Pfaff KL, Lindsay J, Weirather JL, Ranasinghe S, Spektor A, Rodig SJ, Hodi SF, Schoenfeld JD. A Randomized Trial of Combined PD-L1 and CTLA-4 Inhibition with Targeted Low-Dose or Hypofractionated Radiation for Patients with Metastatic Colorectal Cancer. Clin Cancer Res. 2021 May 1;27(9):2470-2480. doi: 10.1158/1078-0432.CCR-20-4632. Epub 2021 Feb 10. PMID: 33568343; PMCID: PMC8102320.

- b. **Jabbour SK**, Lee KH, Frost N, et al. Pembrolizumab Plus Concurrent Chemoradiation Therapy in Patients With Unresectable, Locally Advanced, Stage III Non-Small Cell Lung Cancer: The Phase 2 KEYNOTE-799 Nonrandomized Trial [published online ahead of print, 2021 Jun 4]. *JAMA Oncol.* 2021;10.1001/jamaoncol.2021.2301. doi:10.1001/jamaoncol.2021.2301
- c. Wang SJ, Khullar K, Kim S, Yegya-Raman N, Malhotra J, Groisberg R, Crayton SH, Silk AW, Noshier JL, Gentile MA, Mehnert JM, **Jabbour SK**. Effect of cyclo-oxygenase inhibitor use during checkpoint blockade immunotherapy in patients with metastatic melanoma and non-small cell lung cancer. *J Immunother Cancer.* 2020 Oct;8(2):e000889. doi: 10.1136/jitc-2020-000889. PMID: 33020239; PMCID: PMC7537331.
- d. Hong TS, Moughan J, Garofalo MC, Bendell J, Berger AC, Oldenburg NB, Anne PR, Perera F, Lee RJ, **Jabbour SK**, Nowlan A, DeNittis A, Crane C. NRG Oncology Radiation Therapy Oncology Group 0822: A Phase 2 Study of Preoperative Chemoradiation Therapy Using Intensity Modulated Radiation Therapy in Combination With Capecitabine and Oxaliplatin for Patients With Locally Advanced Rectal Cancer. *Int J Radiat Oncol Biol Phys.* 2015 Sep 1;93(1):29-36. doi: 10.1016/j.ijrobp.2015.05.005. Epub 2015 May 14. PMID: 26163334; PMCID: PMC4540628.

B. Positions, Scientific Appointments, and Honors

Positions

2020-2022	Clinical Chief, Department of Radiation Oncology, Rutgers Cancer Institute of New Jersey, Robert Wood Johnson Medical School, Rutgers University, New Brunswick, NJ
2018-present	Vice Chair of Clinical Research and Faculty Development, Department of Radiation Oncology, Rutgers Cancer Institute of New Jersey, Robert Wood Johnson Medical School, Rutgers University, New Brunswick, NJ
2017-present	Professor, Department of Radiation Oncology, Rutgers Cancer Institute of New Jersey, Robert Wood Johnson Medical School, Rutgers University, New Brunswick, NJ
2014-6/2017	Associate Professor, Department of Radiation Oncology, Rutgers Cancer Institute of New Jersey, Rutgers University, New Brunswick, NJ
2006-2014	Assistant Professor, Department of Radiation Oncology, Cancer Institute of New Jersey University of Medicine and Dentistry of New Jersey/Robert Wood Johnson Medical School, New Brunswick, NJ
2005-2006	Chief Resident in Radiation Oncology, Johns Hopkins School of Medicine, Baltimore, MD
2002-2005	Assistant Resident in Radiation Oncology, Johns Hopkins School of Medicine, Baltimore, MD
2001-2002	Intern, Internal Medicine, University of Maryland Medical Center, Baltimore, MD
1996-1997	National Institutes of Health Pre-Doctoral Intramural Research Training

