

Jordan Edward Krull, Ph.D.

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Qualifications

Self-motivated scientist with multidisciplinary research experience from industry and top-tier medical research institutions.

Extensive experience in animal models, molecular biology, immunology, bioinformatics, and data science.

Penchant and enthusiasm to learn new techniques, be part of a team, and mentor the next generation of scientists.

Research

Immuno-oncology
Bioinformatics
Cell & Molecular Biology
Animal Models

Datascience

Genomics
Machine Learning
Single Cell Technologies
Modeling

Clinical/Translational

Statistics/Outcomes
Biomarker Development
Predictive Tools
IND & Clinical Trial Support

Education

Mayo Clinic Graduate School

2022

Ph.D., Immunology

University of Washington

2015

B.S., Physiology

North Seattle Community College

2013

A.S., Biology

Clinical & Translational Research Experiences

Bioinformatics and Computational Modeling in Immuno-Oncology

December 2022 – Current

Post-Doctoral Fellow – Ohio State University Dept. of Bioinformatics, Columbus, OH

Faculty Advisor: Dr. Qin Ma, Ph.D

- The Ma lab (Bioinformatics and Mathematical Biology Lab) focuses on modeling and developing computational tools for single-cell multi-omics data, with a focus on immuno-oncology and cellular regulatory networks.
- Our group specializes in analysis of single cell analysis technologies and spatial analysis, including: scRNA-Seq, Drop-Seq, CITE-Seq, scATAC-Seq, spatial transcriptomics, CODEX, Imaging Mass Cytometry, flow cytometry, CyTOF, and Spectral Flow Cytometry. Additionally, we have significant experience in computational modeling, statistics, and artificial intelligence.
- I currently operate under a 2-year Pelotonia Post-Doctoral Research Fellowship award, where I am investigating pan-cancer tissue structures related to immunotherapy response using deep learning and graph fourier transform on whole slide images.
- Additionally, I am investigating the use of a heterogeneous graph transformer and single-cell multi-omics data to perform high-resolution studies on small-intermediate populations of cells during hematopoietic development.

- In addition to individual projects, I serve as a member of the Immuno-Oncology Informatics Group, where I advise researchers on research project design and provide analysis support on big data projects involving immuno-oncology.

Genetic and Immune Classification of Non-Hodgkins Lymphoma

June 2017 – December 2022

Ph.D. Candidate - Mayo Clinic, Rochester, MN

Advisor: Dr. Anne Novak, Ph.D

- The Novak lab aims to discover and further explore genetic events leading to B cell lymphoma pathogenesis and progression, with particular focus on DLBCL, follicular lymphoma, and low grade B cell lymphomas.
- Thesis title: *Multi-Omic Studies in Lymphoma Reveal Novel Biology and Molecular Subtypes*.
- The bulk of my thesis work involved determining how genetic events and tumor-intrinsic molecular activities shape the tumor microenvironment in follicular lymphoma.
- Designed and led large cohort studies in follicular lymphoma with multi-department and industry collaborations.
- Processed and analyzed data incorporating multiple omic platforms, including exome sequencing, microarrays, bulk and single-cell RNA sequencing, mass cytometry, and multiplexed immunohistochemistry.
- Employed numerous machine learning models to further resolve complex cellular (CyTOF) and molecular (RNAseq, WES) systems across hundreds of samples.
- Incorporated results into actionable clinical models to improve patient care and disease monitoring.
- Consistently collaborated within Mayo Clinic Department of Hematology as a critical team member on multiple research projects, contributing to 8 published manuscripts, 4 manuscripts in preparation or submission, and 21 abstracts.

Cancer Immunotherapy Development

April 2016 – June 2017

Research Associate I - Immune Design Corp., Seattle, WA

Supervisor: Dr. Jan Ter Muelen, MD, DHabil

- R&D support for two experimental cancer immunotherapies: GLA® – a TLR4 agonist, and ZVex® - a dendritic cell-targeting lentivirus.
- Our team of 3 at Immune Design provided all pre-clinical *in-vivo* support to IND- and patent-related filings, as well as manuscripts.
- Performed multiple large animal studies per week, which required a variety of technical skills, to support ongoing and future clinical trials.
- Developed *in-vivo* and *in-vitro* immunological assays for research-driven mechanistic studies, assessment of the efficacy of potential drug products, and discovery of clinical biomarkers.

Biochemical and Genetic Characterization of Skull Base Tumors

May 2014 – April 2016

Undergraduate Research Assistant - University of Washington Dept. of Neurosurgery

Mentor: Dr. Manuel Ferreira, M.D., Ph.D.

