

# Matthew Steven Krantz, MD

Division of Allergy, Pulmonary, and Critical Care Medicine  
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## Education

2012 BS University of North Carolina, Chapel Hill, NC  
Major - Biology with distinction  
Minors - Chemistry, Writing for the Screen and Stage  
2016 MD University of North Carolina School of Medicine, Chapel Hill, NC

## Post-Graduate Training

2016 - 2020 Internship/Residency  
Internal Medicine/Pediatrics  
Vanderbilt University Medical Center  
Nashville, TN  
2020 - 2024 Fellowship  
Allergy/Immunology  
Vanderbilt University Medical Center  
Nashville, TN

## Research Interests

- Immunogenomics

## Teaching Interests

- Clinical Drug Allergy:

## Academic Appointments

2025 - Present Assistant Professor of Medicine and Biomedical Informatics  
Vanderbilt University, Nashville, TN  
2024 - 2025 Instructor in Medicine and Biomedical Informatics  
Vanderbilt University, Nashville, TN

## **Licensure and Certification**

- American Board of Allergy and Immunology (2022-Present)
- American Board of Internal Medicine (2020-Present)
- American Board of Pediatrics (2020-Present)
- Tennessee Medical License (2019-Present)

## **Professional Organizations**

- American Academy of Allergy, Asthma, and Immunology
- American College of Allergy, Asthma, and Immunology
- American Society of Human Genetics
- American Medical Informatics Association
- Pharmacogenomics Global Research Network
- Society for Investigative Dermatology
- American Association of Immunologists

## **Professional Activities**

### **Intramural**

- Neilson Society Steering Committee Member (2025-Present)

### **Extramural**

- AAAAI Adverse Reactions to Drugs, Biologicals, and Vaccines Committee Member (2021-Present)
- AAAAI Clinical Science Workgroup (Drug Allergy) for 2023 Annual Meeting (2021-2023)
- Human Diagnosis Project, Editor, Pediatrics Section (2020-2024)

## **Scientific Reviewer for Peer-Reviewed Journals**

- The Journal of Allergy and Clinical Immunology: In Practice
- JAMA Internal Medicine
- British Journal of Dermatology

## **Honors, Awards, and Recognitions**

- AAAAI Foundation Faculty Development Award (2024)
- AAAAI Faculty Development Program Participant (2022)
- Sam Marney Award for Excellence in Allergy/Immunology Training (2022)
- AAAAI Chrysalis Project Participant (2019)
- Alpha Omega Alpha (2015)
- Gold Humanism Honor Society (2015)

- American College of Medical Genetics Summar Scholar (2013)
- Phi Beta Kappa (2011)
- Eagle Scout (2008)

## Teaching Activities

## Research Program

### Current Research Grants & Contracts Funded

1. NIH K08 AI185260. "[A Translational Bioinformatics Approach for Phenotyping and Genetic Risk of Severe Cutaneous Adverse Drug Reactions](#)". Source of Support: NIAID. PI: Matthew S. Krantz, MD. Total Award Amount: \$932,536 . Project Start and End Date: 01/15/25 - 12/31/29
2. AAAAI Foundation Faculty Development Award. "[A Translational Bioinformatics Approach for Deep Phenotyping and Genetic Risk of Severe Cutaneous Adverse Drug Reactions](#)". Source of Support: American Academy of Allergy, Asthma & Immunology. PI: Matthew S. Krantz, MD. Total Award Amount: \$300,000 . Project Start and End Date: 07/01/24 - 06/30/27

