MEGAN L. BURGER, Ph.D.
Assistant Professor
Oregon Health & Science University
Dept of Cell, Developmental & Cancer Biology
Dept of Hematology and Oncology
Member, Knight Cancer Institute

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EDUCATION AND TRAINING

2015 – 2022 **Massachusetts Institute of Technology**, **Cambridge, MA**
Koch Institute for Integrative Cancer Research
Postdoctoral fellowship

2008 – 2014 **University of California, Berkeley**, **CA**
Department of Molecular and Cell Biology, Immunology Division
Ph.D. in Molecular and Cell Biology

2002 – 2006 **University of Washington, Seattle, WA**
Department of Chemistry
B.S. in Biochemistry

Continuing Education:

2023 SITC Women in Cancer Immunotherapy Network Leadership Institute
2023 OHSU Mentorship Academy
2022 – 2023 OHSU Early Career Advancement Program
2021 MIT Path of Professorship workshop

PROFESSIONAL EXPERIENCE

2022 – **Oregon Health & Science University, Department of Cell, Developmental and Cancer Biology and Department of Hematology and Oncology**
Assistant professor and principal investigator of the Burger Lab

2022 – **Knight Cancer Institute, Oregon Health & Science University**
Faculty Member, Cancer Biology Program

2022 – **Oregon Health & Science University Graduate Program**
Faculty Member, Program in Biomedical Sciences and Biomedical Engineering

2022 – **Oregon Health & Science University Postbaccalaureate Research Education Program**
Faculty Member

2015 – 2022 **Koch Institute for Integrative Cancer Research – MIT, Cambridge, MA**
Postdoctoral fellow in the lab of Dr. Tyler Jacks
Mechanisms regulating anti-tumor T cell responses in lung cancer.

2015 **University of California, Berkeley, CA**
Postdoctoral fellow in the lab of Dr. Astar Winoto
Nr4a-mediated mitochondrial apoptosis during thymocyte negative selection.

2008 – 2014 **University of California, Berkeley, CA**
Department of Molecular and Cell Biology, Immunology Division
Ph.D. in Molecular and Cell Biology with Dr. Astar Winoto
Aberrant signaling in developing T cells driving cancer and autoimmune pathology.

2006 – 2008 **Seattle Children's Hospital Research Institute, Seattle, WA**
Research Technician II with Dr. Allison Eddy, Nephrology
The role of vascular endothelial cadherin in chronic kidney disease progression.

2005 – 2006 **University of Washington, Seattle, WA**
Department of Biology
Undergraduate Researcher with Dr. Rose Ann Cattolico
Light/dark cycle in the regulation of chloroplast DNA replication and gene expression.

2005 – 2006 **University of Washington Genome Center, Seattle, WA**
Research Assistant with Dr. Yue Song
Creation and screening of fosmid libraries for targeted genome resequencing projects.

HONORS AND AWARDS

2023 **New Investigator Award**, Medical Research Foundation of Oregon

2023 **V Scholar early career award**, V Foundation for Cancer Research

2023 Invited Participant, Society for Immunotherapy of Cancer (SITC), Women in Cancer Immunotherapy Network (WIN) Leadership Institute

2023 Invited Participant, Arthur and Sandra Irving Cancer Immunology Symposium

2020 **Margaret A. Cunningham Immune Mechanisms of Cancer Postdoctoral Fellowship**

2020 **Ludwig Center for Molecular Oncology at MIT Postdoctoral Fellowship**

2019 Koch Institute Marlena Felter Bradford Travel Award

2016 **Jane Coffin Childs Memorial Fund Postdoctoral Fellowship**

2013 **Ruth L. Kirschstein NRSA Predoctoral Fellowship, NIH NCI F31 Predoctoral Fellowship**

2013 American Association of Immunologists Trainee Abstract Travel Award

2013 UC Berkeley Graduate Division Travel Grant

2010 **UC Cancer Coordinating Committee Predoctoral Fellowship**

2006 Washington Sea Grant, Summer Research Grant

INVITED PRESENTATIONS

2024 **Invited Speaker**, Society for Immunotherapy of Cancer (SITC) Personalized Cancer Vaccines Webinar

2024 **Invited Speaker**, Genentech, South San Francisco, CA

2023 **Invited Speaker**, Hamon Center for Therapeutic Oncology Research, UT Southwestern

2023 **Invited Speaker**, Loyola University, Integrative Cell Biology Department, Chicago, IL

2023 Poster, AACR Annual Meeting, Orlando, FL

2022 **Proffered Talk,** Keystone: Cancer Neoantigens, Vaccines and Viruses, Banff AB, Canada

