

# CURRICULUM VITAE

The Johns Hopkins University School of Medicine

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Andrew H. Karaba

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2/22/2022

## DEMOGRAPHIC AND PERSONAL INFORMATION

### Current Appointments

2021-present Assistant Professor of Medicine in the Division of Infectious Diseases – Johns Hopkins University

### Education and Training

2003-2007 B.A. with honors in Integrated Science, Biology, and Chemistry, Northwestern University/Evanston, IL  
2007-2013 PhD. in Virology (Thesis advisor: Richard Longnecker, Ph.D.), Northwestern University/Chicago, IL  
2007-2015 M.D. Feinberg School of Medicine, Northwestern University/Chicago, IL, Summa cum laude  
2015-2017 Osler Medical Training Program, Johns Hopkins Hospital/Baltimore, MD  
2017-2020 Infectious Diseases Fellowship, Johns Hopkins University/Baltimore, MD

## PUBLICATIONS:

\*Corresponding and/or senior author

### Original Research

1. Tuma J, Tonzani S, Schatz GC, **Karaba AH**, Lewis FD. Structure and Electronic Spectra of DNA Mini-hairpins with G n:C nStems. J Phys Chem B. 2007;111: 13101–13106. doi:[10.1021/jp072303m](https://doi.org/10.1021/jp072303m)
2. Mccullagh M, Zhang L, **Karaba AH**, Zhu H, Schatz GC, Lewis FD. Effect of Loop Distortion on the Stability and Structural Dynamics of DNA Hairpin and Dumbbell Conjugates. J Phys Chem B. 2008;112: 11415–11421. doi:[10.1021/jp802378a](https://doi.org/10.1021/jp802378a)
3. **Karaba AH**, Kopp SJ, Longnecker R. Herpesvirus entry mediator and nectin-1 mediate herpes simplex virus 1 infection of the murine cornea. Journal of Virology. 2011;85: 10041–10047. doi:[10.1128/JVI.05445-11](https://doi.org/10.1128/JVI.05445-11)
4. **Karaba AH**, Cohen LK, Glaubach T, Kopp SJ, Reichel JL, Yoon HH, et al. Longitudinal Characterization of Herpes Simplex Virus (HSV) Isolates Acquired From Different Sites in an Immune-Compromised Child: A New HSV Thymidine Kinase Mutation Associated With Resistance. Journal of the Pediatric Infectious Diseases Society. 2012. doi:[10.1093/jpids/pis009](https://doi.org/10.1093/jpids/pis009)
5. **Karaba AH**, Kopp SJ, Longnecker R. Herpesvirus entry mediator is a serotype specific determinant of pathogenesis in ocular herpes. Proc Natl Acad Sci USA. 2012. doi:[10.1073/pnas.1216967109](https://doi.org/10.1073/pnas.1216967109)
6. Kopp SJ, **Karaba AH**, Cohen LK, Banisadr G, Miller RJ, Muller WJ. Pathogenesis of neonatal herpes simplex 2 disease in a mouse model is dependent on entry receptor expression and route of inoculation. Journal of Virology. 2012. doi:[10.1128/JVI.01849-12](https://doi.org/10.1128/JVI.01849-12)
7. Kopp SJ, Ranaivo HR, Wilcox DR, **Karaba AH**, Wainwright MS, Muller WJ. Herpes simplex virus serotype and entry receptor availability alter CNS disease in a mouse model of neonatal HSV. Pediatr Res. 2014;76: 528–534. doi:[10.1038/pr.2014.135](https://doi.org/10.1038/pr.2014.135)
8. Edwards RG, Kopp SJ, **Karaba AH**, Wilcox DR, Longnecker R. Herpesvirus entry mediator on radiation-resistant cell lineages promotes ocular herpes simplex virus 1 pathogenesis in an entry-independent manner. mBio. 2015;6: e01532-15. doi:[10.1128/mBio.01532-15](https://doi.org/10.1128/mBio.01532-15)
9. **Karaba AH**, Blair PW, Martin K, Saheed MO, Carroll KC, Borowitz MJ. The Effects of a Systemwide Diagnostic Stewardship Change on West Nile Virus Disease Ordering Practices. Open Forum Infect Dis. 2019;6. doi:[10.1093/ofid/ofz488](https://doi.org/10.1093/ofid/ofz488)

