

CURRICULUM VITAE
Hannah Wollenzien, Ph.D., FACMG

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Summary

Clinical laboratory geneticist (ABMGG board-certified) with deep expertise in identity testing, NGS, cytogenetic, and molecular diagnostic technologies, including assay development, validation, quality control, and compliance with CAP, CLIA, and ACMG/AMP standards. As Clinical Laboratory Director and faculty in internal medicine, provides authoritative interpretation of genomic data in cancer and constitutional disorders. Experienced educator skilled at communicating complex genomic concepts to diverse audiences, including clinicians, trainees, and non-specialists. Offers clear, unbiased, scientifically grounded opinions and expert testimony on genetic testing, laboratory practices, and the interpretation and significance of genomic findings.

Areas of Expertise

- Identity testing
- Next-generation sequencing (NGS)—validation, quality control, error sources
- Cytogenetics and chromosomal analysis
- Variant classification (ACMG/AMP guidelines)
- Hereditary cancer testing & interpretation
- Somatic tumor profiling & oncology genomics
- CLIA/CAP regulatory compliance and laboratory operations
- Test methodology evaluation and limitations
- Interpretation disputes & lab error review

Board Certification

2025 American Board of Medical Genetics and Genomics (Laboratory Genetics and Genomics Specialization)

Employment and Research Positions

2025 - Present Founder and Principal Consultant, Karyon Genomic Strategies, Sioux Falls, SD
2026 - Present Laboratory Director of Clinical Genomics, AiLife Diagnostics, Houston, TX (remote)
2024 – 2026 Laboratory Director, Sanford Medical Genetics Laboratory, Sioux Falls, SD
Faculty appointment: Clinical Assistant Professor, Internal Medicine, University of South Dakota Sanford School of Medicine, Vermillion, SD
2022 – 2024 Clinical Laboratory Genetics and Genomics Fellow, Virginia Commonwealth University Health System, Richmond, VA
2017 - 2022 Graduate Student, Kareta Lab, University of South Dakota/Sanford Research, Sioux Falls, SD

Education

2022 - 2024 Fellowship – Clinical Laboratory Genetics and Genomics, Virginia Commonwealth University Health System, Richmond, VA
2017 - 2022 Ph.D. – Basic Biomedical Sciences (genetics and molecular biology specialization), University of South Dakota Sanford School of Medicine, Vermillion, SD
Dissertation: Single Cell Lineage Tracing Reveals Mechanisms of Tumor Initiation and Chemoresistance in Small Cell Lung Cancer
2013-2017 B.A. – Biology, Chemistry, Neuroscience, Concordia College, Moorhead, MN

Wollenzien, H

Publications

Barrie, E. S., **Wollenzien, H.** *Mutational Signatures in Solid Tumors*. Advances in Molecular Pathology. 2023

Wollenzien, H., Tecleab, Y.A., Szczepaniak-Sloane, R., Restaino, A., Karetta, M.S. *Single-Cell Evolutionary Analysis Reveals Drivers of Plasticity and Mediators of Chemoresistance in Small Cell Lung Cancer**. Molecular Cancer Research. 2023

*Journal cover and issue highlight

Voigt, E., Wallenburg, M., **Wollenzien, H.**, Thompson, E., Feiner, J., McNally, M., Friesen, H., Mukherjee, M., Afeworki, Y., Karetta, M.S. *Sox2 is an oncogenic driver of Small Cell Lung Cancer and promotes the classic neuroendocrine subtype*. Molecular Cancer Research. 2021

Tecleab, Y., **Wollenzien, H.**, Karetta, M.S. *Transcriptional Profiling During Neural Conversion*. Methods in Molecular Biology. 2021

Joshi, S., **Wollenzien, H.**, Leclerc, E., Jarajapu, Y.P. *Hypoxic Regulation of angiotensin-converting enzyme 2 and Mas receptor in human CD34+ cells*. Journal of Cellular Physiology. 2019

Wollenzien, H., Voigt, E., Karetta, M.S. *Somatic pluripotent genes in tissue repair, developmental disease, and cancer*. SPG Biomed. 2018