2022 **Plenary Speaker**, CIMT Annual Meeting, Mainz, Germany

2022 **Invited Speaker**, Ludwig Tumor Atlas webinar

2022 **Invited Speaker**, worldwide Public Journal Club (PJC)

2021 Poster, AACR Tumor Immunology and Immunotherapy, Virtual

2020 **Proffered Talk**, CSHL Gene Expression and Signaling in the Immune System, Cold Spring Harbor, NY

2019 **Proffered Talk and Poster**, AACR Tumor Immunology and Immunotherapy, Boston, MA

2018 Poster, Jane Coffin Childs Memorial Fund Symposium, Boston, MA

2017 Poster, Keystone: Cancer Immunology and Immunotherapy, Taking a Place in Mainstream Oncology, Whistler, BC, Canada

2013 **Proffered Talk**, American Association of Immunologists Conference, Honolulu, HI

2010 Poster, American Pediatric Society Annual Meeting, Vancouver, BC, Canada

2007 Poster, American Society of Nephrology Renal Week, San Francisco, CA

2006 Poster, Northwest Algal Symposium and Phycological Society of America Meeting, Juneau, AK

TEACHING

2024 Lecturer, Advanced Immunology MBIM 612, OHSU

2024 Co-director, Tumor Microenvironment Journal Club CANB 606A, OHSU

2023 Lecturer, Intro to Immunology BMSC 669, OHSU

2023 Dissertation Committee Member, OHSU Program in Biomedical Sciences, Ruijie Wang

2023 Oral Qualifying Exam Committee Member, OHSU, trainees Ravina Pandita and Jackie Phipps

2023 Oral Examination Committee Member, OHSU, Ph.D. Thesis, Breanna Caruso

2017 – 2020 Undergraduate Research Mentor and Thesis Advisor, 2 students, Jacks Laboratory Massachusetts Institute of Technology, Department of Biology

2016 – 2022 Research Supervisor, 3 Research Technicians, Jacks Laboratory, Koch Institute for Cancer Research, MIT

2015 – 2016 Rotating Graduate Student Mentor, Jacks Laboratory, Massachusetts Institute of Technology, Department of Biology

2013 – 2014 Rotating Graduate Student Mentor, Winoto Laboratory, University of California, Berkeley, Department of Molecular and Cell Biology

2010 – 2013 Undergraduate Research Mentor and Thesis Advisor, 4 students, Winoto Laboratory University of California, Berkeley, Department of Molecular and Cell Biology

2010 Graduate Student Instructor, Molecular Immunology Lab, University of California, Berkeley, evaluation 6.33/7

2009 Graduate Student Instructor, Molecular Immunology Lecture, University of California, Berkeley, evaluation 6.58/7

2007 – 2008 Laboratory Instructor, Eddy Lab, Seattle Children's Hospital Research Institute

TRAINEES

2024 – Rohan Chaudhari, MD/PhD Student, Burger Lab, OHSU

2024 – Alyssa Granados, Graduate Student, Burger Lab, OHSU

2024 – Breanna Mohr, Research Technician, Burger Lab, OHSU

2024 Rachel Hunyh, Rotating Graduate Student, Burger Lab, OHSU

2024 Jessica Briones, Rotating Graduate Student, Burger Lab, OHSU

2024 Duncan Hindmarch, Rotating Graduate Student, Burger Lab, OHSU

2023 – Peter Matulich, Graduate Student, Burger Lab, OHSU

2023 Ricardo Mercado, Rotating Postbac Student, Burger Lab, OHSU

2023 Ariana de Jesus-Carrasquillo, Summer Intern, Burger Lab, OHSU

2023 Matthew Stern, Rotating Graduate Student, Burger Lab, OHSU

2022 – 2024 Madison Harris, Research Technician, Burger Lab, OHSU

2020 – 2022 Sara Tavana, Research Technician, MIT (MIT PhD student)

2018 – 2020 Andrea Garmilla, Undergraduate Researcher, MIT (Harvard MD/PhD student)

2018 – 2020 Grace Crossland, Research Technician, MIT (Dartmouth MD/PhD student)

2017 – 2018 Izumi de los Rios Kobara, Undergraduate Researcher, MIT (Stanford PhD student)

2016 – 2018 Tamina Kienka, Research Technician, MIT (Harvard MD/PhD student)

2012 – 2013 Nadia Kurd, Undergraduate Researcher, UC Berkeley (Senior Scientist, Pfizer)

2011 – 2012 April Choi, Undergraduate Researcher, UC Berkeley (Assistant Professor, Gastrointestinal Oncology, University of California, Irvine)

