

CURRICULUM VITAE

Elizabeth Victorina Wasmuth, PhD

Assistant Professor

Department of Biochemistry and Structural Biology

University of Texas Health at San Antonio

San Antonio, TX, 78229 USA

wasmuthe@uthscsa.edu

EDUCATION

- 2008-2016 Doctor of Philosophy
Gerstner Sloan Kettering Graduate School of Biomedical Sciences, New York, NY
- 2003-2006 Bachelor of Science
Cornell University, Ithaca, NY
Animal Science; Development Sociology

ACADEMIC APPOINTMENTS

- 2022-present Assistant professor (tenure track), Department of Biochemistry and Structural Biology
University of Texas Health at San Antonio (UTHSA)
- 2016-2022 Post-doctoral fellow:
Human Oncology & Pathogenesis Program, Memorial Sloan Kettering Cancer Center /
Laboratory of Protein and Nucleic Acid Chemistry, The Rockefeller University
Advisors: Dr. Charles L. Sawyers, MD / Dr. Sebastian Klinge, PhD
Fields of study: prostate cancer, cryo-electron microscopy, molecular biology, cell biology
- 2008-2016 Graduate student. Structural Biology Program, Sloan Kettering Institute
Advisor: Dr. Christopher D. Lima, PhD
Fields of study: X-ray crystallography, enzymology, yeast genetics, RNA biology

OTHER SCIENTIFIC APPOINTMENTS

- 2022-present Co-director of UTHSA Cryo-EM Facility
- 2007-2008 Post-baccalaureate Intramural Research Training Award Fellow, Dr. Forbes Porter laboratory,
Eunice Kennedy Shriver National Institute of Child Health and Human Development, National
Institutes of Health (Bethesda, MD)
- 2007 Research technician, Dr. Xingen Lei laboratory, Department of Animal Science, Cornell
University (Ithaca, NY)
- 2006 Summer Undergraduate Research Fellow, Dr. Mair Churchill laboratory, Department of
Pharmacology, University of Colorado Health Sciences Center (Aurora, CO)

PUBLICATIONS

1. Jia L*, Ruben EA, Olsen SK*, **Wasmuth EV***. Single particle cryo-electron microscopy with an enhanced 200 kV cryo-TEM configuration achieves near-atomic resolution. *Manuscript in preparation*.
*Co-corresponding.
2. Zhao XR, Johnson MJ, Wang B, Suarez HJ, Lawrence KE, LaClair JR, Hoover EA, Sun Z, Santella A, Nazir A, Xu C, Weintraub ST, Manova-Todorova K, Haffner M, Sawyers CL, **Wasmuth EV**. A liquid-liquid phase separation switch underlies oncogenic androgen receptor signaling. *Manuscript in preparation*.