10. Gladstone DE, Kim BS, Mooney K, **Karaba AH**, D'Alessio FR. Regulatory T Cells for Treating Patients With COVID-19 and Acute Respiratory Distress Syndrome: Two Case Reports. *Annals of Internal Medicine*. 2020. doi:[10.7326/L20-0681](https://doi.org/10.7326/L20-0681)
11. Ignatius EH, Wang K, **Karaba A**, Robinson M, Avery RK, Blair P, et al. Tocilizumab for the treatment of COVID-19 among hospitalized patients: A matched retrospective cohort analysis. *Open Forum Infectious Diseases*. 2020. doi:[10.1093/ofid/ofaa598](https://doi.org/10.1093/ofid/ofaa598)
12. **Karaba AH**, Figueroa A, Massaccesi G, Botto S, DeFilippis VR, Cox AL. Herpes simplex virus type 1 inflammasome activation in proinflammatory human macrophages is dependent on NLRP3, ASC, and caspase-1. *PLOS ONE*. 2020;15: e0229570. doi:[10.1371/journal.pone.0229570](https://doi.org/10.1371/journal.pone.0229570)
13. **Karaba AH**, Zhou W, Hsieh LL, Figueroa A, Massaccesi G, Rothman RE, et al. Differential Cytokine Signatures of SARS-CoV-2 and Influenza Infection Highlight Key Differences in Pathobiology. *Clinical Infectious Diseases*. 2021. doi:[10.1093/cid/ciab376](https://doi.org/10.1093/cid/ciab376)
14. **Karaba AH**, Figueroa A, Werbel WA, Dioverti MV, Steinke SM, Ray SC, et al. Interleukin-18 and tumor necrosis factor- $\alpha$  are elevated in solid organ transplant recipients with possible cytomegalovirus end-organ disease. *Transplant Infectious Disease*. 2021;n/a. doi:[10.1111/tid.13682](https://doi.org/10.1111/tid.13682)
15. Peart Akindele N, Kouo T, **Karaba AH**, Gordon O, Fenstermacher KZJ, Beaudry J, et al. Distinct Cytokine and Chemokine Dysregulation in Hospitalized Children with Acute COVID-19 and Multisystem Inflammatory Syndrome with Similar Levels of Nasopharyngeal SARS-CoV-2 Shedding. *The Journal of Infectious Diseases*. 2021. doi:[10.1093/infdis/jiab285](https://doi.org/10.1093/infdis/jiab285)
16. Ruddy JA, Boyarsky BJ, Werbel WA, Bailey JR, **Karaba AH**, Garonzik-Wang JM, et al. Safety and antibody response to the first dose of SARS-CoV-2 messenger RNA vaccine in persons with HIV. *AIDS*. 2021. doi:[10.1097/QAD.0000000000002945](https://doi.org/10.1097/QAD.0000000000002945)
17. Woldemeskel BA, **Karaba AH**, Garliss CC, Beck EJ, Wang KH, Laeyendecker O, *et al.* The BNT162b2 mRNA Vaccine Elicits Robust Humoral and Cellular Immune Responses in People Living with HIV. *Clinical Infectious Diseases* 2021. <https://doi.org/10.1093/cid/ciab648>.
18. Ruddy JA, Boyarsky BJ, Bailey JR, **Karaba AH**, Garonzik-Wang JM, Segev DL, *et al.* Safety and antibody response to two-dose SARS-CoV-2 messenger RNA vaccination in persons with HIV. *AIDS* 2021.
- 19\*. **Karaba AH**, Zhu X, Benner SE, Akinde O, Eby Y, Wang KH, et al. Higher Proinflammatory Cytokines Are Associated With Increased Antibody Titer After a Third Dose of SARS-CoV-2 Vaccine in Solid Organ Transplant Recipients. *Transplantation*. 2022; Published Ahead of Print. doi:10.1097/TP.0000000000004057
20. **Karaba AH**, Zhu X, Liang T, Wang KH, Rittenhouse AG, Akinde O, et al. A third dose of SARS-CoV-2 vaccine increases neutralizing antibodies against variants of concern in solid organ transplant recipients. *American J Transplantation*. 2022; ajt.16933. doi:[10.1111/ajt.16933](https://doi.org/10.1111/ajt.16933)
- 21\*. **Karaba AH**, Johnston TS, Aytenfisu TY, Akinde O, Eby Y, Ruff JE, *et al.* A Fourth Dose of COVID-19 Vaccine Does Not Induce Neutralization of the Omicron Variant Among Solid Organ Transplant Recipients with Suboptimal Vaccine Response. *Transplantation*. *In Press*.