Scientific Appointments

2022-present	Radiation Oncology Disease Specific Group Leader, Rutgers Cancer Institute
2021-present	American Board of Radiology, GI Written Board Exam Chair
2021-present	Co-Chair, Scientific Review Board, Rutgers Cancer Institute of New Jersey
2020-present	Deputy Editor, <i>International Journal of Radiation Oncology, Biology, Physics</i>
2020-present	Investigational Drug Steering Committee (IDSC)
2019-2021	Human Research Oversight Committee (DSMB) Co-Chair, Rutgers Cancer Institute
2018-present	NRG Oncology Protocol Monitoring Committee Member
2018	CTEP-PTMA for Radium-223 Dichloride, Mentor to Dr. Jyoti Malhotra
2018-present	Thought Leader Committee for ASTRO on Immunotherapy and Radiation combinations
2018-present	Big Ten Cancer Research Consortium, Steering Committee Member
2017-2020	Senior Editor, GI Section, <i>International Journal of Radiation Oncology, Biology, Physics</i>
2017-present	Co-Leader of the GI Tumor Study Group, Rutgers Cancer Institute of New Jersey
2017-2021	American College of Radiology/American Radium Society, GI Radiation Oncology Panel Chair
2016-2020	American Society of Radiation Oncology (ASTRO) GI Track Chair
2015-present	National Cancer Institute, Radiation Research Program, Upper GI Working Group Co-Chair

2015-present	Member, Phase I Developmental Therapeutics Team, Rutgers Cancer Institute of New Jersey
2014-present	American Board of Radiology, Radiation Oncology, GI Exam Committee
2014-2017	Associate Editor, GI Section, <i>International Journal of Radiation Oncology, Biology, Physics</i>
2014-2019	Big Ten Cancer Research Consortium, GI Co-Chair
2014-present	Member, Clinical Investigations and Precision Therapeutics Program, Rutgers Cancer Institute of NJ
2011-2013	Journal of Clinical Oncology, Editorial Board

Honors

Rutgers Cancer Institute of New Jersey, Inaugural Cancer Center Director's Award, September 2022
 Expertscape Expert in Lung Cancer, December 9, 2021
 Fellow of American Society of Radiation Oncology (ASTRO), Chicago, October 26, 2021
 Award for Academic Excellence, Robert Wood Johnson Barnabas Health, November 29, 2018
 Association of Residents in Radiation Oncology (ARRO) Educator of the Year Award, May 2018
 AAWR Mid-Career Development Award to attend AAMC Mid-Career Women Faculty Development Seminar 12/2/2017- 12/5/2017
 Rutgers Leadership Academy, 9/2017-6/2019
 Rutgers Biomedical and Health Sciences Women Leadership Symposium, June 1, 2017
 Vitals Patients' Choice Award, 2016
 Certificate for Excellence in Reviewing, Practical Radiation Oncology in Cooperation with the American Society for Radiation Oncology, 2016
 Co-Editor of Special Issue for Translational Lung Cancer Research. Topic: Combining Radiation Therapy and Immunotherapy for Thoracic Malignancies, Invited in 5/2016
 Best Doctors in America By Best Doctors, Inc., 1/2013-present
 New Jersey's Top Doctors, New Jersey Savvy Magazine, 10/2011
 Women in Leadership Program, "OASIS," Rutgers University, 1/2010-5/2010