Ye, Y., Hui, L., Lakpa, K.L., Zing, Y., **Wollenzien, H.**, Chen, X., Zhao, J., Geiger, J.D. *Effects of silica nanoparticles on endolysosome function in primary cultured neurons*. Canadian Journal of Pharmacology and Physiology. 2018

Fang, F., VanCleave, A., Helmuth, R., Torres, H., Rickel, K., **Wollenzien, H.**, Sun, H., Zeng, E., Zhao, J., Tao, J. *Targeting the Wnt/Beta-Catenin pathway in human osteosarcoma cells*. Oncotarget. 2018

Academic Presentations

Wollenzien, H., Olson, T., Rafferty, K., Turner, S. A., Ferreira-Gonzalez, A., Barrie, E. S. *Low rate of clinical follow-up for potential germline variants identified in hematologic malignancies with a next generation sequencing panel*.

Poster session: VCU Health Resident/Fellow Research Day, May 2024

Poster session: ACMG annual meeting, March 2024

Wollenzien, H., Tecleab, Y., Mukherjee, M., Karetta, M.S. *Tracing intratumoral cellular heterogeneity using genetic barcoding in small cell lung cancer*.

Poster Session: AACR Evolutionary Dynamics in Carcinogenesis and Response to Therapy Meeting, March 2022

Poster Session: American Society for Human Genetics Annual Meeting, October 2021

Poster Session: Eastern South Dakota Research Symposium, June 2021

Voigt, E., **Wollenzien, H.**, Vande Kamp, M., Thompson, E., McNally, M., Feiner, J., Karetta, M. *Relationship of Sox2 and Rb in tumor initiation and maintenance in small cell lung cancer*.

Poster Session: Sixth AACR-IASLC International Joint Conference: Lung Cancer Translational Science from the Bench to the Clinic, January 2020

Wollenzien, H. *Tracing intratumoral cellular heterogeneity using genetic barcode lineage tracing in small cell lung cancer*.

Recorded oral presentation: USD Ideafest, April 2020

Oral presentation: Concordia College co-invited seminar, January 2020

Oral presentation: Sanford Research Center for Pediatric Research Symposium, October 2019

Wollenzien, H., Yousef, M., Voigt, E., Karetta, M.S. *Identification of Sox2 regulatory factors in Small Cell Lung Cancer*.

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Poster Session: Sanford Research Center for Cancer Research Symposium, April 2019

Poster Session: USD IdeaFest, April 2019

Poster Session: American Association for Cancer Research Annual Meeting, April 2019

Wollenzien, H., Yousef, M., Thompson, E., Voigt, E., Mall, M., Kareta, M.S. *Unbiased protein identification at a single DNA locus.*

Poster Session: It's All About Science Festival, June 2018

Poster Session: Sanford Research Center for Pediatric Research Symposium, September 2018

Wollenzien, H. *Targeting Notch signaling pathway in bone cancer*

Oral Presentation: USD IdeaFest, April 2018

Yi, Y., Hui, L., **Wollenzien, H.**, Lakpa, L., Chen, X., Xing, Y., Zhao, J., Geiger, J.D. *Silica nanoparticles de-acidify endolysosomes and increase amyloidogenesis in primary cultured neurons.*

Poster Session: Concordia College Celebration of Student Scholarship, April 2017

Poster Session: Undergraduate Research in the Molecular Sciences, October 2018

Stromberg, I., Atchinson, L., Habel, M., **Wollenzien, H.**, Morton, M., Logelin, K., Barber, J., Montplaisir, C., Adamietz, N., Macker, J., Emerson, E. *Environmental factors influencing eye movement and strain.*

Poster Session: Concordia College Celebration of Student Scholarship, April 2016

Houle, B., **Wollenzien, H.**, Rodenbiker, C., Bouge, J. *Sequencing GAPDH in Rhamnus cathartica.*