- The goal of the Ferreira Lab is to identify genetic events and molecular targets that lead to pathogenesis and advanced stage disease in skull base tumors.
- Led primary analysis of whole exome sequencing results from pituitary adenomas.

- Developed a primary tumor processing and culture model of pituitary adenoma to investigate novel target molecules.

Central Nervous System Control of Food Intake and Energy Expenditure September 2013 – June 2015 Undergraduate Research Assistant - University of Washington Dept. of Medicine

Mentor: Dr. Joshua Thaler, M.D., Ph.D.

- Dr. Thaler's laboratory investigates the role of cellular communication, inflammation, and molecular pathogenesis inside the central nervous system in diet induced obesity.
- My projects centered around inflammation in the hypothalamus in response to high-fat-diet and the mechanisms by which this inflammation leads to obesity in rodents. Our focus was on microglia and astrocyte cells as well as CX3CL1/R1 fractalkine signaling.
- Designed and performed *in vivo* and *in vitro* studies investigating the how fractalkine protects female mice from diet induced obesity.
- Learned and refined animal techniques, including stereotactic neurosurgery on rodents, longitudinal rodent studies, animal husbandry, and advanced tissue dissection/preparation.
- My efforts are featured in two publications that became the cornerstone of the Thaler Lab and the Dorfman lab.

Publications

- 2023 Hopper M.A., Wenzl K., Hartert K.T., Krull J.E., Dropik A.R., Novak J.P., Manske M.K., Serres M.R., Sarangi V., Larson M.C., Maurer M.J., Yang Z.-Z., Paludo J., McPhail E.D., Habermann T.M., Link B.K., Rimsza L.M., Ansell S.M., Cerhan J.R., Jevremovic D. and Novak A.J. Molecular classification and identification of an aggressive signature in low-grade B-cell lymphomas. *Hematological Oncology*. (2023), <https://doi.org/10.1002/hon.3187>
- 2023 Mondello P., Paludo J., Novak J.P., Wenzl K., Yang Z.-Z., Jalali S., **Krull J.E.**, Braggio E., Dasari S., Manske M.K., Abeykoon J.A., Sarangi V., Kapoor P., Paulus A., Reeder C.B., Ailawadhi S., Chanan-Khan A.A., Kyle R.A., Gertz M.A., Novak A.J. and Ansell S.M. Molecular Clusters and Tumor-Immune Drivers of IgM Monoclonal Gammopathies. *Clinical Cancer Research*. (2023) 29(5):957-970.
- 2022 Fisher C.R., **Krull J.E.**, Bhagwate A., Masters T., Greenwood-Quaintance K.E., Abdel M.P. and Patel R. Sonicate Fluid Cellularity Predicted by Transcriptomic Deconvolution Differentiates Infectious from Non-Infectious Arthroplasty Failure. *JBJS*. 9900, 10.2106/jbjs.22.00605:10.2106/JBJS.2122.00605.
- 2022 Tang X., Yang Z.Z., Kim H.J., Anagnostou T., Yu Y., Wu X., Chen J., **Krull J.E.**, Wenzl K., Mondello P., Bhardwaj V., Wang J., Novak A.J. and Ansell S.M. Phenotype, function and clinical significance of CD26+ and CD161+ Tregs in splenic marginal zone lymphoma. *Clinical Cancer Research*. 2022, 10.1158/1078-0432.CCR-22-0977.
- 2021 Leleux J.A., Albershardt T.C., Reeves R., James R., **Krull J.**, Parsons A.J., ter Meulen J. and Berglund P. Intratumoral expression of IL-12 from lentiviral or RNA vectors acts synergistically with TLR4 agonist (GLA) to generate anti-tumor immunological memory. *PLoS One*. 2021;16(12):e0259301.
- 2021 Manso B.A., **Krull J.E.**, Gwin K.A., Lothert P.K., Welch B.M., Novak A.J., Parikh S.A., Kay N.E. and Medina K.L. Chronic lymphocytic leukemia B-cell-derived TNF α impairs bone marrow myelopoiesis. *iScience*. 2021;24(1):101994.