## Articles in Peer-Reviewed Journals

### Original Research

1. Moraczewski J, Lee R, Koo G, **Krantz MS**, Allocco C, Phillips EJ, Stone CA Jr. Direct Oral Challenges Safely Reduce the Burden of Low-Risk Cephalosporin Allergy Labels. *J Allergy Clin Immunol Pract*. 2025 Jun;S2213-2198(25)00531-8. DOI: [10.1016/j.jaip.2025.05.054](#). PMID: 40484351.
2. Gardner J, Martinez-Rivera S, Line J, Thomson P, Clarke E, Gibson A, **Krantz MS**, Arden-Jones M, Phillips EJ, Naisbitt DJ. Elucidating CD4+ and CD8+ T-cell involvement in patients with vancomycin-induced DRESS. *Toxicol Sci*. 2025 May;27:kfaf074. DOI: [10.1093/toxsci/kfaf074](#). PMID: 40424455.
3. **Krantz MS**, Lemoine C, Zhou L, King AJ, Kroshinsky D, Phillips EJ, Blumenthal KG. Specific clinical features define HLA-A\*32:01-positive vancomycin drug reaction with eosinophilia and systemic symptoms: A multi-institution cross-sectional study. *J Allergy Clin Immunol Pract*. 2025 May;S2213-2198(25)00492-1. DOI: [10.1016/j.jaip.2025.05.027](#). PMID: 40412613.
4. Xin Y, Grabowska ME, Gangireddy S, **Krantz MS**, Kerchberger EV, Dickson A, Feng Q, Zhi-jun Y, Wei WQ. Improving topic modeling performance on social media through semantic relationships within biomedical terminology. *PLoS One*. 2025 Feb;20(2):e0318702. DOI: [10.1371/journal.pone.0318702](#). PMID: 39982945. PMCID: PMC11845042.
5. Mukherjee EM, Gibson A, **Krantz MS**, Gangula R, Palubinsky AM, Boyd AS, Zwerner JP, Dewan AK, Nakkam N, Konvinse KC, Li Y, Ram R, Chopra A, Phillips EJ. Single-cell immunopathology of recurrent acute generalized exanthematous pustulosis associated with vancomycin. *J Allergy Clin Immunol Glob*. 2025 Jan;4(2):100426. DOI: [10.1016/j.jacig.2025.100426](#). PMID: 40008097. PMCID: PMC11851205.

