Stanford



Anne Liu

- Clinical Professor, Pediatrics - Immunology
- Clinical Associate Professor (By courtesy), Medicine - Pulmonary, Allergy & Critical Care Medicine

CLINICAL OFFICE (PRIMARY)

- **Atherton Allergy, Asthma, and Immunodeficiency Clinic**

  3351 El Camino Real Ste 201

  Atherton, CA 94027

  Tel (650) 723-3200 **Fax** (650) 498-6077

Bio

BIO

Dr. Liu is a board-certified, fellowship-trained specialist in allergy/immunology and infectious disease. She is also a clinical associate professor in the Department of Medicine, Division of Infectious Diseases and the Department of Pediatrics, Division of Allergy, Immunology, and Rheumatology at Stanford University School of Medicine.

Dr. Liu treats infections in patients with compromised immune systems, whether due to a primary immune deficiency or a condition like cancer or organ transplant. She helps patients to develop tolerance to medications they are allergic to so that they can receive the best, and sometimes the only, treatments available to them. She also treats allergies to antibiotics, aspirin, NSAIDs, chemotherapy, and more. She sees patients both long term and for urgent referrals, such as in cases of perioperative anaphylaxis. Dr. Liu also helps pediatric patients manage drug and food allergies.

One of Dr. Liu's areas of focus is helping patients with allergies to antibiotics determine when they have lost an allergy, what antibiotics they can tolerate, and when to induce tolerance to an antibiotic. This not only can benefit the patient, but also have a positive public health impact, as labeling patients with a penicillin allergy may negatively affect their care and increase use
of broad-spectrum antibiotics.

She collaborates closely with colleagues from other disciplines, including pulmonology, otolaryngology, oncology, cardiology, dermatology, anesthesiology, and surgery. Her key objective in working with referring physicians is to help them safely deliver the best care for their patients.

For patients and families, Dr. Liu strives to help them navigate their care journey with as much ease and dignity as possible during what may be the most challenging time of their life. Her goal is to offer patients options, even when it may appear that they have no options left.

Dr. Liu's research interests include optimizing care of patients with antibiotic allergies, including through use of decision support tools.

Dr. Liu has authored articles in the New England Journal of Medicine, Journal of Immunology, Journal of Allergy and Clinical Immunology in Practice, Clinical and Experimental Allergy, Mucosal Immunology, Diagnostic Microbiology and Infectious Disease, Science, and other publications. Dr. Liu authored the book chapter “Hypersensitivity Reactions to Monoclonal Antibodies” in Drug Allergy Testing.

Dr. Liu is certified in infectious disease by the American Board of Internal Medicine and in allergy and immunology by the American Board of Allergy and Immunology. She is also a member of the American College of Physicians, Infectious Diseases Society of America, and American Academy of Allergy, Asthma, and Immunology.

She has given presentations on antibiotic allergies, drug desensitization, and aspirin-exacerbated respiratory disease, among other topics. Dr. Liu’s honors include recognition from the American Academy of Asthma, Allergy, and Immunology, the American Medical Women’s Association, and the National Institutes of Health.

CLINICAL FOCUS

- Infections in Immunocompromised Hosts
- Drug Allergy and Desensitization
- Aspirin Desensitization
- Antibiotic Allergies
- Allergy and Immunology
- Immunocompromised Host

ACADEMIC APPOINTMENTS

- Clinical Professor, Pediatrics - Immunology
- Clinical Associate Professor (By courtesy), Medicine - Pulmonary, Allergy & Critical Care Medicine
- Member, Maternal & Child Health Research Institute (MCHRI)

PROFESSIONAL EDUCATION

- Medical Education: UCLA David Geffen School Of Medicine (2004) CA
- Fellowship: Brigham and Women's Hospital Allergy and Immunology Fellowship (2011) MA
- Fellowship: Massachusetts General Hospital Infectious Diseases Fellowship (2011) MA
- Residency: Brigham and Women's Hospital Internal Medicine Residency (2007) MA
- Internship: Brigham and Women's Hospital Internal Medicine Residency (2005) MA
- Board Certification: Infectious Disease, American Board of Internal Medicine (2011)
- Board Certification: Allergy and Immunology, American Board of Allergy and Immunology (2010)