#### Review Articles

1. Cihakova D, Streiff MB, Menez SP, Chen TK, Gilotra NA, Michos ED, **Karaba AH et al.** High-value laboratory testing for hospitalized COVID-19 patients: a review. *Future Virology* 2021. <https://doi.org/10.2217/fvl-2020-0316>.
- 2\*. Kumar A, Stavrakakis G, **Karaba AH\***. Herpesviruses and Inflammasomes: One Sensor Does Not Fit All. Szpara ML, Prasad VR, editors. *mBio*. 2022; e01737-21. doi:[10.1128/mbio.01737-21](https://doi.org/10.1128/mbio.01737-21)

## Editorials

1. Queen J, Karaba S, Albin J, **Karaba AH**, Howard-Anderson J, Skinner N, et al. The Time is Now: A Call for Renewed Support of Infectious Disease Physician-Scientist Trainees in the COVID-19 Era. The Journal of Infectious Diseases. 2021. doi:[10.1093/infdis/jiab162](https://doi.org/10.1093/infdis/jiab162)

## Book Chapters, Monographs

1. **Karaba, AH** Clinical Fellowship and Postdoctoral Training. In: Eisenberg, M.J., Cox, A.L., eds. The Essential MD-PhD Guide. McGraw Hill, 2021; chapter 25.
2. Zhou, T.W., **Karaba, AH** Choosing the Right Residency, Applying, and Interviewing. In: Eisenberg, M.J., Cox, A.L., eds. The Essential MD-PhD Guide. McGraw Hill, 2021; chapter 22.

## FUNDING

2009-2010	Training Program in Viral Replication Fellowship (T32 AI060523)
2011	Infectious Disease Society of America Medical Scholars Fellowship
2012-2013	Northwestern University Clinical and Translational Sciences Fellowship (TL1 5TL1RR025739)
2018-2020	Research Training in Microbial Diseases (T32 AI007291-28)
2019	Physician Scientist Training Program Microgrant (Johns Hopkins University)
2020-present	Johns Hopkins Excellence in Pathogenesis and Immunity Center for SARS-CoV-2 (JH-EPICS) (U54 CA260492-01) Role: Co-I
2021	JHU SOM Institute for Clinical and Translational Research Clinician Scientist Award
2021-present	Modulation of Herpes Simplex Virus Pathogenesis by Leucine Rich Repeat Kinase 2 (K08 AI156021) Role: PI
2021-present	COVID Protection After Transplant (CPAT) Multicenter Adaptive Trial (U01 AI138897-04S1) Role: Co-I

## CLINICAL ACTIVITIES

### Medical, other state/government licensure

8/7/2018 Maryland, D86045

### Boards, other specialty certification

8/2018 Internal Medicine, 388709  
12/2020 Infectious Disease, 388709

### Clinical (Service) Responsibilities

2/2021-10/2021 *Outpatient Attending Physician*, Transplant and Oncology Infectious Diseases Clinic (Bartlett) Half-day per week  
  
2/2021-present *Inpatient Attending Physician*, The Johns Hopkins Transplant and Oncology Infectious Diseases Consult Service (Tucker), 6 weeks per year