- 2020 **Krull J.E.**, Wenzl K., Hartert K.T., Manske M.K., Sarangi V., Maurer M.J., Larson M.C., Nowakowski G.S., Ansell S.M., McPhail E., Habermann T.M., Link B.K., King R.L., Cerhan J.R. and Novak A.J. Somatic copy number gains in MYC, BCL2, and BCL6 identifies a subset of aggressive alternative-DH/TH DLBCL patients. *Blood Cancer Journal*. 2020;10(11).
- 2020 Yang Z.-Z., Kim H.J., Wu H., Jalali S., Tang X., **Krull J.E.**, Ding W., Novak A.J. and Ansell S.M. TIGIT Expression Is Associated with T-cell Suppression and Exhaustion and Predicts Clinical Outcome and Anti-PD-1 Response in Follicular Lymphoma. *Clinical Cancer Research*. 2020;26(19):5217-5231.
- 2020 Albershardt T.C., Leleux J., Parsons A.J., **Krull J.E.**, Berglund P. and Ter Meulen J. Intratumoral immune activation with TLR4 agonist synergizes with effector T cells to eradicate established murine tumors. *npj Vaccines*. 2020;5(1):1-9.
- 2020 Faber C.L., Matsen M.E., Meek T.H., **Krull J.E.** and Morton G.J. Adaptable Angled Stereotactic Approach for Versatile Neuroscience Techniques. *JoVE (Journal of Visualized Experiments)*. 2020, (159):e60965.
- 2020 Hartert K.T., Wenzl K., **Krull J.E.**, Manske M., Sarangi V., Asmann Y., Larson M.C., Maurer M.J., Slager S., Macon W.R., King R.L., Feldman A.L., Gandhi A.K., Link B.K., Habermann T.M., Yang Z.-Z., Ansell S.M., Cerhan J.R., Witzig T.E., Nowakowski G.S. and Novak A.J. Targeting of inflammatory pathways with R2CHOP in high-risk DLBCL. *Leukemia*. 2020, 10.1038/s41375-020-0766-4.
- 2019 Wu X., Stenson M., Abeykoon J., Nowakowski K., Zhang L., Lawson J., Wellik L., Li Y., **Krull J.**, Wenzl K., Novak A.J., Ansell S.M., Bishop G.A., Billadeau D.D., Peng K.W., Giles F., Schmitt D.M. and Witzig T.E. Targeting glycogen synthase kinase 3 for therapeutic benefit in lymphoma. *Blood*. 2019;134(4):363-373.
- 2019 Wang Y.C., Wenzl K., Manske M.K., Asmann Y.W., Sarangi V., Greipp P.T., **Krull J.E.**, Hartert K., He R., Feldman A.L., Maurer M.J., Slager S.L., Nowakowski G.S., Habermann T.M., Witzig T.E., Link B.K., Ansell S.M., Cerhan J.R. and Novak A.J. Amplification of 9p24.1 in diffuse large B-cell lymphoma identifies a unique subset of cases that resemble primary mediastinal large B-cell lymphoma. *Blood Cancer Journal*. 2019;9(9):1-11.
- 2017 Dorfman M.D., **Krull J.E.**, Douglass J.D., Fasnacht R., Lara-Lince F., Meek T.H., Shi X., Damian V., Nguyen H.T. and Matsen M.E. Sex differences in microglial CX3CR1 signalling determine obesity susceptibility in mice. *Nature Communications*. 2017;8(1):1-11.
- 2017 Dorfman M.D., **Krull J.E.**, Scarlett J.M., Guyenet S.J., Sajan M.P., Damian V., Nguyen H.T., Leitges M., Morton G.J. and Farese R.V. Deletion of protein kinase C λ in POMC neurons predisposes to diet-induced obesity. *Diabetes*. 2017;66(4):920-934.

Preprint Manuscripts

- 2023 Chang Y., Liu J., Ma A., Jiang S., **Krull J.**, Yeo Y.Y., Liu Y., Rodig S.J., Barouch D.H., Fan R., Xu D., Nolan G., Li Z., Liu B. and Ma Q. Spatial omics representation and functional tissue module inference using graph Fourier transform. *bioRxiv*. (2023), 10.1101/2022.12.10.519929/2022.12.10.519929.
- 2023 Wenzl K., Stokes M., Novak J.P., Bock A.M., Khan S., Hopper M.A., **Krull J.E.**, Dropik A.R., Walker J.S., Sarangi V., Mwangi R., Ortiz M., Stong N., Huang C.C., Maurer M.J., Rimsza L., Link B.K., Slager S.L., Asmann Y., Mondello P., Morin R., Ansell S.M., Habermann T.M., Feldman A.L., King R.L., Nowakowski G., Cerhan J.R., Gandhi A.K. and Novak A.J. Multiomic Analysis Identifies a High-Risk Metabolic and TME Depleted Signature that Predicts Early Clinical Failure in DLBCL. *medRxiv*. (2023), 10.1101/2023.06.07.23290748/2023.06.07.23290748.