3. Afsar M, Liu G, Jia L, Ruben EA, Nayak D, Sayyad Z, Bury PDS, Cano KE, Nayak A, Zhao X, Shukla A, Sung P, **Wasmuth EV**, Gack MU, Olsen SK. Cryo-EM structures of Uba7 reveal the molecular basis for ISG15 activation and E1-E2 thioester transfer. *Nature Communications*. *In press*.
4. Rawal Y, Jia L, Meir A, Zhou S, Ruben EA, Kwon Y, Bernstein KA, Jasin M, Burma S, Hromas R, Mazin AV, Zhao W, Zhou D, **Wasmuth EV**, Greene EC, Sung P, Olsen SK. Structural insights into BCDX2 complex function in homologous recombination. *Nature*. 2023 doi: 10.1038/s41586-023-06219-w. PMID: 37344589.
5. Miyahira AK, Hawley JE, Adelaiye-Ogala R, Calais J, Nappi L, Parikh R, Seibert TM, **Wasmuth EV**, Wei XX, Pienta KJ, Soule HR. Exploring new frontiers in prostate cancer research: Report from the 2022 Coffey-Holden prostate cancer academy meeting. *Prostate*. 2023 Feb;83(3):207-226. PMID: 36443902
6. Yuan L, Gao F, Lv Z, Nayak D, Nayak A, Bury PDS, Cano KE, Jia L, Atligan FC, Oleinik N, Ogretmen B, El Oualid F, **Wasmuth EV**, Olsen SK. Structures of the bispecific Ubl activating enzyme Uba6 reveal novel catalytic and regulatory mechanisms. *Nature Communications*. 2022 Aug 19;13(1):4880. PMID: 35986001.
7. Nayak D, **Wasmuth EV**, Olsen SK. Clearing the air: Uniquely engaging furin as an approach to cystic fibrosis therapy. *Cell Chemical Biology*. 2022 June 16; 29(6): 927-929. PMID: 35714591.
8. **Wasmuth EV***, Vanden Broeck A, LaClair JR, Hoover EA, Lawrence KE, Paknejad N, Pappas K, Matthies D, Wang B, Feng W, Watson PA, Zinder JC, Karthaus WR, de la Cruz MD, Hite RK, Manova-Todorova K, Yu Z, Weintraub ST, Klinge S, Sawyers CL*. Allosteric interactions prime androgen receptor dimerization and activation. *Co-corresponding. *Molecular Cell*, 2022 June 2; 82(11): 2021-2031. PMID: 35447082.
Selected as cover for June 2, 2022 issue
[Featured in EurekAlert](#)
[Department of Defense Program Highlight of 2023](#)
[Prostate Cancer Foundation Top 6 Papers in the Field in 2022](#)
9. **Wasmuth EV**, Hoover EA, Antar A, Klinge S, Chen Y, Sawyers CL. Modulation of androgen receptor DNA binding activity through direct interaction with the ETS transcription factor ERG. *Proceedings of the National Academy of Sciences*, 2020 Apr 14;117(15):8584-8592. PMID: 32220959.
10. Das M, Zattas D, Zinder JC, **Wasmuth EV**, Henri J, Lima CD. Substrate discrimination and quality control require each catalytic activity of TRAMP and the nuclear RNA exosome. *Proceedings of the National Academy of Sciences*, 2021 Apr 6; 118(14): e2024846118. PMID: 33782132.
11. Axhemi A, **Wasmuth EV**, Lima CD, Jankowsky E. Substrate selectivity by the exonuclease Rrp6p. *Proceedings of the National Academy of Sciences*. 2019. Dec 26. pii: 201913236. PMID: 31879344.
12. Bose R, Karthaus WR, Armenia J, Abida W, Iaquinta PJ, Zhang Z, Wongvipat J, **Wasmuth EV**, Shah N, Sullivan PS, Doran MG, Wang P, Patrino A, International SU2C/PCF Prostate Cancer Dream Team, Zheng D, Schultz N, Sawyers CL. Loss of Function Mutations in ETS2 Repressor Factor (ERF) Reveal a Balance Between Positive and Negative ETS Factors Controlling Prostate Oncogenesis. *Nature*. 2017 Jun 29; 546(7660):671-5. PMID: 28614298.
13. **Wasmuth EV**, Zinder JC, Zattas D, Das M, Lima CD. Structure and reconstitution of yeast Mpp6-nuclear exosome complexes reveals that Mpp6 stimulates RNA decay and recruits the Mtr4 helicase. *eLife*. 2017 Jul 25;6. pii: e29062. PMID: 28742025.

14. **Wasmuth EV**, Lima CD. The Rrp6 C-terminal domain binds RNA and activates the nuclear RNA exosome. *Nucleic Acids Research*. 2017 Jan 25; 45(2):846-60. PMID: 27899565.
15. Zinder JC, **Wasmuth EV**, Lima CD. Nuclear RNA exosome at 3.1 Å reveals substrate specificities, RNA paths, and allosteric inhibition of Rrp44. *Molecular Cell*. 2016 Nov 17; 64(4):734-45. PMID: 27818140.
16. **Wasmuth EV**, Januszyk K, Lima CD. Structure of an Rrp6-RNA exosome complex bound to polyA RNA. *Nature*. 2014 Jul 24; 511(7510):435-9. PMID: 25043052.
17. **Wasmuth EV**, Lima CD. Structure and activities of the eukaryotic RNA exosome. *The Enzymes – Eukaryotic RNases and their Partners in RNA Degradation and Biogenesis*. 2012; 31:53-75. PMID: 27166440.
18. **Wasmuth EV**, Lima CD. The exo- and endoribonucleolytic activities of yeast cytoplasmic and nuclear RNA exosomes are dependent on the non-catalytic core and central channel. *Molecular Cell*. 2012 Oct 12; 48(1):133-44. PMID: 22902556.
19. Yasuda K, Dawson HD, **Wasmuth EV**, Roneker CA, Chen C, Urban JF, Welch RM, Miller DD, Lei XG. Supplementary dietary inulin influences expression of iron and inflammation related genes in young pigs. *Journal of Nutrition*. 2009 Nov; 139 (11): 2018-23. PMID: 19776179.
20. Lindegaard ML, Wassif CA, Vaisman B, Amar M, **Wasmuth EV**, Shamburek R, Nielsen LB, Remaley AT, Porter FD. Characterization of placental cholesterol transport: ABCA1 is a potential target for *in utero* therapy of Smith-Lemli-Opitz syndrome. *Human Molecular Genetics*. 2008 Dec 1; 17(23):3806-13. PMID: 18775956.