## EDUCATIONAL ACTIVITIES

### Teaching

#### Classroom instruction

2009-2013 **Medical Student Tutor**  
Feinberg School of Medicine, Chicago, IL  
Taught review sessions for first and second year medical students and provided one-on-one tutoring for first and second year students  
  
2009-2011 **Teaching Assistant, Medical Microbiology Laboratory**  
Feinberg School of Medicine, Chicago, IL  
Helped run and teach the microbiology lab course for 2nd year medical  
  
2022 **Faculty Discussant**  
Johns Hopkins University School of Medicine  
Genes to Society – Management of COVID-19 Seminar

- 2020-present **Lecturer**  
 2020 “Approach to Gram Positive Bacteremia” Lecture to the Osler Residency  
 2022 Johns Hopkins University School of Medicine  
 Graduate Immunology (ME:250.719)

#### Clinical instruction

- 2015-2017 **Internal Medicine Resident**  
 Taught 3<sup>rd</sup> and 4<sup>th</sup> year medical students on their internal medicine clerkships at JHU
- 2017-2018 **Infectious Diseases Fellow**  
 Taught 3<sup>rd</sup> and 4<sup>th</sup> year medical students from JHU and other institutions rotating at JHU on their Infectious Diseases electives
- 2019-present **Medical Student Preceptor**  
 Taught clinical skills to 2nd year medical students at JHU part of the Transition to the Wards Course
- 2021-present **Lecturer for MedStar Residency**  
 Taught topics on infectious diseases in immunosuppressed patients to internal medicine residents in the MedStar residency program in Baltimore, MD

#### CME instruction

- Lecturer, Johns Hopkins Division of Infectious Diseases Grand Rounds Case Presentations:  
 7/25/2017 VZV Encephalitis in a Dialysis Patient  
 11/6/2017 Disseminated Histoplasmosis in a Returning Traveler  
 12/11/2017 *Listeria* Meningitis in a Multiple Myeloma Patient  
 3/5/2018 Stomach Cancer Presenting as a Liver Abscess  
 3/13/2018 Mondor’s Disease in a Lactating Woman  
 7/10/2018 *Pneumococcal* Meningitis in a Woman on Steroids  
 7/24/2018 Disseminated Kaposi’s Sarcoma as an initial presentation of HIV
- 5/16/2019 A Case of Disseminated Histoplasmosis - 13th Annual Infectious Diseases Update for Primary Care and Hospital Medicine

#### Mentoring

##### Pre-doctoral Advisees /Mentees

- 9/2018-8/2020 **Alexis Figueroa**, doctoral diversity program scholar, currently a Johns Hopkins MSTP student  
 Co-author on publications 12, 13, and 14 above.
- 6/2021-8/2021 **Ayush Kumar**, summer research student, currently a veterinary student at Ontario Veterinary College  
 Co-author on review publication 2 above.
- 9/2022-present **Tihitina Aytenfisu**, doctoral diversity program scholar  
 Co-author on publication 21 above.

#### RESEARCH ACTIVITIES

- 2005-2007 **Undergraduate Research**  
 Northwestern University, Department of Chemistry  
 Advisor: Fred Lewis, PhD  
 Structural and Thermodynamic Properties of DNA
- 2009-2013 **Ph.D. Student**  
 Northwestern University, Department of Microbiology-Immunology  
 Advisor: Richard Longnecker, PhD  
 Pathogenesis of HSV-1 Ocular Infections

2018-2020                    **Infectious Diseases Fellow**  
Johns Hopkins University  
Advisor: Andrea Cox, MD, PhD  
Inflammasome Regulation in Viral Infections

2021-present                **Assistant Professor**  
Johns Hopkins University  
Mentor: Andrea Cox, MD, PhD  
Innate Immune Activation in Viral Infections

## **SYSTEM INNOVATION AND QUALITY IMPROVEMENT ACTIVITIES**

### [System Innovation and Quality Improvement efforts within JHMI:](#)

2017                    WNV testing Diagnostics QI project at JHMI  
Helped eliminate CSF PCR assay in favor of CDC recommended MAC-ELISA