Research & Scholarship

CLINICAL TRIALS

- Outpatient Treatment With Anti-Coronavirus Immunoglobulin, Not Recruiting
- Presatovir in Hematopoietic Cell Transplant Recipients With Respiratory Syncytial Virus Infection of the Upper Respiratory Tract, Not Recruiting

Teaching

COURSES

2025-26

- Foundations of Clinical Medicine: PAS 201 (Aut)

2024-25

- Foundations of Clinical Medicine: PAS 201 (Aut)

2023-24

- Foundations of Clinical Medicine: PAS 201 (Aut)

Publications

PUBLICATIONS

- **A Diagnostic Thumbprint Leaves Its Mark.** *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*
  Wick, J. M., Liu, A. Y., Ganesan, P., Daugherty, T., Rutland, C. D., Lam, M. M., Zimmet, A. N.
  2026; 83 (3): 481-483

- **Reduced use of skin testing in the evaluation of antibiotic allergy in the United States.** *The Journal of allergy and clinical immunology*
  Blumenthal, K. G., Crawford, R. J., King, A. J., Khan, D. A., Accarino, J. J., Banerji, A., Belmont, A. P., Wong, K. H., Fadugba, O. O., Otani, I. M., Phillips, E. J., Ramsey, A., Stone, et al
  2026

- **Beyond the Major Determinant: Patterns of Penicillin Skin Test Positivity.** *The journal of allergy and clinical immunology. In practice*
  Salciccioli, I., King, A. J., Accarino, J. J., Belmont, A., Fadugba, O. O., Gonzalez-Estrada, A., Khan, D. A., Liu, A., Otani, I. M., Phillips, E. J., Ramsey, A., Stone, C. A., Banerji, et al
  2026

- **Expert-based, institutional approaches for reducing the diagnostic odyssey of patients with IEIs.** *The journal of allergy and clinical immunology. In practice*
  Rider, N. L., Bastarache, L., Anderson, J. T., Behrens, E. M., Chaimowitz, N., Chandrakasan, S., Hartline, B., Liu, A., Marsh, R. A., Connelly, J. A.
  2025

- **Safety Outcomes of a One-Bag Chemotherapy/ Monoclonal Desensitization Protocol and Outpatient Transition**
  Jiang, S., Afzal, S., Zhu, L., Tran, N., Arroyo, A., Liu, A.
  MOSBY-ELSEVIER.2025: AB2

- **A Guide to Pediatric Antibiotic Allergy Testing: A Report from the United States Drug Allergy Registry.** *The journal of allergy and clinical immunology. In practice*
  Accarino, J. J., Chow, T. G., Ramsey, A., Rukasin, C. R., Gonzalez-Estrada, A., Liu, A. Y., Khan, D. A., Blumenthal, K. G.
  2025

- **A Hidden Workflow Inequity of Penicillin Allergy Evaluation in Pregnancy.** *Annals of allergy, asthma & immunology : official publication of the American College of Allergy, Asthma, & Immunology*
  Dunham, T. B., Zhu, L., Lee, J. H., Sperling, M., Hoyte, E., Gibbs, R., Liu, A. Y., Simard, J. F.
  2024

- **Allergic disease prevalence among Asian American children in Northern California.** *The journal of allergy and clinical immunology. In practice*
  Feng, C., Mudiganti, S., Yan, X. S., Mitchell, D., Chen, M., Liu, A. Y., Palaniappan, L., Arroyo, A. C.
  2024

- **Prevalence of allergic diseases among Asian American children in a Northern California healthcare system**
  Feng, C., Mudiganti, S., Yan, X., Mitchell, D., Chen, M., Liu, A., Palaniappan, L., Arroyo, A.
  MOSBY-ELSEVIER.2024: AB250

- **Referral Patterns and Uptake of Penicillin Delabeling in Pregnancy**

Dunham, T., Zhu, L., Lee, J., Sperling, M., Hoyte, E., Gibbs, R., Simard, J., Liu, A.
MOSBY-ELSEVIER.2024: AB164

