

Curriculum vitae

Date Prepared: January 14, 2022
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Education

Year	Degree	Field of Study	Institution
2008	BS	Statistics	State University of NY at Stony Brook
2008	BS	Biochemistry	State University of NY at Stony Brook
2015	PhD	Genomics (Adv: John Hogenesch, PhD)	University of Pennsylvania
2016	MD	-	University of Pennsylvania

Postdoctoral Training

Year(s)	Titles	Specialty/Discipline	Institution
2016-2019	Resident	Pathology	Washington University in St. Louis
2017-2018	Chief Resident	Clinical Pathology	Washington University in St. Louis
2019-2020	Fellow	Transfusion Medicine	Washington University in St. Louis

Current Licensure and Certification

Licensure

Texas (2021-Present)

Board and Other Certification

Clinical Pathology-American Board of Pathology (2019)

Transfusion Medicine and Blood Banking-American Board of Pathology (2020)

Physician Builder-Epic Systems (2021)

Honors and Awards

Year	Name of Honor/Award	Awarding Organization
2004	Presidential Full Scholarship	State University of NY at Stony Brook
2005	Undergraduate Research Scholarship	Howard Hughes Medical Institute
2007	Honors College Distinguished Thesis	State University of NY at Stony Brook
2008	Intramural Research Training Award	National Institutes of Health

2009	Medical Scientist Training Award	University of Pennsylvania
2015	William F Jeffers Prize	University of Pennsylvania
2016	Best Clinical Pathology Oral Presentation	Washington University in St. Louis
2017	Paul E. Strandjord Young Investigator	Acad. of Clin. Lab. Physicians & Scientists
2018	Abstract Achievement Award	American Society of Hematology
2019	Best Clinical Pathology Oral Presentation	Washington University in St. Louis
2020	Big Ideas COVID-19 Innovation Finalist	Washington University in St. Louis

Faculty Academic Appointments

Year(s)	Academic Title	Department	Academic Institution
2020-2021	Instructor	Pathology	Washington University in St. Louis
2021-2022	Assistant Professor	Pathology	Washington University in St. Louis
2022-Present	Assistant Professor	Pathology	UT Southwestern Medical Center

Appointments at Hospitals/Affiliated Institutions

<u>Current</u>		
Year(s)	Position Title	Institution
2021-2022	Medical Director of SPEP Testing	Barnes-Jewish Hospital
2022-Present	Director of Special Informatics Projects	UT Southwestern, Pathology

Other Professional Positions

Year(s)	Position Title	Institution
2003-2007	Software Developer	Cold Spring Harbor Laboratory
2007-2008	Research Assistant	Cold Spring Harbor Laboratory

Professional Societies

Dates	Society Name, member
2016-Present	American Medical Association
2016-Present	Academy of Clinical Laboratory Physicians and Scientists
2017-Present	Association for Pathology Informatics
2019-Present	College of American Pathologists
2019-Present	AABB (formerly: American Association of Blood Banks)

Grant Support

Year(s)	Amount	Grantor	Role	Identifier
Title				
2020-2021	\$195,802	NIH	Co-investigator	R21 CA256577

Applying Deep Learning and Fourier Ptychography for Automated Enumeration of Cancer Cellularity in Digital Pathology

Teaching Activities

Year(s)	Role	Activity
<u>Medical student small group teaching</u>		
2018-2020	Instructor	Blood banking workshop (2 nd year medical students)
<u>Medical student rotations</u>		
2020-2021	Faculty	Pathology Informatics (senior resident elective)
<u>Resident and fellow teaching</u>		
2020-2021	Lecture Series	Plasma Exchange for Antibody-Mediated Rejection of Heart Transpl.
2020-2022	Lecture Series	Databases, Statistics, and Machine Learning for Physicians
2021-2022	Instructor	Serum protein electrophoresis workshop