C. Contributions to Science

1. Combining Immunotherapy with Radiation: I am an accomplished clinical investigator and expert in immunotherapy and (chemo)radiation combinations with the goal of improving survival rates for patients. I have led a phase I study evaluating the timing and dosing of pembrolizumab with chemoradiation for Stage III non-small cell lung cancer (NSCLC) (NCT02621398). With medical oncology actively involved in this study, we co-managed these patients treated with combinations of immunotherapy and radiation therapy on clinical trials and provided guidance to other institutions on the management of these patients. Also, I am a lead author on a Hoosier Cancer Research Network study evaluating pembrolizumab consolidation therapy after chemoradiation for Stage III NSCLC (NCT02343952) and we are currently enrolling on a clinical trial evaluating consolidation nivolumab compared to nivolumab with ipilimumab after chemoradiation for Stage III NSCLC (NCT03285321). Also, I am Co-Chair for a NRG LU-005, "Limited Stage Small Cell Lung Cancer (LS-SCLC): A Phase II/III Randomized Study of Chemoradiation Versus Chemoradiation Plus Atezolizumab (NCT03811002)." I also served on the mentoring committee for Dr. Kristen Spencer for her PTMA incorporating M3814 and radiation therapy entitled, "A Phase I/II Study of M3814 and Avelumab in Combination with Hypofractionated Radiation in Patients with Advanced/Metastatic Solid Tumors and Hepatobiliary Malignancies." Therefore, I have dedicated my clinical trials career to this topic.

- a. **Jabbour S**, Berman A, Decker R, Zloza A, Feigenberg S, Gettinger S, Aggarwal C, Langer C, Simon C, Bradley H, Lin Y, Malhotra J. PD-1 Blockade with pembrolizumab during concurrent chemoradiation for locally advanced non-small cell lung cancer. *Journal for ImmunoTherapy of Cancer* 2018, 6(Suppl 1):P319
- b. **Jabbour SK**, Lee KH, Frost N, Breder V, Kowalski DM, Pollock T, Levchenko E, Reguart N, Martinez-Marti A, Houghton B, Paoli JB, Safina S, Park K, Komiya T, Sanford A, Boolell V, Liu H, Samkari A, Keller SM, Reck M. Pembrolizumab Plus Concurrent Chemoradiation Therapy in Patients With Unresectable, Locally Advanced, Stage III Non-Small Cell Lung Cancer: The Phase 2 KEYNOTE-799 Nonrandomized Trial. *JAMA Oncol.* 2021 Jun 4;7(9):1–9. doi: 10.1001/jamaoncol.2021.2301. Epub ahead of print. PMID: 34086039; PMCID: PMC8446818.

- c. Durm G, Althouse S, Sadiq A, Jalal S, **Jabbour S**, Zon R, Kloecker G, Fisher W, Reckamp K, Kio E, Langdon R, Adesunloye B, Gentzler R, Hanna N. Updated results of a phase II trial of concurrent chemoradiation with consolidation pembrolizumab in patients with unresectable stage III NSCLC. *Journal of Thoracic Oncology*, October 2018, Volume 13, Issue 10, Supplement, Page S321.
- d. Malhotra J, **Jabbour SK**, Aisner J. Current state of immunotherapy for non-small cell lung cancer. *Transl Lung Cancer Res*. 2017 Apr;6(2):196-211. PMID: 28529902, PMCID: PMC5420529.

2. Improving Outcomes of Lung and GI Cancers Using Radiotherapy: I seek to improve the outcomes of chemoradiation therapy for cancer patients for both in GI cancers and lung cancer. The improvement in the therapeutic ratio of radiation therapy delivery may be based on improvements in methods of chemotherapy and radiation, such as proton therapy or image guided radiation therapy. Below are publications supporting this endeavor:

- a. Deek MP, Kim S, Ahmed I, Fang BS, Zou W, Malhotra J, Aisner J, **Jabbour SK**. Prognostic Impact of Missed Chemotherapy Doses During Chemoradiation Therapy for Non-Small Cell Lung Cancer. *Am J Clin Oncol*. 2016 Jun 17. PMID: 27322697.
- b. Ahmed I, Ferro A, Baby R, Malhotra J, Cohler A, Langenfeld J, Aisner J, Zou W, **Jabbour SK**. Modern induction chemotherapy before chemoradiation for bulky locally-advanced nonsmall cell lung cancer improves survival. *J Cancer Res Ther*. 2016 Apr-Jun;12(2):952-8. PMID:27461680.
- c. **Jabbour SK**, Kim S, Haider SA, Xu X, Wu A, Surakanti S, Aisner J, Langenfeld J, Yue NJ, Haffty BG, Zou W. Reduction in Tumor Volume by Cone Beam Computed Tomography Predicts Overall Survival in Non-Small Cell Lung Cancer Treated With Chemoradiation Therapy. *Int J Radiat Oncol Biol Phys*. 2015 Jul 1; 92(3):627-33. PMID:26068495, PMCID: PMC5767471.
- d. Wu AJ, Bosch WR, Chang DT, Hong TS, **Jabbour SK**, Kleinberg LR, Mamon HJ, Thomas CR Jr, Goodman KA. Expert Consensus Contouring Guidelines for Intensity Modulated Radiation Therapy in Esophageal and Gastroesophageal Junction Cancer. *Int J Radiat Oncol Biol Phys*. 2015 Jul 15;92(4):911-20. doi: 10.1016/j.ijrobp.2015.03.030. Epub 2015 Apr 2. PMID: 26104943; PMCID: PMC4481325.