- **Predicting Penicillin Allergy from PatientReported Data: A Multi-Site Prospective Study from The United States Drug Allergy Registry**
  Blumenthal, K., Ramsey, A., Phillips, E., Gonzalez-Estrada, A., Accarino, J., Banerji, A., Stone, C., Otani, I., Khan, D., Chow, T., Liu, A., Arroyo, A., King, et al
  MOSBY-ELSEVIER.2024: AB228
- **PEN-FAST Assessment Using Patient-Reported Reaction Histories in a Multi-Site Prospective United States Cohort**
  Accarino, J., Phillips, E., Banerji, A., Ramsey, A., Gonzalez-Estrada, A., Stone, C., Otani, I., Khan, D., Chow, T., Liu, A., Arroyo, A., King, A., Zhang, et al
  MOSBY-ELSEVIER.2024: AB241
- **Maternal Hypertensive Disorders of Pregnancy and the Risk of Childhood Asthma** *ANNALS OF THE AMERICAN THORACIC SOCIETY*
  Arroyo, A., Robinson, L. B., James, K., Li, S. M. S., Hsu, S., Dumas, O., Liu, A. Y., Druzin, M., Powe, C. E., Camargo, C. A.
  2023; 20 (9): 1367-1370
- **US Drug Allergy Registry (USDAR) grading scale for immediate drug reactions.** *The Journal of allergy and clinical immunology*
  Khan, D. A., Phillips, E. J., Accarino, J. J., Gonzalez-Estrada, A., Otani, I. M., Ramsey, A., Arroyo, A. C., Banerji, A., Chow, T., Liu, A., Stone, C. A., Blumenthal, K. G.
  2023
- **Maternal Hypertensive Disorders of Pregnancy and the Risk of Childhood Asthma.** *Annals of the American Thoracic Society*
  Arroyo, A. C., Robinson, L., James, K., Li, S., Faridi, M. K., Hsu, S., Dumas, O., Liu, A. Y., Druzin, M., Powe, C. E., Camargo, C. A.
  2023
- **High-titer post-vaccine COVID-19 convalescent plasma for immunocompromised patients during the first omicron surge.** *Transplant infectious disease : an official journal of the Transplantation Society*
  Tayyar, R., Wong, L. K., Dahlen, A., Shu, E., Pandey, S., Liu, A. Y.
  2023: e14055
- **Digital Antibiotic Allergy Decision Support Tool Improves Management of Beta Lactam Allergies.** *The journal of allergy and clinical immunology. In practice*
  Dunham, T. B., Gardner, R. M., Lippner, E. A., Fasani, D. E., Moir, E., Halpern-Felsher, B., Sundaram, V., Liu, A. Y.
  2023
- **Penicillin Allergy Evaluation and Health Equity: A Call to Action.** *The journal of allergy and clinical immunology. In practice*
  Arasaratnam, R. J., Chow, T. G., Liu, A. Y., Khan, D. A., Blumenthal, K. G., Wurcel, A. G.
  2022
- **Asian American Patients With Allergic Diseases: Considerations for Research and Clinical Care.** *The journal of allergy and clinical immunology. In practice*
  Chen, M., Feng, C., Liu, A. Y., Zhu, L., Camargo, C. A., Arroyo, A. C.
  2022; 10 (4): 950-952
- **A One Day Outpatient Aspirin Desensitization Protocol With Home Dose Escalation For Patients With Aspirin Exacerbated Respiratory Disease (AERD)**
  Salgado, C., Hsu, C., McGhee, S., Liu, A.
  MOSBY-ELSEVIER.2022: AB171
- **The United States Drug Allergy Registry: A Prospective Longitudinal Cohort Study of Patients Tested for Drug Allergies**
  Blumenthal, K., Ramsey, A., Samarakoon, U., Otani, I., Gonzalez-Estrada, A., Banerji, A., Liu, A., Wickner, P., Stone, C., Park, M., Mancini, C., Judd, A., Ahola, et al
  MOSBY-ELSEVIER.2022: AB151
- **Maternal hypertensive disorders of pregnancy and the risk of childhood asthma**
  Arroyo, A., Robinson, L., James, K., Li, S., Hsu, S., Liu, A., Druzin, M., Powe, C., Camargo, C.
  MOSBY-ELSEVIER.2022: AB88
- **Road Less Traveled: Drug Hypersensitivity to Fluoroquinolones, Vancomycin, Tetracyclines, and Macrolides.** *Clinical reviews in allergy & immunology*