2020-present        Faculty Editor for Chapter on Antibiotics for the Osler Residency Survival Guide

## **ORGANIZATIONAL ACTIVITIES**

### [Institutional Administrative Appointments](#)

2015-2017            Member of the Feedback Committee for the Osler Medical Training Program

2018-2019            Co-Founder and Vice-chair of Communications of The Clinical Fellows Council

2019-2020            Vice-chair of Finance of The Clinical Fellows Council

2020-2021            Co-writer/COVID-19 Inflammatory Markers Working Group

2020-present        Contributor/COVID-19 Treatment Guidance Working Group

2022-present        Member/Intern Selection Committee, Osler Medical Training Program

### [Journal peer review activities](#)

2020-present            *Journal of Clinical Investigation*

2020-present            *Immunological Research*

2021-present            *PLoS Pathogens*

2021-present            *American Journal of Transplantation*

2021-present            *Transplantation*

### [Professional Societies](#)

2018-present            Infectious Diseases Society of America, member

2018-present            American Society for Transplantation

                              -Member of the Infectious Diseases Community of Practice

                              Committee on Resistant Pathogens (2021-present)

2021-present            The Transplantation Society

2021-present            American Society for Microbiology

## **RECOGNITION**

### [Awards, Honors](#)

2007    Phi Beta Kappa

2014    Alpha Omega Alpha

2014    Phi Rho Sigma Dennis Award for outstanding achievement in required 3rd year clerkships, Northwestern University, Feinberg School of Medicine

2015    Graduated Summa Cum Laude and Magna Cum Laude in Scientia Experimentalis from Northwestern University, Feinberg School of Medicine

2015    Department of Medicine Chairman's Award, Northwestern University, Feinberg School of Medicine

2015    John P. Phair Award for excellence in the infectious disease clerkship, Northwestern University, Feinberg School of Medicine

2018    Distinguished Teaching Society Member, Johns Hopkins University School of Medicine

2019    IDWeek Trainee Travel Grant

2020    Infectious Disease Community of Practice Travel Reimbursement Grant for American Transplant Congress

2020    IDWeek Trainee Travel Grant

## Invited Talks

### JHMI

- 2018 “The Role of Herpesvirus Entry Mediator and Nectin-1 in Ocular Herpes Simplex Virus Infections,” Viral Oncology Group Meeting at JHU
- 2019 “Disseminated Histoplasmosis in a Returning Traveler” Case Presentation at Baltimore “Pus Club” Meeting
- 2020 “IL-6 in COVID-19: A Laboratory Perspective” JHU Infectious Diseases Division Grand Rounds
- National  
2012 “Exploring HSV Receptors in the Cornea” Chicago Area Virology Association Annual Meeting, Chicago, IL.
- 2021 “SARS-CoV-2 Vaccine Safety and Immunogenicity in Solid Organ Transplant Recipients” National Institutes of Health Clinical and Translational Serology Task Force Round Table
- 2022 “Inflammasome Activation in Viral Infection: Friend or Foe?” Infectious Diseases Grand Rounds at The University of Arizona

## OTHER PROFESSIONAL ACCOMPLISHMENTS

### Oral/Podium Presentations

- 2011 “HVEM and Nectin-1 Mediate Infection of the Murine Cornea” International Herpesvirus Workshop, Gdansk, Poland.
- 2012 “HSV-1 and HSV-2 Have Different Receptor Requirements for Infection of the Murine Cornea” International Herpesvirus Workshop, Calgary, Canada.