3. Mitigating Toxicity from Radiotherapy: I also have focused my career on decreasing side effects of radiation therapy which can result in improvements in tolerability of therapy and long-term effects of radiation therapy. By understanding the thresholds of cardiac toxicity or bone marrow toxicity for the thorax in the setting of chemoradiation and in the pelvis in rectal cancer, we can continue to move oncologic care forward by sparing late effects of radiation. Having knowledge of toxicity thresholds for the thoracic and pelvic bone marrow will allow radiation oncologists to intensify therapies with novel combinations. We have also studied the effects of radiotherapy induced cardiopulmonary toxicity. Below are publications demonstrating ability to better understand radiotherapy-induced toxicity and its impact on outcomes.

- a. Yegya-Raman N, Kim S, Deek MP, Li D, Gupta A, Bond L, Dwivedi A, Braver JK, Reyhan M, Mittal A, Gui B, Malhotra J, Aisner J, **Jabbour SK**. Daily Image Guidance With Cone Beam Computed Tomography May Reduce Radiation Pneumonitis in Unresectable Non-Small Cell Lung Cancer. *Int J Radiat Oncol Biol Phys*. 2018 Aug 1;101(5):1104-1112. PMID:29730063.
- b. Yegya-Raman N, Wang K, Kim S, Reyhan M, Deek MP, Sayan M, Li D, Patel M, Malhotra J, Aisner J, Marks LB, **Jabbour SK**. Dosimetric Predictors of Symptomatic Cardiac Events After Conventional-Dose Chemoradiation Therapy for Inoperable NSCLC. *J Thorac Oncol*. 2018 Oct;13(10):1508-1518. PMID:29883836.
- c. Deek MP, Benenati B, Kim S, Chen T, Ahmed I, Zou W, Aisner J, **Jabbour SK**. Thoracic Vertebral Body Irradiation Contributes to Acute Hematologic Toxicity During Chemoradiation Therapy for Non-Small Cell Lung Cancer. *Int J Radiat Oncol Biol Phys*. 2016 Jan 1;94(1):147-54. PMID: 26700708, PMCID: PMC5767469.
- d. Yovino S, Poppe M, **Jabbour S**, David V, Garofalo MC, Pandya N, Hanna N, Alexander R, Doyle A, Regine WF. Intensity-Modulated Radiation Therapy (IMRT) Significantly Improves Acute Gastrointestinal Toxicity in Pancreatic and Ampullary Cancers: A Multi-Institutional Experience. *Int J Radiat Oncol Biol Phys*. 2011 Jan 1;79(1):158-62. PMID:20399035.