Manuscripts in Preparation/Submission

- 2023 **Krull J.E.**, Wenzl K., Hopper M.A., Manske M.K., Sarangi V., Maurer M.J., Larson M.C., Mondello P., Yang Z.Z., Novak J.P., Serres M.R., Whitaker K., Villasboas J.C., Habermann T.M., Witzig T.E., Link B.K., Rimsza L.M., King R.L., Ansell S.M., Cerhan J.R. and Novak A.J. Follicular lymphoma B cells exhibit heterogeneous transcriptional states with associated somatic alterations and tumor microenvironments. In Submission. 2023.
- 2023 Yang Z.-Z., Kim H.J., Wu H., Tang X., Yu Y., **Krull J.**, Jalali S., Pritchett J., Mudappathi R., Wang J., Villasboas J.C., Mondello P., Novak A. and Ansell S. CD57+ T follicular helper cells with late-stage differentiation have an adverse effect in follicular lymphoma. In Submission. 2022.

Abstracts

- 2023 Chang Y, Li J, Ma A, Jian S, **Krull J**, Yu Yeo Y, Liu Y, Rodig SJ, Barouch DH, Fan R, Xu D, Nolan G, Li Z, Liu B and Ma Q. Spatial omics feature representation using graph Fourier transform. Spatial Biology US 2023, Boston, MA. Presenter: Chang
- 2022 Mondello P, Wenzl K, Yang ZZ, Hong C, **Krull JE**, Yang X, Bhardwaj V, Novak JP, Kim H, Mukherjee P, King RL, Hwang TH, Shlomchik MJ, Novak AJ and Ansell SM. *IRF4 Shapes the Tumor Microenvironment of Follicular Lymphoma*. 64th ASH Annual Meeting, New Orleans, LA. Presenter: Mondello
- 2022 Wenzl K, Stokes ME, Novak JP, Khan S, Hopper MA, **Krull JE**, Dropik A, Sarangi V, Mwangi R, Ortiz M, Strong N, Huang CC, Maurer MJ, Rimsza LM, Link BK, Slager SL, Asmann Y, Mondello P, Morin RD, Ansell SM, Habermann TM, Feldman AL, King RL, Nowakowski GS, Cerhan JR, Gandhi AK and Novak AJ. *Integrative Genomics Identifies a High-Risk Metabolic and TME Depleted Signature that Predicts Early Clinical Failure in DLBCL*. 64th ASH Annual Meeting, New Orleans, LA. Presenter: Wenzl
- 2022 Bock AM, Wenzl K, Stokes ME, Novak JP, Hopper MA, **Krull JE**, Dropik A, Sarangi V, Ortiz M, Strong N, Huang CC, Maurer MJ, King RL, Godby RC, Farooq U, Wang Y, Ansell SM, Habermann TM, Cerhan JR, Gandhi AK, Nowakowski GS and Novak AJ. *Molecular Landscape of Primary Refractory DLBCL*. 64th ASH Annual Meeting, New Orleans, LA. Presenter: Bock
- 2022 Bhardwaj V, Jalali S, Villasboas JC, Yang ZZ, Tang X, Mukherjee P, Mondello P, Kim HJ, Mudappathi R, Wang J, Krull JE, Wenzl K, Novak AJ and Ansell SM. *Increased Tumor-Associated CD66b+ Myeloid-Derived Suppressor Cells in Waldenstrom Macroglobulinemia Inhibit T-Cell Immune Function*. 64th ASH Annual Meeting, New Orleans, LA. Presenter: Bhardwaj
- 2022 Modello P, Paludo J, Novak J, Wenzl K, Jalali S, **Krull J**, Braggio E, Dasari S, Manske M, Abeykoon J, Sarangi V, Kapoor P, Paulus A, Reeder C, Ailawadhi S, Chanan-Khan A, Kyle R, Gertz M, Yang Z-Z, Novak A and Ansell S. *Molecular clusters of IgM monoclonal gammopathies present distinct biologic, immune, and metabolic features*. 27th European Hematology Association Annual Congress, Vienna, Austria. Presenter: Mondello
- 2022 Yang Z-Z, Kim H, Wu H, Tang X, Krull J, Mondello P, Villasboas J, Novak A and Ansell S. *T-cell phenotype varies in distinct tumor microenvironments and CD57+ Tfh cells are associated with disease progression and inferior survival in follicular lymphoma*. 105th Annual Meeting of AAI, Portland, OR. Presenter: Yang