6. Yan C, Ong HH, Grabowska ME, **Krantz MS**, Su WC, Dickson AL, Peterson JF, Feng Q, Roden DM, Stein CM, Kerchberger VE, Malin BA, Wei WQ. Large language models facilitate the generation of electronic health record phenotyping algorithms. *J Am Med Inform Assoc*. 2024 Sep;31(9):1994-2001. DOI: [10.1093/jamia/ocae072](https://doi.org/10.1093/jamia/ocae072). PMID: 38613820. PMCID: PMC11339509.
7. Gardner J, Hammond S, Jensen R, Gibson A, **Krantz MS**, Ardern-Jones M, Phillips EJ, Pirmohamed M, Chadwick AE, Betts C, Naisbitt DJ. Glycolysis: An early marker for vancomycin-specific T-cell activation. *Clin Exp Allergy*. 2024 Jan;54(1):21-33. DOI: [10.1111/cea.14423](https://doi.org/10.1111/cea.14423). PMID: 38177093. PMCID: PMC10953384.
8. Waldron JL, Rose M, Vogrin S, **Krantz MS**, Bolotte R, Phillips EJ, Trubiano JA. Development and Validation of a Sulfa Antibiotic Allergy Clinical Decision Rule. *JAMA Netw Open*. 2023 Jun;6(6):e2316776. DOI: [10.1001/jamanetworkopen.2023.16776](https://doi.org/10.1001/jamanetworkopen.2023.16776). PMID: 37273210. PMCID: PMC10242418.
9. Greenhawt M, Shaker M, Golden DBK, Abrams EM, Blumenthal KG, Wolfson AR, Stone CA Jr, **Krantz MS**, Chu DK, Dwamena BA. Diagnostic accuracy of vaccine and vaccine excipient testing in the setting of allergic reactions to COVID-19 vaccines: A systematic review and meta-analysis. *Allergy*. 2023 Jan;78(1):71-83. DOI: [10.1111/all.15571](https://doi.org/10.1111/all.15571). PMID: 36321821. PMCID: PMC9878056.
10. Stone CA Jr, Robinson LB, Li L, **Krantz MS**, Kwah JH, Ortega G, Mancini C, Wolfson AR, Saff RR, Samarakoon U, Hong DI, Koo G, Chow TG, Gruchalla R, Liao JX, Kuster JK, Price C, Ahola C, Khan DA, Phillips EJ, Banerji A, Blumenthal KG. Clinical Phenotypes of Immediate First-Dose Reactions to mRNA COVID-19: A Multicenter Latent Class Analysis. *J Allergy Clin Immunol Pract*. 2023 Feb;11(2):458-465.e1. DOI: [10.1016/j.jaip.2022.08.048](https://doi.org/10.1016/j.jaip.2022.08.048). PMID: 36108922. PMCID: PMC9468049.
11. Chu DK, Abrams EM, Golden DBK, Blumenthal KG, Wolfson AR, Stone CA Jr, **Krantz MS**, Shaker M, Greenhawt M. Risk of Second Allergic Reaction to SARS-CoV-2 Vaccines: A Systematic Review and Meta-analysis. *JAMA Intern Med*. 2022 Apr ;182(4):376-385. DOI: [10.1001/jamainternmed.2021.8515](https://doi.org/10.1001/jamainternmed.2021.8515). PMID: 35188528. PMCID: PMC8861900.
12. Bruusgaard-Mouritsen MA, Koo G, Heinrichsen AS, Melchior BB, **Krantz MS**, Plager JH, Boxer M, Phillips EJ, Stone CA Jr, Garvey LH. Janssen COVID-19 vaccine tolerated in 10 patients with confirmed polyethylene glycol allergy. *J Allergy Clin Immunol Pract*. 2022 Mar;10(3):859-862. DOI: [10.1016/j.jaip.2021.12.025](https://doi.org/10.1016/j.jaip.2021.12.025). PMID: 34979336. PMCID: PMC8719916.
13. **Krantz MS**, Kwah JH, Stone CA Jr, Phillips EJ, Ortega G, Banerji A, Blumenthal KG. Safety Evaluation of the Second Dose of Messenger RNA COVID-19 Vaccines in Patients With Immediate Reactions to the First Dose. *JAMA Intern Med*. 2021 Nov ;181(11):1530-1533. DOI: [10.1001/jamainternmed.2021.3779](https://doi.org/10.1001/jamainternmed.2021.3779). PMID: 34309623. PMCID: PMC8314170.
14. **Krantz MS**, Stone CA Jr, Rolando LA, Nobis AE, Koo G, Corey KB, Bluestein SB, Staso PJ, Campbell EM, Phillips EJ. An academic hospital experience screening mRNA COVID-19 vaccine risk using patient allergy history. *J Allergy Clin Immunol Pract*. 2021 Oct;9(10):3807-3810. DOI: [10.1016/j.jaip.2021.07.010](https://doi.org/10.1016/j.jaip.2021.07.010). PMID: 34293499. PMCID: PMC8288228.
15. **Krantz MS**, Bruusgaard-Mouritsen MA, Koo G, Phillips EJ, Stone CA Jr, Garvey LH. Anaphylaxis to the first dose of mRNA SARS-CoV-2 vaccines: Don't give up on the second dose. *Allergy*. 2021 Sep;76(9):2916-2920. DOI: [10.1111/all.14958](https://doi.org/10.1111/all.14958). PMID: 34028041. PMCID: PMC8222898.
16. Yu RJ, **Krantz MS**, Phillips EJ, Stone CA Jr. Emerging Causes of Drug-Induced Anaphylaxis: A Review of Anaphylaxis-Associated Reports in the FDA Adverse Event Reporting System (FAERS). *J Allergy Clin Immunol Pract*. 2021 Feb;9(2):819-829.e2. DOI:

- [10.1016/j.jaip.2020.09.021](https://doi.org/10.1016/j.jaip.2020.09.021). PMID: 32992044. PMCID: PMC7870524.
17. **Krantz MS**, Stone CA Jr, Yu R, Adams SN, Phillips EJ. Criteria for intradermal skin testing and oral challenge in patients labeled as fluoroquinolone allergic. *J Allergy Clin Immunol Pract*. 2021 Feb;9(2):1024-1028.e3. DOI: [10.1016/j.jaip.2020.09.017](https://doi.org/10.1016/j.jaip.2020.09.017). PMID: 32980582. PMCID: PMC8454706.
  18. **Krantz MS**, Liu Y, Phillips EJ, Stone CA Jr. Anaphylaxis to PEGylated liposomal echocardiogram contrast in a patient with IgE-mediated macrogol allergy. *J Allergy Clin Immunol Pract*. 2020 Apr;8(4):1416-1419.e3. DOI: [10.1016/j.jaip.2019.12.041](https://doi.org/10.1016/j.jaip.2019.12.041). PMID: 31954852. PMCID: PMC7263401.
  19. **Krantz MS**, Stone CA Jr, Abreo A, Phillips EJ. Oral challenge with trimethoprim- sulfamethoxazole in patients with “sulfa” antibiotic allergy. *J Allergy Clin Immunol Pract*. 2020 Feb;8(2):757-760.e4. DOI: [10.1016/j.jaip.2019.07.003](https://doi.org/10.1016/j.jaip.2019.07.003). PMID: 31319222. PMCID: PMC6960372.
  20. Stone CA Jr, Liu Y, Relling MV, **Krantz MS**, Pratt AL, Abreo A, Hemler JA, Phillips EJ. Immediate Hypersensitivity to Polyethylene Glycols and Polysorbates: More Common Than We Have Recognized. *J Allergy Clin Immunol Pract*. 2019 May-Jun;7(5):1533-1540.e8. DOI: [10.1016/j.jaip.2018.12.003](https://doi.org/10.1016/j.jaip.2018.12.003). PMID: 30557713. PMCID: PMC6706272.
  21. Yang W, Wang L, Roehn G, Pearlstein RD, Ali-Osman F, Pan H, Goldbrunner R, **Krantz MS**, Harms C, Paschen W. Small ubiquitin-like modifier 1-3 conjugation [corrected] is activated in human astrocytic brain tumors and is required for glioblastoma cell survival. *Cancer Sci*. 2013 Jan;104(1):70-7. DOI: [10.1111/cas.12047](https://doi.org/10.1111/cas.12047). PMID: 23078246. PMCID: PMC3608476.

## Reviews

1. **Krantz MS**, Phillips EJ. Drug Reaction With Eosinophilia and Systemic Symptoms. *JAMA Dermatol*. 2023 Mar;159(3):348. DOI: [10.1001/jamadermatol.2022.4519](https://doi.org/10.1001/jamadermatol.2022.4519). PMID: 36630118.
2. Gibson A, Deshpande P, Campbell CN, **Krantz MS**, Mukherjee E, Mockenhaupt M, Pirmohamed M, Palubinsky AM, Phillips EJ. Updates on the immunopathology and genomics of severe cutaneous adverse drug reactions. *J Allergy Clin Immunol*. 2023 Feb;151(2):289-300.e4. DOI: [10.1016/j.jaci.2022.12.005](https://doi.org/10.1016/j.jaci.2022.12.005). PMID: 36740326. PMCID: PMC9976545.
3. **Krantz MS**, Kerchberger VE, Wei WQ. Novel Analysis Methods to Mine Immune-Mediated Phenotypes and Find Genetic Variation Within the Electronic Health Record (Roadmap for Phenotype to Genotype: Immunogenomics). *J Allergy Clin Immunol Pract*. 2022 Jul;10(7):1757- 1762. DOI: [10.1016/j.jaip.2022.04.016](https://doi.org/10.1016/j.jaip.2022.04.016). PMID: 35487368. PMCID: PMC9624141.
4. Bruusgaard-Mouritsen MA, Nasser S, Garvey LH, **Krantz MS**, Stone CA Jr. Anaphylaxis to Excipients in Current Clinical Practice: Evaluation and Management. *Immunol Allergy Clin North Am*. 2022 May;42(2):239-267. DOI: [10.1016/j.iac.2021.12.008](https://doi.org/10.1016/j.iac.2021.12.008). PMID: 35469617. PMCID: PMC9907103.
5. Caballero ML, **Krantz MS**, Quirce S, Phillips EJ, Stone CA Jr. Hidden Dangers: Recognizing Excipients as Potential Causes of Drug and Vaccine Hypersensitivity Reactions. *J Allergy Clin Immunol Pract*. 2021 Aug;9(8):2968-2982. DOI: [10.1016/j.jaip.2021.03.002](https://doi.org/10.1016/j.jaip.2021.03.002). PMID: 33737254. PMCID: PMC8355062.