Poster Session: Concordia College Celebration of Student Scholarship, April 2016

Media, Teaching, and Communication

- 2025 *The Sanford Solid Tumor NGS Assay*, multiple presentations for the Sanford Health System
- 2024 *DNA Extraction from Formalin-Fixed Paraffin Embedded Slides for the Genetics Laboratory*, Sanford Medical Genetics Laboratory
- 2024 *Plasma Cell Enrichment Enhances Cytogenetic Analysis of Plasma Cell Neoplasms*, VCU Pathology Grand Rounds
- 2024 *Cytogenetics Case Conference*, VCU Genetics Grand Rounds
- 2024 *Cytogenetic Testing Methodologies and Applications*, VCU Department of Pathology Lecture Series
- 2023 *Microsatellite Instability and Lynch Syndrome*, VCU Laboratory Genetics Fellow's Conference
- 2023, 2024 *Clinical Genetic Testing Methodologies and Applications II – Cytogenetics and Microarrays*, VCU HGEN 609 Course
- 2023 *Incidental Identification of Potential Germline Variants Using Oncogenomic Heme*, VCU Genetics Grand Rounds
- 2022 *Stretches of Homozygosity*, VCU Laboratory Genetics Fellow's Conference
- 2019 Sanford Research Summer Lab Methods Boot Camp
- 2019 StemJourneys.org, Featured Scientist, *Researching Biomedicine*
(<https://stemjourneys.org/for-students/researching-biomedicine/>)
- 2018 - 2021 Sanford Research GRE Preparatory Course (3 Courses taught, 2018, 2019, 2021)
- 2017 - 2022 Sanford Promise Program – volunteer lecturer

Awards and Support

- 2021 National Cancer Institute (NIH) NRSA F31, \$117,840 (1F31CA243149-01A1; Role: PI)

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Tracing Intratumoral Cellular Heterogeneity using genetic barcoding in small cell lung cancer

2020 Wesley W. Parke Research Award Endowment, Awardee
2020 University of South Dakota 3 Minute Thesis Competition (3MT), Finalist
2020 University of South Dakota Neuroscience, Nanotechnology, and Networks (N3) Travel Grant, Awardee
2020 University of South Dakota Graduate Research and Creative Scholarship Grant, Awardee
2019 T. Denny Sanford Pediatric Research Fellowship Travel Grant, Awardee
2018 University of South Dakota Graduate Research and Creative Scholarship Grant, Awardee
2017 Concordia College Library Exemplary Research Award, Awardee

Professional Organizations

2024 - Cancer Genomics Consortium, Member
2023 - American College of Medical Genetics, Member
2023 - College of American Pathologists, Member
2022 - Association for Molecular Pathology, Member
2021 - 2022 American Society for Human Genetics, Graduate Student Member
2020 - 2022 Genetics Society of America, Graduate Student Member
2019 - 2023 American Association for Cancer Research, Associate Member
2018 - 2022 Graduate Women in Science, Member

Academic Service

2024 – Present Undiagnosed Disease Network, Sanford Health Steering Committee Member
2024 – Present Cancer Genomics Consortium Communications Committee Member, co-chair Monthly Q&A Subcommittee
2024 – Present American College of Medical Genetics E3 Genomics Pathways Program Advisory Committee Member, Co-Chair Empower Subcommittee
2019 - 2022 Sanford Research PROMISE/FIT Programs, Steering Committee Member
2018 - 2022 South Dakota Women In Medicine and Science (WIMS), Steering Committee Member
2019-2020 University of South Dakota Biomedical Graduate Student Organization, Events Coordinator
2019-2020 Sanford Research Graduate Student Invited Seminar, Co-Coordinator

Professional Development and Workshop Participation

2025 Get AMPed Educational Workshop, Association for Molecular Pathology
2022-2024 Laboratory Management Course, Virginia Commonwealth University
2023 Becoming a Laboratory Inspector, College of American Pathologists
2021 The Art of Communicating Science by Dr. Steve Cohen, USD N3 Program
2020 Mount Desert Island Applied Bioinformatics Course
2020 Intercultural Development Inventory (IDI) assessment and training, USD N3 Program
2019 Grant Writing Course, Sanford Research
2018 Responsible Conduct in Research Course, University of South Dakota