- 2022 Krull AA, Bulur PA, **Krull JE**, Dudakovic A and Dietz AB. *Variations within and between GMP and non-GMP media formulations produce heterogeneity in the phenotype of clinical-grade adipose-derived mesenchymal stromal cells*. 30th International Society for Cell and Gene Therapy Annual Meeting, San Francisco, CA. Presenter: AA Krull
- 2022 Yang Z-Z, Kim HJ, Hongyan W, Tang X, **Krull J**, Mondello P, Villasboas J, Novak A and Ansell S. *T-cell phenotype and differentiation vary in the tumor microenvironment of follicular lymphoma and are associated with patient outcome*. 2022 AACR Annual Meeting, New Orleans, LA. Presenter: Yang
- 2022 Mondello P, Paludo J, Novak JP, Wenzl K, Jalali S, **Krull JE**, Braggio E, Dasari S, Manske MK, Abeykoon JA, Sarangi V, Kapoor P, Paulus A, Reeder CB, Ailawadhi S, Chanan-Khan AA, Kyle RA, Gertz MA, Yang Z-Z, Novak AJ and Ansell SM. *Molecular clusters and functional drivers of IgM monoclonal gammopathies*. 2022 AACR Annual Meeting, New Orleans, LA. Presenter: Mondello
- 2021 **Krull JE**, Wenzl K, Manske MK, Hopper MA, Larson MC, Sarangi V, Maurer MJ, Yang Z-Z, Rimsza LM, Link BK, Habermann TM, Ansell SM, King RL, Cerhan JR and Novak AJ. *Follicular Lymphoma Tumor-Cell Transcriptional Programs Associate with Distinct Somatic Alterations and Tumor-Immune Microenvironments*. 63rd ASH Annual Meeting, Atlanta, GA. Presenter: **Krull**
- 2021 Hopper MA, Wenzl K, Hartert KT, **Krull JE**, Novak JP, Manske MK, Serres MR, Sarangi V, Larson MC, Maurer MJ, Paludo J, McPhail ED, Habermann TM, Link BK, Rimsza LM, Ansell SM, Cerhan JR, Jevremovic D and Novak AJ. *Integration of tumor transcriptomic, genomic, and immune profiles reveals distinct populations of low-grade B-cell lymphomas with poor outcome*. 63rd ASH Annual Meeting, Atlanta, GA. Presenter: Hopper
- 2021 Yang Z-Z, Kim H, Wu H, Tang X, **Krull JE**, Villasboas J, Novak AJ and Ansell SM. *T-cell phenotype varies in distinct tumor microenvironments and CD57+ Tfh cells are associated with disease progression and inferior survival in follicular lymphoma*. 63rd ASH Annual Meeting, Atlanta, GA. Presenter: Yang
- 2021 **Krull JE**, Wenzl K, Manske M, Hopper MA, Larson MC, Sarangi V, Barman P, Serres MR, Khan S, Novak JP, Maurer MJ, Yang Z-Z, Rimsza L, Link BK, Habermann TM, Ansell SM, King RL, Cerhan JR and Novak AJ. *Somatic Alterations in Follicular Lymphoma Associate with Unique Tumor-Cell Transcriptional States and Tumor-Immune Microenvironments*. 16th International Conference on Malignant Lymphoma, Virtual Online. Presenter: **Krull**
- 2020 **Krull JE**, Wenzl K, Manske M, Hopper MA, Larson MC, Sarangi V, Maurer MJ, Yang Z-Z, Rimsza L, Link B, Habermann TM, Ansell SM, King RL, Cerhan JR and Novak AJ. *Global Transcriptional States of Follicular Lymphoma B Cells Highlight Distinct Groups of Tumor Identity Associated with Somatic Alterations and Tumor Microenvironment*. 62nd ASH Annual Meeting, Virtual Online. Presenter: **Krull**
- 2019 Hartert KT, Wenzl K, **Krull JE**, Manske M, Sarangi V, Asmann Y, Larson MC, Maurer MJ, Slager SL, Macon WR, King RL, Feldman AL, Gandhi AK, Link BK, Habermann TM, Yang ZZ, Ansell SM, Cerhan JR, Witzig TE, Nowakowski G, Novak AJ. *Genomic Analysis of R2CHOP-Treated DLBCL Reveals a High-Risk Population Driven by Inflammatory Pathways*. 61st ASH Annual Meeting, Orlando, FL. Presenter: Hartert
- 2019 Hartert KT, Wenzl K, **Krull JE**, Manske M, Sarangi V, Larson MC, Anagnostou T, McPhail ED, Link BK, Ansell SM, Cerhan JR, Jevremovic D, Novak AJ. *Integration of Genetic, Transcriptomic, and Immune Profiles Reveals Genomically-Distinct Populations in Low-Grade Lymphomas*. 61st ASH Annual Meeting, Orlando, FL. Presenter: Hartert