## Invited Editorials

1. **Krantz MS**, Phillips EJ. Drug Reaction With Eosinophilia and Systemic Symptoms. *JAMA Dermatol*. 2023 Mar;159(3):348. DOI: [10.1001/jamadermatol.2022.4519](https://doi.org/10.1001/jamadermatol.2022.4519). PMID: 36630118.
2. Frush BW, Blythe JA, **Krantz MS**, Zaidi D. Ethical Considerations for the Just Utilization of House Staff During the COVID-19 Pandemic. *Am J Bioeth*. 2022 Mar;22(3):6-8. DOI: [10.1080/15265161.2022.2030590](https://doi.org/10.1080/15265161.2022.2030590). PMID: 35258419.
3. **Krantz MS**, Phillips EJ. COVID-19 mRNA vaccine safety during the first 6 months of roll-out in the USA. *Lancet Infect Dis*. 2022 Jun;22(6):747-748. DOI: [10.1016/S1473-3099\(22\)00123-2](https://doi.org/10.1016/S1473-3099(22)00123-2). PMID: 35271806. PMCID: PMC8901182.
4. Frush BW, Richardson TL, **Krantz MS**. The Admission Checklist: The key steps and responsibilities for the admitting resident. *Ann Med Surg (Lond)*. 2022 Feb;75:103388. DOI: [10.1016/j.amsu.2022.103388](https://doi.org/10.1016/j.amsu.2022.103388). PMID: 35386761. PMCID: PMC8978045.
5. **Krantz MS**, Stone CA Jr, Abreo A, Phillips EJ. Reply to "The safety and efficacy of direct oral challenge in trimethoprim-sulfamethoxazole antibiotic allergy". *J Allergy Clin Immunol Pract*. 2021 Oct;9(10):3849-3850. DOI: [10.1016/j.jaip.2021.07.027](https://doi.org/10.1016/j.jaip.2021.07.027). PMID: 34627544.
6. **Krantz MS**, Liu Y, Phillips EJ, Stone CA Jr. COVID-19 vaccine anaphylaxis: PEG or not? *Allergy*. 2021 Jun;76(6):1934-1937. DOI: [10.1111/all.14722](https://doi.org/10.1111/all.14722). PMID: 3412856. PMCID: PMC8441754.
7. **Krantz MS**, Frush BW. How to run a case: a guide for the resident at morning report. *Postgrad Med J*. 2021 Aug; DOI: [10.1136/postgradmedj-2020-138662](https://doi.org/10.1136/postgradmedj-2020-138662).
8. **Krantz MS**, Berg JS. Crowdsourcing to define the clinical actionability of incidental findings of genetic testing. *N C Med J*. 2013 Nov;74(6):501-2. DOI: [10.18043/ncm.74.6.501](https://doi.org/10.18043/ncm.74.6.501). PMID: 24316777.