RESEARCH SUPPORT (CURRENT)

GM140264 MOSAIC K99/R00 / NIH / NIGMS Biochemical, structural and molecular dissection of androgen receptor transcriptional activity Role: Principal Investigator (PI)	9/1/2020 – 8/31/2025
RR220068 CPRIT Recruitment of First-Time Tenure Track Faculty Mechanisms of androgen receptor regulation in prostate cancer Role: Principal Investigator (PI)	7/1/2022 – 7/1/2027
Voelcker Fund Young Investigator Award Uncovering therapeutic vulnerabilities in androgen receptor signaling Role: Principal Investigator (PI)	7/1/2023 – 6/30/2026

RESEARCH SUPPORT (PREVIOUS)

ACS Institutional Research Grant Pilot Mechanisms of oncogenicity caused by loss of function mutations in the RNA exosome subunit, DIS3 American Cancer Society Role: Principal Investigator (PI)	6/1/2022 – 6/1/2023
Mays Cancer Center Pilot Project – CDP 2022 R-loop biogenesis and resolution by DNA repair Role: Co-Investigator (Col)	6/1/2022 – 6/1/2023

W81XWH-17-PCRP-EIRA 5/15/2018 – 5/14/2020
Prostate Cancer Research Program Early Investigator Research Award
United States Department of Defense
Role: Principal Investigator (PI)

Functional Genomics Initiative 11/2018 – 11/2019
Memorial Sloan Kettering Cancer Center
Mechanisms of oncogenicity caused by loss of function mutations in the DIS3 RNA exosome subunit
Role: Co-PI with Dr. Charles Sawyers

Ruth Kirschstein NRSA F31 Diversity Fellowship GM097910 8/11/2011 – 8/10/2015
Structural and biochemical characterization of the *S. cerevisiae* RNA exosome
Role: Principal Investigator (PI)

PROFESSIONAL PRESENTATIONS

2023 Invited Speaker, Steroids Congress
2023 Invited Speaker, Pacific Northwest SPORE Seminar Series, Fred Hutch Cancer Research Center, Seattle, WA
2022 Invited Speaker, Greehey Children's Cancer Research Institute Retreat, San Antonio, TX
2022 Invited Speaker, Prostate Cancer Foundation Annual Retreat, Carlsbad, CA
2022 Invited Speaker, Texas Genome Repair - Basic Mechanisms and Clinical Implications, San Antonio, TX
2022 Invited Speaker, Future Leaders in Biochemistry and Biophysics, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA
2022 Invited Speaker, Prostate Cancer Foundation AR Signaling Working Group
2022 Invited Speaker, Mays Cancer Center Joint Retreat with UTSA, San Antonio, TX
2022 Selected talk, Coffey-Holden Prostate Cancer Academy, Prostate Cancer Foundation, Los Angeles, CA
2022 Invited Speaker, Department of Biochemistry and Structural Biology Retreat, Bandera, TX
2022 Invited Speaker, GCCRI Seminar Series, San Antonio, TX
2022 Selected Speaker, Annual Meeting of the American Society for Biochemistry and Molecular Biology, Philadelphia, PA
2022 Invited Speaker, Mass Spectrometry/Cryo-EM Plenary Session, Annual Meeting of the Association of Biomolecular Resource Facilities, Palm Springs, CA
2021 Selected Speaker, Memorial Sloan Kettering Cancer Center Postdoctoral Research Symposium
2021 Poster presentation, Prostate Cancer Foundation Annual Retreat
2020 Invited Speaker, New York Prostate Club
2019 Poster presentation, Geoffrey Beene Retreat Cancer Research Center Annual Retreat
2014 Invited Speaker, MUSC MCBP External Seminar Series, Charleston, SC
2014 Poster presentation, 19th Annual Meeting of the RNA Society
2013 Selected Speaker, New York Structural Biology Discussion Group
2013 Selected Speaker, 18th Annual Meeting of the RNA Society
2012 Selected Speaker, FASEB Post-Transcriptional Control of Gene Expression: mRNA Decay Conference

HONORS/AWARDS

2023-2026 Voelcker Fund Young Investigator Award
2022 UT Rising STARS recipient
2022 CPRIT Recipient for First-Time Tenure-Track Faculty Award
2021 National Center for Cryo-EM Access and Training embedded fellow