- 2019 Paludo J, Dasari S, Wenzl K, Jalali S, **Krull JE**, Manske M, Braggio E, Kapoor P, Paulus A, Ailawadhi S, Reeder CB, Rosenthal AC, Kyle RA, Gertz MA, Novak AJ, Ansell SM. *Long Non-Coding RNA Expression in Waldenstrom Macroglobulinemia and IgM Monoclonal Gammopathy of Undetermined Significance*. 61st ASH Annual Meeting, Orlando, FL. Presenter: Paludo
- 2019 Manso BA, **Krull JE**, Gwin K, Lothert P, Secreto CR, Ding W, Parikh SA, Novak AJ, Kay NE, Medina KL. *A Role for TNF- α in Chronic Lymphocytic Leukemia Bone Marrow Hematopoietic Dysfunction*. 61st ASH Annual Meeting, Orlando, FL. Presenter: Manso
- 2019 **Krull JE**, Wenzl K, Hartert K, Manske M, Sarangi V, Greipp P, Maurer M, Larson MC, Ansell S, McPhail E, Habermann T, King R, Cerhan J, Novak AJ. *Somatic copy number gains in MYC, BCL2, or BCL6, in addition to translocations, identifies a subset of aggressive Alternative-DH/TH DLBCL patients*. 24th European Hematology Association Annual Congress, Amsterdam, Netherlands. Presenter: **Krull**
- 2019 Wenzl K, Manske M, Hartert K, **Krull J**, Sarangi V, Greipp PT, Maurer MJ, Feldman AL, Ansell SM, Cerhan JR and Novak AJ. *Loss of 18q22.1-q23 is Significantly Associated with GCB-DLBCL and Failure to Achieve EFS24*. 24th European Hematology Association Annual Congress, Amsterdam, Netherlands. Presenter: Wenzl
- 2019 Schoon H, Krull JE, Strausbauch M, Villasboas JC, *Optimization of a Functional T Cell Panel for Mass Cytometry*, 2019 Experimental Biology Annual Meeting, Orlando, FL. Presenter: Schoon
- 2017 Albershardt TC, **Krull JE**, James RD, Berglund P, and ter Meulen J. *ZVex[®] and G100-based combination immunotherapy induces near complete regression of established glioma tumors in mice*. The 32nd Annual Conference of the Society for Immunotherapy of Cancer, National Harbor, MD. Presenter: Albershardt
- 2017 Albershardt TC, Bajaj A, Leleux J, Lin T, Reeves RS, Ngo LY, White R, **Krull JE**, James RD, ter Meulen J, Berglund P, *Transduction of MAGE-A1, A3, A4, A10 and IL-12 by ZVex[®], a dendritic cell targeting platform induces robust multi-antigen T cell immune responses without antigenic interference or immunodominance*. The 32nd Annual Conference of the Society for Immunotherapy of Cancer, National Harbor, MD. Presenter: Leleux
- 2015 Dorfman MD, **Krull JE**, Douglass JG, Damian V, Thaler JP. *Cx3cr1 signaling modulates microglial activation and protects against diet-induced obesity in female mice*, Keystone Symposia on Neural Control of Metabolic Physiology and Diseases, Snowbird UT. Presenter: Dorfman
- 2014 Dorfman MD, **Krull JE**, Scarlett J, Guyenet S, Damian V, Matsen M, Schwartz MW, Thaler JP. *Atypical Protein Kinase C in POMC Neurons Protects Against Diet-Induced Obesity*, American Diabetes Association's 74th Scientific Sessions, San Francisco, CA. Presenter: Dorfman

Presentations and Posters

- 2022 *Identifying Multi-Omic, Molecular Subtypes of DLBCL and FL, and Elucidating their Clinical and Biological Implications*. Oral Presentation, Mayo Clinical Graduate Program Public Thesis Presentation, Rochester, MN
- 2022 *Follicular Lymphoma Tumor-Cell Transcriptional Programs Associate with Distinct Somatic Alterations and Tumor-Immune Microenvironments*. Poster, MCGSBS Interview Weekend Symposium, Rochester, MN
- 2021 *Follicular Lymphoma Tumor-Cell Transcriptional Programs Associate with Distinct Somatic Alterations and Tumor-Immune Microenvironments*. Poster, 63rd ASH Annual Meeting, Atlanta, GA
- 2021 *Follicular Lymphoma Tumor-Cell Transcriptional Programs Associate with Distinct Somatic Alterations and Tumor-Immune Microenvironments*. Oral Presentation, Mayo Clinic Immunology Dept. Annual Retreat, Virtual Online
- 2021 *Follicular Lymphoma Tumor-Cell Transcriptional Programs Associate with Distinct Somatic Alterations and Tumor-Immune Microenvironments*. Poster, MCGSBS Annual Symposium, Rochester, MN