## Case Reports

1. Yan A, Fernandez E, **Krantz MS**, Kahwash BM, Phillips EJ, Stone CA. Carboxymethylcellulose: A hidden culprit in immediate hypersensitivity reactions after triamcinolone injections. *J Allergy Clin Immunol Glob*. 2024 Sep;3(4):100337. DOI: [10.1016/j.jacig.2024.100337](https://doi.org/10.1016/j.jacig.2024.100337). PMID: 39391128. PMCID: PMC11465078.
2. **Krantz MS**, Stone CA Jr, Connelly JA, Norton AE, Khan YW. The effect of delayed and early diagnosis in siblings, and importance of newborn screening for SCID. *Ann Allergy Asthma Immunol*. 2019 Feb;122(2):211-213. DOI: [10.1016/j.anai.2018.11.002](https://doi.org/10.1016/j.anai.2018.11.002). PMID: 30439467. PMCID: PMC6719690.

## Book Chapters

1. Brown L, Alexander S, Moo-Young J, McDonald M, Mitchell K, **Krantz MS**. (2024) "Asthma" in El-Sourady M (ed.) *Vanderbilt Internal Medicine and Pediatrics Curriculum*. New York: McGraw Hill Access Medicine.
2. Sundar A, **Krantz MS**. (2022) "Urticaria and Angioedema" in El-Sourady M (ed.) *Vanderbilt Internal Medicine and Pediatrics Curriculum*. New York: McGraw Hill Access Medicine.
3. Bolotte R, **Krantz MS**, Stone CA. (2021) "Drug Allergy (Immediate Hypersensitivity Reactions)" in El-Sourady M (ed.) *Vanderbilt Internal Medicine and Pediatrics Curriculum*. New York: McGraw Hill Access Medicine.



4. Bolotte R, **Krantz MS**, Stone CA. (2021) "Drug Allergy (Delayed Hypersensitivity Reactions)" in El-Sourady M (ed.) *Vanderbilt Internal Medicine and Pediatrics Curriculum*. New York: McGraw Hill Access Medicine.
5. Minaldi EL, **Krantz MS**, Khan YW. (2021) "Recurrent Infections in Children" in El-Sourady M (ed.) *Vanderbilt Internal Medicine and Pediatrics Curriculum*. New York: McGraw Hill Access Medicine.
6. **Krantz MS**, Miller MS. (2018) "Atopic Dermatitis" in El-Sourady M (ed.) *Vanderbilt Internal Medicine and Pediatrics Curriculum*. New York: McGraw Hill Access Medicine.
7. **Krantz MS**, Miller MS. (2018) "Food Allergies" in El-Sourady M (ed.) *Vanderbilt Internal Medicine and Pediatrics Curriculum*. New York: McGraw Hill Access Medicine.

## Graphic Medicine

1. **Krantz MS**. Annals Graphic Medicine - The Physical Exam. *Ann Intern Med*. 2020 Sep;173(5):W84-W85. DOI: [10.7326/G20-0002](https://doi.org/10.7326/G20-0002). PMID: 32833490; PMCID: NA.
2. **Krantz MS**. Annals Graphic Medicine - Comparing Resident Noon Conference Attendance by Quality of Speaker Versus Quality of Food. *Ann Intern Med*. 2020 Jun;172(12):W155-W156. DOI: [10.7326/G19-0071](https://doi.org/10.7326/G19-0071). PMID: 32539519; PMCID: NA.
3. **Krantz MS**. Annals Graphic Medicine - Masked Facies. *Ann Intern Med*. 2020 Jul;173(1):W12-W13. DOI: [10.7326/G20-0052](https://doi.org/10.7326/G20-0052). PMID: 32479167; PMCID: NA.

## Media

1. 7/30/21, **HCP Live**: Study featured in video interview "[Study Shows Improved Tolerance with Second COVID-19 Vaccine](#)".
2. 7/16/25, **DRESS Syndrome Foundation**: Research featured in video presentation, "[Making Medications Safer Using Electronic Health Records](#)" for National DRESS Syndrome Day 2025.
3. 2/20/20, **Practice Matters**: Study featured in article "[Oral Challenge with Trimethoprim-Sulfamethoxazole in Patients with "Sulfa" Allergy](#)".