Invited Lectures

Date(s)	Location	Event
Title		
<u>National</u>		
2017-05-23	Pittsburgh, PA	Association for Pathology Informatics, 2017 Summit
A Mobile App to Calculate Minimum Blood Volume Needed for Testing		
2017-06-16	New Haven, CT	Acad. of Clin. Lab. Physicians & Scientists, 52 nd Annual Mtg.
Real-World Glucose Meter Accuracy, ICU vs. non-ICU		
<u>Local</u>		
2017-04-06	St. Louis, MO	Washington University Pathology Grand Rounds
Visualizing New Sepsis Definitions for Decision Support		
2017-05-01	St. Louis, MO	Washington University Trainee Research Day
Performance of a Modern Glucose Meter in ICU and Non-ICU Inpatients: Three Years of Real-World Paired Meter and Central Laboratory Results		
2019-06-11	St. Louis, MO	Washington University Trainee Research Day
Association Between the DRB1*03:01-DQB1*02:01 Haplotype and Heparin-Induced Thrombocytopenia (HIT) Antibodies		
2020-03-19	St. Louis, MO	Washington University Pathology Grand Rounds
Improving PRBC Utilization in BJH Clinical Services		

Bibliography

Peer-Reviewed Publications

Original Research Articles

1.	Sebat J, Lakshmi B, Malhotra D, Troge J, Lese-Martin C, Walsh T, Yamrom B, Yoon S, Krasnitz A, Kendall J, Leotta A, Pai D, Zhang R, Lee YH, Hicks J, Spence SJ, Lee AT, Puura K, Lehtimäki T, Ledbetter D, Gregersen PK, Bregman J, Sutcliffe JS, Jobanputra V, Chung W, Warburton D, King MC, Skuse D, Geschwind DH, Gilliam TC, Ye K, Wigler M. Strong association of de novo copy number mutations with autism. <i>Science</i> . 2007 Apr 20;316(5823):445-9. doi: 10.1126/science.1138659. Epub 2007 Mar 15. PMID: 17363630; PMCID: PMC2993504.
2.	Lahens NF, Kavakli IH, Zhang R, Hayer K, Black MB, Dueck H, Pizarro A, Kim J, Irizarry R, Thomas RS, Grant GR, Hogenesch JB. IVT-seq reveals extreme bias in RNA sequencing. <i>Genome Biol</i> . 2014 Jun 30;15(6):R86. doi: 10.1186/gb-2014-15-6-r86. PMID: 24981968; PMCID: PMC4197826.
3.	Zhang R, Lahens NF, Ballance HI, Hughes ME, Hogenesch JB. A circadian gene expression atlas in mammals: implications for biology and medicine. <i>Proc Natl Acad Sci U S A</i> . 2014 Nov 11;111(45):16219-24. doi: 10.1073/pnas.1408886111. Epub 2014 Oct 27. PMID: 25349387; PMCID: PMC4234565.
4.	Zhang R, Podtelezhnikov AA, Hogenesch JB, Anafi RC. Discovering Biology in Periodic Data through Phase Set Enrichment Analysis (PSEA). <i>J Biol Rhythms</i> . 2016 Jun;31(3):244-57. doi: 10.1177/0748730416631895. Epub 2016 Mar 8. PMID: 26955841.
5.	Braxton DR, Zhang R, Morrisette JD, Loaiza-Bonilla A, Furth EE. Clinicopathogenomic analysis of mismatch repair proficient colorectal adenocarcinoma uncovers novel prognostic subgroups with differing patterns of genetic evolution. <i>Int J Cancer</i> . 2016 Oct 1;139(7):1546-56. doi: 10.1002/ijc.30196. Epub 2016 Jun 1. PMID: 27194209.
6.	Zhang R, Isakow W, Kollef MH, Scott MG. Performance of a Modern Glucose Meter in ICU and General Hospital Inpatients: 3 Years of Real-World Paired Meter and Central Laboratory Results. <i>Crit Care Med</i> . 2017 Sep;45(9):1509-1514. doi: 10.1097/CCM.0000000000002572. PMID: 28640025.
7.	Zhang R, Duffy BF, Lange V, Eby CS, Liu C. Association between the HLA-DRB1*03:01-DQB1*02:01 haplotype and PF4/heparin antibodies. <i>Blood Adv</i> . 2019 Oct 22;3(20):3136-3142. doi: 10.1182/bloodadvances.2019000311. PMID: 31648318; PMCID: PMC6849947.
8.	Zhang R, Dahl AB, Marchant B, Jackups RR Jr, Karnes HE, Shah P, Dynis M, Thibodeaux SR, Despotis GJ. Optimizing management of replacement fluids for therapeutic plasma exchange: Use of an automated mathematical model to predict post-procedure fibrinogen and antithrombin levels in high-risk patients. <i>J Clin Apher</i> . 2020 Jan;35(1):41-49. doi: 10.1002/jca.21758. Epub 2019 Nov 12. PMID: 31713919.
9.	Zhang R, Narra VR, Kansagra AP. Large-Scale Assessment of Scan-Time Variability and Multiple-Procedure Efficiency for Cross-Sectional Neuroradiological Exams in Clinical Practice. <i>J Digit Imaging</i> . 2020 Feb;33(1):143-150. doi: 10.1007/s10278-019-00252-w. PMID: 31292770; PMCID: PMC7064664.
10.	Zhang KW, Zhang R, Deych E, Stockerl-Goldstein KE, Gorcsan J 3rd, Lenihan DJ. A multi-modal diagnostic model improves detection of cardiac amyloidosis among patients with diagnostic confirmation by cardiac biopsy. <i>Am Heart J</i> . 2021 Feb;232:137-145. doi: 10.1016/j.ahj.2020.11.006. Epub 2020 Nov 17. PMID: 33212046.
11.	Raju S, Anderson NW, Robinson E, Squires C, Wallace MA, Zhang R, Burnham CD, Parikh BA. Comparison of 6 SARS-CoV-2 Molecular Methods and Correlation With the Cycle Threshold Distribution in Clinical Specimens. <i>J Appl Lab Med</i> . 2021 Nov 1;6(6):1452-1462. doi: 10.1093/jalm/jfab086. PMID: 34289054; PMCID: PMC8436400.