4. Novel Agent Development in Combination with Radiotherapy: The effects of radiation therapy along with many novel systemic agents may synergize to provide patients with improved responses to therapy and improve cure rates. To this end, I have been actively involved in studies involving novel combinations of agents and

clinical settings, some of which I have developed or served as institutional PI. In a recent CTEP PTMA for Radium-223 dichloride, I serve as the senior mentor Dr. Jyoti Malhotra, junior thoracic medical oncologist at Rutgers in the development of a Phase II Trial of Radium-223 dichloride in Combination with Paclitaxel in Patients with Bone Metastatic Breast Cancer which couples the effects of systemic radiation therapy and chemotherapy. Another study on which I serve as Dr. Malhotra's mentor is a CD27 agonist antibody, varlilumab (Celldex), in combination with atezolizumab and radiation therapy to treat patients with NSCLC refractory to first line PD-L1 therapy, and this study is currently undergoing IRB review. I also served as PI at Rutgers for a Phase I study for REGN2810 in advanced solid malignancies in combination with radiation therapy. Also, I have developed a biomarker driven trial evaluating the use of PD-1 inhibition in microsatellite high, Epstein Barr Virus positive, PD-L1 positive gastric cancer that evaluated upfront PD-1 inhibition alone before surgery. Furthermore, I have worked with the Radiation Research Program at the NCI-CTEP as Co-Chair of the Upper GI Working Group concept development of novel agents with RT.

- a. Schoenfeld JD, Giobbie-Hurder A, Ranasinghe S, Kao KZ, Lako A, Tsuji J, Liu Y, Brennick RC, Gentzler RD, Lee C, Hubbard J, Arnold SM, Abbruzzese JL, **Jabbour SK**, Uboha NV, Stephans KL, Johnson JM, Park H, Villaruz LC, Sharon E, Streicher H, Ahmed MM, Lyon H, Cibuskis C, Lennon N, Jhaveri A, Yang L, Altreuter J, Gunasti L, Weirather JL, Mak RH, Awad MM, Rodig SJ, Chen HX, Wu CJ, Monjazeb AM, Hodi FS. Durvalumab plus tremelimumab alone or in combination with low-dose or hypofractionated radiotherapy in metastatic non-small-cell lung cancer refractory to previous PD(L)-1 therapy: an open-label, multicentre, randomised, phase 2 trial. *Lancet Oncol.* 2022 Jan 13:S1470-2045(21)00658-6. doi: 10.1016/S1470-2045(21)00658-6. Epub ahead of print. PMID: 35033226.
- b. Moreno V, Gil-Martin M, Johnson M, Aljumaily R, Lopez Criado P, Northfelt DW, Crittenden M, **Jabbour S**, Rosen L, Garrido Lopez P, Hervas Moron A, Rietschel P, Mohan KK, Li J, Stankevich E, Rowlands T, Feng M, Lowy I, Fury MG. Cemiplimab, a human PD-1 monoclonal antibody, in patients (pts) with recurrent or metastatic cervical cancer: Interim data from Phase 1 cohorts. *Annals of Oncology* (2018) 29 (suppl_8): viii400-viii441.
- c. Moreno V., Gil-Martin M., Johnson M., Aljumaily R., Lopez-Criado M.P., Northfelt D., Crittenden M., **Jabbour S.**, Rosen L., Calvo E., Papadopoulos K., Garrido P., HervásMorón A., Rietschel P., Mohan K., Li J., Stankevich E., Feng M., Lowy I., Fury M. Cemiplimab, a Human Monoclonal Anti-PD-1, Alone or in Combination with Radiotherapy: Phase 1 NSCLC Expansion Cohorts. *Journal of Thoracic Oncology.* Volume 13, Issue 10, Supplement, Page S366.
- d. **Jabbour SK**, Williams TM, Ajani JA, Bhadransain V, Chang AC, El-Rifai W, Haddock MG, Ilson DH, Jamorabo D, Kunos C, Lin SH, Liu G, Prasanna PG, Rustgi AK, Sayan M, Wong RS, Ahmed M. Developing Rational Combinations of Molecularly Targeted Agents and Chemoradiation for the Treatment of Esophageal Malignancies: A Position Paper of the NCI Upper GI Radiation Working Group. In progress.

A complete list of my publications can be found at: <https://pubmed.ncbi.nlm.nih.gov/?term=salma+jabbour>;
Google Scholar H-Index=35