Zhu, L. J., Liu, A. Y., Wong, P. H., Arroyo, A. C.
1800

- **Elexacaftor/tezacaftor/ivacaftor outpatient desensitization** *ANNALS OF ALLERGY ASTHMA & IMMUNOLOGY*
  Balijepally, R., Kwong, D., Zhu, L., Camacho, J., Liu, A.
  2022; 128 (1): 104-105
- **Elexacaftor/Tezacaftor/Ivacaftor Outpatient Desensitization.** *Annals of allergy, asthma & immunology : official publication of the American College of Allergy, Asthma, & Immunology*
  Balijepally, R., Kwong, D., Zhu, L., Valdes Camacho, J., Liu, A.
  2021
- **Drug-induced hypersensitivity syndrome like reaction with angioedema and hypotension associated with BRAF inhibitor use and antecedent immune checkpoint therapy.** *JAAD case reports*
  Rana, J., Maloney, N. J., Rieger, K. E., Pugliese, S. B., Strelo, J. L., Liu, A., Zaba, L. C., Kwong, B. Y.
  2021; 13: 147-151
- **How important is the second dose of the COVID-19 mRNA vaccine?** *The journal of allergy and clinical immunology. In practice*
  Liu, A. Y.
  2021; 9 (6): 2537
- **Online Antibiotic Allergy Decision Support Tool Improves Management of Beta Lactam Allergies**
  Dunham, T., Fasani, D., Lippner, E., Moir, E., Halpern-Felsher, B., Gardner, R., Sundaram, V., Liu, A.
  MOSBY-ELSEVIER.2021: AB7
- **Interferon-gamma release assay testing to assess COVID-19 vaccination response in a SARS-CoV-2 seronegative patient on rituximab: a case report.** *International journal of infectious diseases : IJID : official publication of the International Society for Infectious Diseases*
  Ferguson, J., Murugesan, K., Banaei, N., Liu, A.
  2021
- **Nocardiosis in Immunocompromised Patients on Alternative Pneumocystis Prophylaxis.** *Emerging infectious diseases*
  Puing, A. G., Epstein, D. J., Banaei, N., Subramanian, A. K., Liu, A. Y.
  2021; 27 (10): 2734-2736
- **Dupilumab use in recalcitrant allergic fungal rhinosinusitis** *ANNALS OF ALLERGY ASTHMA & IMMUNOLOGY*
  Lo, R. M., Liu, A. Y., Valdez, T. A., Gernez, Y.
  2020; 125 (5): 617–19
- **Dupilumab use in recalcitrant allergic fungal rhinosinusitis.** *Annals of allergy, asthma & immunology : official publication of the American College of Allergy, Asthma, & Immunology*
  Lo, R. M., Liu, A. Y., Valdez, T. A., Gernez, Y.
  2020
- **Infectious Implications of Interleukin-1, Interleukin-6, and T Helper Type 2 Inhibition.** *Infectious disease clinics of North America*
  Liu, A. Y.
  2020
- **A Case Of Disseminated Cryptococcosis Gattii Due To Granulocyte-Macrophage Colony-Stimulating Factor (GM-CSF) Autoantibodies**
  Lee, I., Anjum, S., Liu, A., Williamson, P., Holland, S., Gernez, Y.
  SPRINGER/PLENUM PUBLISHERS.2020: S77–S78
- **Disseminated Pneumocystis jirovecii Infection with Osteomyelitis in a Patient with CTLA-4 Haploinsufficiency.** *Journal of clinical immunology*
  Siddiqi, A. E., Liu, A. Y., Charville, G. W., Kunder, C. A., Uzel, G. n., Sadighi Akha, A. A., Oak, J. n., Martin, B. n., Sacha, J. n., Lewis, D. B., Gernez, Y. n.
  2020
- **Practical Guidance for the Evaluation and Management of Drug Hypersensitivity: Specific Drugs.** *The journal of allergy and clinical immunology. In practice*
  Broyles, A. D., Banerji, A. n., Barmettler, S. n., Biggs, C. M., Blumenthal, K. n., Brennan, P. J., Breslow, R. G., Brockow, K. n., Buchheit, K. M., Cahill, K. N., Cernadas, J. n., Chiriac, A. M., Crestani, et al
  2020; 8 (9S): S16–S116