### Posters

- 2011 **Karaba, A.H.**; Kopp, S.J.; Longnecker, R. “HVEM and Nectin-1 Mediate Ocular HSV-1 Infection in Mice” American Physician Scientist Association Annual Meeting, Chicago, IL.
- 2011 Kopp, S.J.; Cohen, L.K.; **Karaba, A.H.**; Muller, W.J. “Herpes simplex virus entry receptors affect neurologic disease and dissemination after intranasal infection of newborn mice” Pediatric Academic Societies Annual Meeting, Denver, CO.
- 2011 **Karaba, A.H.**; Kopp, S.J.; Longnecker, R. “HVEM and Nectin-1 Mediate Herpes Simplex Virus type 1 Infection of Murine Cornea” International Herpesvirus Workshop, Gdansk, Poland.
- 2012 **Karaba, A.H.**; Kopp, S.J.; Longnecker, R. “HSV-1 and HSV-2 have different receptor requirements for infection of the murine cornea” American Physician Scientist Association Annual Meeting, Chicago, IL and International Herpesvirus Workshop, Calgary, Canada.
- 2012 Kopp, S.J.; **Karaba, A.H.**; Muller, W.J. “Pathogenesis of neonatal herpes simplex virus-2 disease in a mouse model is dependent on entry receptor expression and route of inoculation” International Herpesvirus Workshop, Calgary, Canada.
- 2013 **Karaba, A.H.**; Kopp, S.J.; Longnecker, R. “Investigating the role of herpesvirus entry mediator (HVEM) in the pathogenesis of ocular herpes simplex virus (HSV) infections” NCTS Predoctoral Programs Meeting, Rochester, MN.
- 2013 Kopp, S.J., **Karaba, A.H.**, Wilcox, D.R., and Muller, W.J. “Herpes simplex virus serotype and entry receptor availability alter CNS disease in a mouse model of neonatal HSV” 38<sup>th</sup> Annual International Herpesvirus Workshop, Grand Rapids, MI
- 2015 Edwards, R.G., Kopp, S.J., **Karaba, A.H.**, Longnecker, R. “HVEM on radiation-resistant cell types promotes ocular HSV-1 pathogenesis in an entry-independent manner.” American Society for Virology 34<sup>th</sup> Annual Meeting, Ontario, Canada.

- 2015 Edwards, R.G., Kopp, S.J., **Karaba, A.H.**, Longnecker, R. 2015. "Entry and immunomodulation: exploring the dual roles of the HVEM receptor in ocular herpes simplex virus 1." American Physician Scientists Association 11th Annual Meeting, Chicago, IL.
- 2016 **Karaba, A.H.**; Manesh, R.S. "A Confusing Pericardial Effusions" Mulholland Mohler Resident Meeting of the Maryland Chapter of the American College of Physicians. Baltimore, MD.
- 2019 **Karaba, A.H.**; Figueroa, A.; Cohen L.K.; He, X.; Ross, C.A.; Smith, W.W.; Cox, A.L. "The G2019S Leucine-rich Repeat Kinase 2 Mutation Enhances the Pathological Response to HSV-1 After Corneal Infection" 8<sup>th</sup> Annual IDSA/NIAID Infectious Diseases Research Careers Meeting. Bethesda, MD.
- 2019 **Karaba, A.H.**; Figueroa, A.; Cohen L.K.; He, X.; Ross, C.A.; Smith, W.W.; Cox, A.L. "The G2019S Leucine-rich Repeat Kinase 2 Mutation Enhances the Pathological Response to HSV-1 After Corneal Infection" 44<sup>th</sup> Annual International Herpesvirus Workshop. Knoxville, TN.
- 2019 **Karaba, A.H.**; Blair, P.W.; Martin, K.; Saheed, M.O.; Carroll, K.C.; and Borowitz, M.J. "The Effects of a Systemwide Diagnostic Stewardship Change on West Nile Virus Disease Ordering Practices" IDWeek. Washington, DC.
- 2020 **Karaba, A.H.**; Figueroa, A.; Ray, S.C.; Avery, R.K.; Cox, A.L. "Proinflammatory Cytokines Including IL-18 Correlate with Cytomegalovirus DNAemia in Solid Organ Transplant Recipients" American Transplant Congress. Philadelphia, PA.
- 2020 **Karaba, A.H.**; Figueroa, A.; Ray, S.C.; Avery, R.K.; Cox, A.L. "Elevations in TNF $\alpha$  and IL-18 are Associated with Increased Risk of Probable Cytomegalovirus Tissue Invasive Disease in Solid Organ Transplant Recipients" IDWeek. Philadelphia, PA.