2010 – 2011 Kenneth Leung, Undergraduate Researcher, UC Berkeley (Clinical Assistant Professor, Neurology, Stanford)

SERVICE

2023 – 2024 Ad Hoc Reviewer: Cell, Immunity, Nature Communications, JITC, Cell Reports, iScience

2023 – 2024 Review Editor, Frontiers in Immunology

2024 Grant Review Panelist, American Lung Association

2023 Grant Review Panelist, OHSU Center for Experimental Therapeutics PHACET Grant

2023 Review Panelist and Faculty Mentor, OHSU Cell, Developmental & Cancer Biology Summer Internship Program

2022 Panelist, OHSU KnightWalks Career Development Workshops

2011 – 2012 Graduate Student Divisional Representative, Department of Molecular and Cell Biology, Immunology Division, University of California, Berkeley

2010 – 2011 Graduate Admissions Student Representative, Department of Molecular and Cell Biology, Immunology Division, University of California, Berkeley

PROFESSIONAL ORGANIZATIONS

American Association for Cancer Research, Member

Society for Immunotherapy of Cancer, Member

PUBLICATIONS

Gaglia, G.*, **Burger, M.L.*,** Ritch, C.C., Rammos, D., Yang, D., Crossland, G.E., Tavana, S.Z., Warchol, S., Jaeger, A.M., Coy, S., Johnson, A., Krueger, R., Lin, J.R., Pfister, H., Sorger, P., Jacks, T., Santagata, S. Lymphocyte networks are dynamic cellular communities in the immunoregulatory landscape of lung adenocarcinoma. *Cancer Cell* doi: 10.1016/j.ccell.2023.03.015 (2023).

- Commentary by Karina Silina, B cell-rich niches support stem-like CD8+ T cells in cancer microenvironment, *Cancer Cell Preview*, May 2023

Warchol, S., Krueger, R., Nirmal, A.J., Gaglia, G., Jessup, J., Ritch, C.C., Hoffer, J., Muhlich, J., **Burger, M.L.**, Jacks, T., Santagata, S., Sorger, P.K., Pfister, H. Visinity: Visual Spatial Neighborhood Analysis for Multiplexed Tissue Imaging Data. *IEEE Trans Vis Comput Graph* 29(1):106-116. doi: 10.1109/TVCG.2022.3209378 (2023).

Patel, R., Romero, R., Liang, A., Watson, E., **Burger, M.L.**, Westcott, P.M.K., Mercer, K., Bronson, R., Wooten, E., Bhutkar, A., Jacks, T., Elledge, S. A GATA4-regulated secretory program suppresses tumors through recruitment of cytotoxic CD8 T cells. *Nat Communications* 13(1):256. doi: 10.1038/s41467-021-27731-5 (2022).

Hamza, B., Miller, A.B., Meier, L., Stockslager, M., Ng, S.R., King, E.M., DeGouveia, K.L., Mulugeta, N., Calistri, N.L., Strouf, H., Lin, L., Chin, C.R., Bray, C., Rodriguez, F., Freed-Pastor, W.A., Jaramillo, G.C., **Burger, M.L.**, Weinberg, R.A., Shalek, A.K., Jacks, T., Manalis, S. Measuring kinetics and metastatic propensity of CTCs by blood exchange between mice. *Nat Communications* 12(1):5680. doi:10.1038/s41467-021-25917-5 (2021).

Burger, M.L., Cruz, A.M., Crossland, G.E., Gaglia, G., Ritch, C.C., Blatt, S.E., Bhutkar, A., Canner, D., Kienka, T., Tavana, S., Garmilla, A., Schenkel, J.M., Hillman, M., de los Rios Kobara, I., Li, A., Hwang, W.L., Westcott, P.M.K., Regev, A., Santagata, S., Jacks, T. Antigen dominance hierarchies shape TCF1+ CD8 T cell phenotypes in tumors. *Cell* 184(19):4996-5014. doi:10.1016/j.cell.2021.08.020 (2021).

- Highlighted in the NIH Director's Blog, November 2021.
- Commentary by Sonia Ghilas and Lisa A. Mielke, Dendritic cells shape TCF1+CD8+ progenitor T cell heterogeneity, *Trends in Immunology*, November 2021

Schenkel, J.M., Herbst, R.H., Canner, D.A., Li, A., Hillman, M., Shanahan, S., Gibbons, G., Smith, O.C., Kim, J.Y., Westcott, P., Hwang, W., Freed-Pastor, W., Eng, G., Cucco, M.S., Rogers, P., Park, J.K., **Burger, M.L.**, Rozenblatt-Rosen, O., Cong, L., Pauken, K.E., Regev, A., Jacks, T. Conventional type I

dendritic cells maintain a reservoir of proliferative tumor-antigen specific TCF-1+ CD8+ T cells in tumor draining lymph nodes. *Immunity* 54(10):2338-2353.e6. doi:10.1016/j.immuni.2021.08.026 (2021).