- **Case series of sebelipase alfa hypersensitivity reactions and successful sebelipase alfa rapid desensitization.** *JIMD reports*
  Huffaker, M. F., Liu, A. Y., Enns, G. M., Vijay, S., Amor, A. J., Adkinson, N. F.
  2019; 49 (1): 30–36
- **Eculizumab hypersensitivity and desensitization in a toddler with atypical hemolytic uremic syndrome** *JOURNAL OF ALLERGY AND CLINICAL IMMUNOLOGY-IN PRACTICE*
  Lo, R., Alexander, S., Moss, J., Siddiqi, A., Liu, A.
  2019; 7 (7): 2409–10
- **Eremothecium coryli bloodstream infection in a patient with acute myeloid leukemia: first case report of human infection** *DIAGNOSTIC MICROBIOLOGY AND INFECTIOUS DISEASE*
  Multani, A., Rustagi, A., Epstein, D. J., Gomez, C. A., Budvytiene, I., Banaei, N., Brown, J. M., Liu, A. Y.
  2019; 95 (1): 77–79
- **Successful eradication of chronic symptomatic Candida krusei urinary tract infection with increased dose micafungin in a liver and kidney transplant recipient: case report and review of the literature.** *Transplant infectious disease : an official journal of the Transplantation Society*
  Multani, A., Subramanian, A. K., Liu, A. Y.
  2019: e13118
- **An Evaluation of Barriers to Inpatient Medication Allergy Documentation**
  Chollet, M. B., Shieh, L., Liu, A. Y.
  MOSBY-ELSEVIER.2019: AB280
- **A Case of Disseminated Pneumocystis Jiroveci in a Non-Human Immunodeficiency Virus Infected Patient**
  Siddiqi, A. E., Sacha, J., Saenz, R., Liu, A., Kunder, C., Uzel, G., Martin, B., Lewis, D. B., Gernez-Goldhammer, Y.
  SPRINGER/PLENUM PUBLISHERS.2019: S73–S74
- **West Nile virus encephalitis in GATA2 deficiency** *ALLERGY ASTHMA AND CLINICAL IMMUNOLOGY*
  Rosa, J. S., Kappagoda, S., Hsu, A. P., Davis, J., Holland, S. M., Liu, A. Y.
  2019; 15
- **Eculizumab Hypersensitivity and Desensitization in a Toddler with Atypical Hemolytic Uremic Syndrome.** *The journal of allergy and clinical immunology. In practice*
  Lo, R. n., Alexander, S. n., Moss, J. n., Siddiqi, A. n., Liu, A. n.
  2019
- **Eremothecium coryli bloodstream infection in a patient with acute myeloid leukemia: first case report of human infection.** *Diagnostic microbiology and infectious disease*
  Multani, A. n., Rustagi, A. n., Epstein, D. J., Gomez, C. A., Budvytiene, I. n., Banaei, N. n., Brown, J. M., Liu, A. Y.
  2019
- **West Nile virus encephalitis in GATA2 deficiency.** *Allergy, asthma, and clinical immunology : official journal of the Canadian Society of Allergy and Clinical Immunology*
  Rosa, J. S., Kappagoda, S., Hsu, A. P., Davis, J., Holland, S. M., Liu, A. Y.
  2019; 15: 5
- **A novel outpatient desensitization protocol for recombinant human erythropoietin allergy in a pediatric patient** *ALLERGY ASTHMA AND CLINICAL IMMUNOLOGY*
  Rosa, J. S., Vuong, V. B., Haskin, O., Liu, A. Y.
  2018; 14: 8
- **Scedosporium apiospermum infection of the urinary system with a review of treatment options and cases in the literature** *TRANSPLANT INFECTIOUS DISEASE*
  Benamu, E., Yu, A., Xie, L., Fernandez-Pol, S., Liu, A. Y., Ho, D. Y.
  2018; 20 (1)
- **Hypersensitivity Reactions to Monoclonal Antibodies** *Drug Allergy Testing*
  Liu, A.
  edited by Khan, D., Banerji, A.
  Elsevier.2018; 1

- **Delayed Diagnosis of Tuberculous Meningitis Misdiagnosed as Herpes Simplex Virus-1 Encephalitis With the FilmArray Syndromic Polymerase Chain Reaction Panel.** *Open forum infectious diseases*
  Gomez, C. A., Pinsky, B. A., Liu, A., Banaei, N.
  2017; 4 (1): ofw245-?