- 2021 Memorial Sloan Kettering Cancer Center Postdoctoral Research Symposium, Best Oral Presentation
- 2020-2023 Prostate Cancer Foundation Young Investigator Award
- 2020-2025 MOSAIC K99/R00 Recipient (a new K99/R00 initiative to increase diversity of underrepresented groups in STEM)
- 2019 Poster Prize, Geoffrey Beene Retreat Cancer Research Center Annual Retreat
- 2015 Louis V. Gerstner Chairman's Prize Recipient
- 2014 NSMB Poster Prize in Biophysics & Structural Biology, 19th Annual Meeting of the RNA Society
- 2014 Selected course participant, Cold Spring Harbor Laboratory X-ray Methods in Structural Biology
- 2011-2015 Ruth Kirschstein NRSA F31 Diversity Recipient

TEACHING/MENTORING EXPERIENCE

- 2023 Instructor, BIOC 635: Target identification and hit/lead discovery
- 2016-2023 Officially mentored 7 research technicians, 5 post-doctoral fellows, 5 graduate students, 1 undergraduate, 2 high school students. 8 of these individuals have come from underrepresented, disabled or otherwise disadvantaged backgrounds, and the 4 who have transitioned to the next stage of their careers are currently advancing their academic training (i.e. prestigious post-doctoral fellowships, enrolled at medical and nursing schools)
- 2021 Attended ASBMB-sponsored two-day workshop: "Essential Skills for Effective Mentoring Relationships, and Mentoring Across Differences"
- 2011-2016 Gave series of science lectures at McNair Academic High School in Jersey City, NJ to increase awareness of STEM careers to underrepresented and economically disadvantaged students
- 2013 Instructor for Tri-Institutional Responsible Conduct of Research course
- 2011-2012 Journal club leader for the Gerstner Sloan Kettering Summer Undergraduate Research Program

SERVICE

- 2023 Organizer and member, UTHSA BSB Postdoctoral Leadership Program Search Committee
- 2023 Reviewer for Greehey Graduate Fellowship Award
- 2023 Reviewer for Owens Medical Research Foundation Awards
- 2023 Reviewer for *Nucleic Acids Research*
- 2023 Reviewer for *Human Molecular Genetics*
- 2023 Reviewer for *Molecular Carcinogenesis*
- 2022-2023 Reviewer for *Molecular Cell*
- 2022 Reviewer for Prostate Cancer Foundation Challenge Award
- 2022 Reviewer for Marion B. Sewer Distinguished Scholarship award (to increase representation of minority groups in STEM)
- 2022-present Member of Advisory Committee for UTHSA Structural Biology Cores
- 2022-present Member of Advisory Committee for UTHSA Atomic Force Microscopy Core
- 2022-present Executive Committee for T32 EDGe (Epigenetics, DNA Repair, and Genomics) Training Program in Cancer
- 2022 Organizer and session chair for the 2022 Prostate Cancer Foundation's Coffey-Holden Prostate Cancer Academy
- 2020-2021 Memorial Sloan Kettering Cancer Center Diversity in Science Council (selected)
- 2020 Intersections Science Symposium organizer
- 2019-2022 Consultant for establishment of the Cryo-EM facility at UTHSA

PROFESSIONAL AFFILIATIONS

- American Association for Cancer Research (AACR)
- Prostate Cancer Foundation
- American Society for Biochemistry and Molecular Biology (ASBMB)

FEATURED PRESS

Wasmuth Lab Research

- [Memorial Sloan Kettering Cancer Center News feature - with Dr. Charles Sawyers](#)
- [Selected as Department of Defense Congressionally Directed Medical Research Program Prostate Cancer Program Highlight of 2023](#)
- [Prostate Cancer Foundation's top 6 papers in the field \(2022\)](#)
- [Dr. Wasmuth awarded \\$2 million by the Cancer Prevention and Research Institute of Texas](#)
- [Cryo-EM Advancing Prostate Cancer Research - Interview with Dr. Elizabeth Wasmuth](#)

UTHSA Cryo-EM Facility – first in South Texas

International (featured by ThermoFisher - links to video interviews below)

- [UT Health San Antonio cryo-EM facility - Interview with Co-Director, Dr. Elizabeth Wasmuth](#)

State-Wide (Texas Public Radio)

- [New cryo-electron microscope to 'revolutionize' research at UT Health San Antonio](#)

Local news (San Antonio, TX)

- [UT Health San Antonio News Room](#)
- [San Antonio Express News](#)
- [My San Antonio: SA's most powerful microscope: Studying proteins at subatomic level, seeking cures](#)