- 2021 *Follicular Lymphoma Tumor B cell Transcriptional States: Genetic Causes and Relationship to the TME*. Oral Presentation, Annual Works in Progress Seminar, Rochester, MN
- 2021 *Somatic alterations in follicular lymphoma associate with unique tumor-cell transcriptional states and tumor-immune microenvironments*. Oral Presentation, 16th International Conference on Malignant Lymphoma, Virtual Online
- 2021 *Global transcriptional states of follicular lymphoma B cells highlight distinct groups of tumor identity associated with somatic alterations and tumor microenvironment*. Poster, MCGSBS Interview Weekend Symposium, Rochester, MN
- 2020 *Global transcriptional states of follicular lymphoma B cells highlight distinct groups of tumor identity associated with somatic alterations and tumor microenvironment*. Poster, American Society of Hematology 62nd Annual Meeting, Virtual Online
- 2020 *Global transcriptional states of follicular lymphoma B cells highlight distinct groups of tumor identity associated with somatic alterations and tumor microenvironment*. Poster, MCGSBS Annual Symposium, Rochester, MN
- 2020 *Follicular lymphoma tumor-cell transcriptional States: causes and consequences*. Oral Presentation, Annual Works in Progress Seminar, Rochester, MN
- 2020 *Data Science Safety*. Course Lecture, Introduction to Bioinformatics Course, Rochester, MN
- 2020 *Genomic and transcriptomic factors associated with the follicular lymphoma immune microenvironment*. Poster, MCGSBS Interview Weekend Symposium, Rochester, MN
- 2019 *Somatic copy number gains in MYC, BCL2, or BCL6, in addition to translocations, identifies a subset of aggressive alternative-DH/TH DLBCL patients*. Poster, MCGSBS Annual Symposium, Rochester, MN
- 2019 *Genomic and transcriptomic factors associated with the follicular lymphoma immune microenvironment*. Poster, Mayo Clinic/University of Minnesota Joint Immunology Retreat, Chaska, MN
- 2019 *Somatic copy number gains in MYC, BCL2, or BCL6, in addition to translocations, identifies a subset of aggressive alternative-DH/TH DLBCL patients*. Poster, European Hematology Association Annual Meeting, Amsterdam, NL
- 2019 *Genomic, transcriptomic, and immune profiling of lymphoma*. Oral Presentation, Annual Works in Progress Seminar, Rochester, MN
- 2019 *Tumor intrinsic determinants of tumor microenvironment composition in follicular lymphoma*. Poster, MCGSBS Interview Weekend Symposium, Rochester, MN
- 2018 *Tumor intrinsic determinants of tumor microenvironment composition in follicular lymphoma*. Poster, MCGSBS Annual Symposium, Rochester, MN
- 2018 *Tumor intrinsic determinants of tumor microenvironment composition in follicular lymphoma*. Poster, Immunology Department Retreat, Rochester, MN
- 2018 *Anti-angiogenic treatment, in conjunction with TMEV-OVA, provides extended survival in GL261 glioma bearing mice*. Poster, MCGSBS Interview Weekend Symposium, Rochester, MN
- 2017 *Anti-angiogenic treatment, in conjunction with TMEV-OVA, provides extended survival in GL261 glioma bearing mice*. Poster, MCGSBS Annual Symposium, Rochester, MN
- 2017 *Anti-angiogenic treatment, in conjunction with TMEV-OVA, provides extended survival in GL261 glioma bearing mice*. Poster, Immunology Department Retreat, Rochester, MN
- 2015 *Cx3cr1 signaling modulates microglial activation and protects against diet-induced obesity in female mice*. Poster, University of Washington Annual Undergraduate Research Symposium, Seattle, WA

Honors & Awards

Fellowships, Grants, Internships

Pelotonia Institute for Immune-Oncology Post-Doctoral Research	June 2023
- Competitive 2-year Research Fellowship	
Swiss Cancer Research Foundation Young Investigator Educational Grant	May 2021
- International Conference on Malignant Lymphoma	
Immunology Department T32 Grant – Pre-doctoral awardee	August 2019