- **Safety, Costs, and Efficacy of Rapid Drug Desensitizations to Chemotherapy and Monoclonal Antibodies.** *The journal of allergy and clinical immunology. In practice*
  Sloane, D., Govindarajulu, U., Harrow-Mortelliti, J., Barry, W., Hsu, F. I., Hong, D., Laidlaw, T., Palis, R., Legere, H., Bunyavanich, S., Breslow, R., Wesemann, D., Barrett, et al
  2016

- **Delayed Diagnosis of Tuberculous Meningitis Misdiagnosed as Herpes Simplex Virus-1 Encephalitis With the FilmArray Syndromic Polymerase Chain Reaction Panel** *Open Forum Infectious Diseases*
  Gomez, C. A., Pinsky, B. A., Liu, A., Banaei, N.
  2016: ofw245

- **Maturation of mast cell progenitors to mucosal mast cells during allergic pulmonary inflammation in mice.** *Mucosal immunology*
  Bankova, L. G., Dwyer, D. F., Liu, A. Y., Austen, K. F., Gurish, M. F.
  2015; 8 (3): 596-606

- **Induced Long-Lived Mucosal Mast Cells In The Airways Arise From Circulating Mast Cell Progenitors**
  Bankova, L., Dwyer, D., Liu, A. Y., Jones, T., Austen, K., Gurish, M.
  MOSBY-ELSEVIER.2014: AB145

- **Mast Cells Recruited to Mesenteric Lymph Nodes during Helminth Infection Remain Hypogranular and Produce IL-4 and IL-6** *JOURNAL OF IMMUNOLOGY*
  Liu, A. Y., Dwyer, D. F., Jones, T. G., Bankova, L. G., Shen, S., Katz, H. R., Austen, K. F., Gurish, M. F.
  2013; 190 (4): 1758-1766

- **Desensitization regimens for drug allergy: state of the art in the 21st century** *CLINICAL AND EXPERIMENTAL ALLERGY*
  Liu, A., Fanning, L., Chong, H., Fernandez, J., SLOANE, D., Sancho-Serra, M., Castells, M.
  2011; 41 (12): 1679-1689

- **The Major Genetic Determinants of HIV-1 Control Affect HLA Class I Peptide Presentation** *SCIENCE*
  Pereyra, F., Jia, X., McLaren, P. J., Telenti, A., de Bakker, P. I., Walker, B. D., Ripke, S., Brumme, C. J., Pulit, S. L., Carrington, M., Kadie, C. M., Carlson, J. M., Heckerman, et al
  2010; 330 (6010): 1551-1557

- **Clinical problem-solving. A rash hypothesis.** *New England journal of medicine*
  Liu, A. Y., Lowe, R. C., Levy, B. D., Katz, J. T., Loscalzo, J.
  2010; 363 (1): 72-78

- **Interactive medical case. A rash hypothesis.** *New England journal of medicine*
  Ross, J. J., Saavedra, A., Vleugels, R. A., Liu, A., Castells, M. C.
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- **Hodgkin's lymphoma masquerading as vertebral osteomyelitis in a man with diabetes: a case report.** *Journal of medical case reports*
  Bender Ignacio, R. A., Liu, A. Y., Sohani, A. R., Vyas, J. M.
  2010; 4: 102-?

- **Brugia malayi microfilariae induce cell death in human dendritic cells, inhibit their ability to make IL-12 and IL-10, and reduce their capacity to activate CD4(+) T cells** *JOURNAL OF IMMUNOLOGY*
  Semnani, R. T., Liu, A. Y., Sabzevari, H., Kubofcik, J., Zhou, J., Gilden, J. K., Nutman, T. B.
  2003; 171 (4): 1950-1960