12.	Jackups R, Scott MG, Zhang R. Clinical Decision Support Rapidly Improves Test Utilization During a Nationwide Phlebotomy Tube Shortage. Clin Chem. 2021 Oct 1;67(10):1426-1427. doi: 10.1093/clinchem/hvab139. PMID: 34410344.
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Reviews, Chapters, Monographs and Editorials

1.	Patel B, Zhou A, Saif Ur Rehman S, Zhang R. Washington Manual of Medical Therapeutics, 37th ed. Philadelphia: Wolters Kluwer; 2021. Chapter 21, Hematologic Disorders and Transfusion Therapy.
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Case Reports

1.	Zhang R, Thibodeaux SR. Transfusion Support of Hematopoietic Progenitor Cell Transplant Recipients. ASCP Case Rep Transfus Med. 2020;TM2020.
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Proceedings of Meetings

1.	Zhang R, Brown S. A Mobile App to Calculate Minimum Blood Volume Needed for Testing. Journal of Pathology Informatics. 2017;8:26.
2.	Zhang R, Scott MG. Real-World Glucose Meter Accuracy, ICU vs Non-ICU. American Journal of Clinical Pathology. 2018;149:S168.
3.	Zhang R, Duffy B, Lange V, Eby CS, Liu C. Autoimmune-Associated Human Leukocyte Antigen (HLA) Alleles As Risk Factors for Heparin-Induced Thrombocytopenia (HIT) Antibodies. Blood. 2018;132(Suppl 1), 3737.
4.	Tang MS, Zhang R, Jackups R Jr. Real Time Clinical Decision Support Leads to Rapid Improvement in RBC Ordering Practices during the COVID-19 Pandemic. Transfusion. 2020;60:84A-84A.
5.	Jin LX, Zhang R, Keith A, Emmert DA, Damiano M, Maniar H. Why Transfusion Protocols Fail: Impact of ICU Provider Survey on Postoperative Blood Utilization After Cardiac Surgery. 57th Annual Conference of the Society of Thoracic Surgeons [Virtual conference]. 2021, Jan 29-31.
6.	Schneider T, Zhang R, Phelan D, Wetter L, Liu C. Computer-assisted, algorithm-based Program For the Investigation of New HLA Antibody Sensitizations. AABB 2021 [Virtual conference]. 2021, Oct 17-19.

Non-peer reviewed scientific or medical publications/materials in print or other media

1.	Zhang R. Phase Set Enrichment Analysis (PSEA) [Software]. 2015. github.com/ranafi/PSEA
2.	Zhang R. Tinyblood [Mobile app]. 2017. Apple iOS App Store.
3.	Zhang R. Tinyblood [Mobile app]. 2017. Google Play App Store.
4.	Zhang R. Plexfactor [Mobile app]. 2018. Apple iOS App Store.
5.	Zhang R. Plexfactor [Mobile app]. 2018. Google Play App Store.