Burger, M.L., Leung, K.K., Bennett, M.J., Winoto, A. T cell-specific inhibition of multiple apoptotic pathways blocks negative selection and causes autoimmunity. *eLIFE*3:e03468. doi: 10.7554/eLife.03468 (2014).

Burger, M.L.*, Xue, L.*, Sun, Y., Kang, C., Winoto, A. Premalignant PTEN-deficient thymocytes activate miR-146a and miR-146b as a cellular defense against malignant transformation. *Blood* 123(26):4089-4100. doi: 10.1182/blood-2013-11-539411 (2014).

Thompson, J., **Burger, M.L.**, Whang, H., Winoto, A. Protein kinase C regulates mitochondrial targeting of Nur77 and its family member Nor-1 in thymocytes undergoing apoptosis. *Eur J Immunol* 40(7):2041-2049. doi: 10.1002/eji.200940231 (2010).

Yamaguchi, I., Tchao, B.N., **Burger, M.L.**, Yamada, M., Hyodo, T., Giampietro, C., Eddy, A.A. Vascular endothelial cadherin modulates renal interstitial fibrosis. *Nephron Exp Nephrol* 120(1):e20-31. doi: 10.1159/000332026 (2010).

RESEARCH GRANTS

Current

New Investigator Grant (PI: Burger) 11/01/2023-10/31/2024
Source: Medical Research Foundation of Oregon
Title: *The role of intratumoral lymphocyte networks in regulating CD8 T cell responses to lung cancer.*
Interrogation of lymphocyte networks in early-stage lung cancer by spatial profiling.

V Scholar Grant (PI: Burger) 09/01/2023-08/31/2026
Source: V Foundation for Cancer Research
Title: *Promoting T cell cooperation to improve cancer immunotherapy response.*
Aimed at uncovering factors regulating T cell competition in cancer to inform the design of immunotherapies that promote more cooperative T cell killing of tumors.

Lung Cancer Discovery Award (PI: Burger) 07/01/2023-06/30/2025
Source: American Lung Association
Title: *Promoting cooperative T cell responses against lung cancer.*
Investigation of antigen clonality in regulating T cell competition in tumors and response to vaccination.

CEDAR Pilot Grant (PI: Burger, Emili, Nikolova) 06/28/2023-06/27/2025
Source: OHSU Center for Early Detection Advanced Research Center (CEDAR)
Title: *Identifying tumor-intrinsic factors regulating early onset immunosuppression in lung cancer.*
Pilot grant to identify mechanisms of early immune suppression in a mouse model of lung cancer.

Completed

Margaret A. Cunningham Immune Mechanisms of Cancer Fellowship (PI: Burger)11/01/2020-10/31/2021
Source: Margaret A. Cunningham Immune Mechanisms of Cancer Fund
Title: *The role of antigen dominance hierarchies in shaping anti-tumor T cell phenotypes and immunotherapy responses.*
Investigated a role for antigen dominance hierarchies in shaping CD8 T cell phenotypes and immunotherapy response in a mouse model of lung cancer.

Ludwig Center for Molecular Oncology Postdoctoral Fellowship (PI: Burger) 03/01/2020-02/28/2021

Source: Ludwig Center for Molecular Oncology at MIT
Title: *Elucidating the role of interferon gamma signaling in lung cancer progression and metastasis*.
Investigated a role for interferon gamma receptor signaling in regulating immunosurveillance of lung cancer and response to checkpoint blockade immunotherapies.

Jane Coffin Childs Memorial Fund Postdoctoral Fellowship (PI: Burger) 08/01/2016-07/31/2019
Source: Jane Coffin Childs Memorial Fund for Cancer Research
Title: *Investigating mechanisms of immune evasion in autochthonous lung tumors.*
Developed a CRISPR/Cas9-based approach to investigate tumor-mediated immune evasion mechanisms in lung cancer.

F31CA168007 (PI: Burger) 01/01/2013-12/31/2015
Source: NIH National Cancer Institute
Title: *The Mechanisms of Nur77 and Nor1 Induced Apoptosis Through Interaction with Bcl2*
Investigation of Nur77/Nor1-dependent apoptosis in thymocytes and cancer.

UC Cancer Coordinating Committee Predoctoral Fellowship 2010-2011
(Role: Graduate Student) not recorded
Title: N/A
Predoctoral fellowship supporting investigation of miRNA regulation of T cell malignant transformation.