Initiative for Maximizing Student Development

August 2017

National & University Awards

Mary Gates Research Scholar – University of Washington

January 2015

President's List – 2 Quarters

Spring 2013-Summer 2013

Alpha Chi Sigma Chemical Sciences Scholarship

April 2011

Honors Program Appointment – University of Iowa

January 2011

Dean's List – 1 Semester, 3 Quarters

Fall 2010 – Winter 2015

ACE Scholarship - NIACC

August 2010

Distinguished Student Award - NIACC

December 2010

Honorable Memberships

International Society for Computational Biology

June 2023

European Hematology Association

March 2019

American Society for Hematology

July 2018

Beta Beta Beta Biology Honor Society

April 2014

Alpha Chi Sigma Professional Chemistry Fraternity

April 2011

Training & Skills

Programming Languages

R, Python (NumPy, Pandas, Scikit-learn, Tensorflow, PyTorch), Matlab

Bioinformatics

Whole exome sequencing, genomic copy number analysis, bulk RNAseq, single-cell RNAseq/ATACseq, microarray, mass cytometry, multiplexed immunohistochemistry

Data Science

Supervised machine learning (regression and classification prediction), unsupervised machine learning (factorization, clustering, networks), statistics, data cleaning, data visualization

In Vivo***Surgical Techniques***

Stereotaxic craniotomies, cannula/device intracranial implantation, intracranial injections, transcardial perfusion, tumor resection, tissue collection

Animal-related Techniques

Post-operative care, genotyping, injections (SQ, IP, RO, IV), bleeds (facial, RO, IV), euthanization, transgenic mice, pharmacological manipulation, tumor growth monitoring, irradiation, adoptive cell transfer

In Vitro/Molecular***Cellular Techniques***

Primary tissue and immortalized cell culture, microscopy, competitive growth assays, mixed lymphocyte reactions, single cell sorting, intracellular cytokine staining, flow cytometry, plasmid transfection

<i>Histological Techniques</i>	Tissue sectioning (cryostat and microtome), immunohistochemistry, <i>ex vivo</i> primary cell isolation and culture
<i>Molecular Techniques</i>	Western blotting, PCR, gel electrophoresis, DNA/RNA extraction, qRT-PCR, cloning, ELISA, ELISpot
<i>Viral Techniques</i>	Virus preparation and purification (lentivirus, Vaccinia), plaque assay

Scientific Writing

Manuscript preparation, manuscript reviews, grant preparation, IACUC protocols

Leadership Roles, Outreach Efforts, and Community Service

Immune-Oncology Informatics Group (OSU) Organizer	2023 – Present
Organize regular meetings and project management	
Peletonia Research Scholar - Volunteering	2023 – Present
Regular volunteer opportunities for donors and patient advocates	
Curling Club of Rochester, MN, Board Member (non-profit entity)	2018 – 2023
At-large Board Member, Treasurer, Head Ice Technician, 2020 Volunteer of the Year	
Hematology Diversity and Inclusion Committee	2018 – 2023
Serve as at-large member, evaluate diversity climate survey results, develop improvement strategies, provide diversity oriented social events for division of Hematology.	
Mayo Clinic Graduate School Student Council	2019 – 2020
Education Committee Representative	
Attended Executive Education Meetings and advocated for the graduate student body during discussions on critical education decisions.	
SACNAS Annual Meeting – IMSD Representative Recruiter	2019
Society for Advancement of Chicanos/Hispanics and Native Americans in Science Annual Conference	
Invited by the directors of the Initiative to Maximize Student Diversity (IMSD) at Mayo Clinic.	
Discussed graduate school options with prospective students who would qualify for IMSD funding.	
Panelist – Imposter Syndrome Panel Discussion	2019
Invited by the directors of the Initiative to Maximize Student Diversity (IMSD) at Mayo Clinic.	
Organization Committee Member – 2nd Bi-annual SITDP Diversity Conference	2018-2019
One of 5 IMSD students to plan, organize, and lead Mayo Clinic's 2 nd Science Diversity conference (Scientific Innovations Through Diverse Perspectives) for PREP and graduate students in the US.	
Attended by >100 students from 21 states and provided free travel/registration for 24 students.	
Initiative for Maximizing Student Development (IMSD)	2017 – 2019
NIH funded program to provide extra resources for students of diversity in their graduate studies.	
Mentored students, reviewed practice presentations and grants.	
Alpha Chi Sigma Chemistry Fraternity, Alpha Theta Chapter	2011 – Present
Social Chair and 2012 Conclave Media Chair	
Outreach Volunteer for activities in local elementary schools and on campus	