

1. PERSONAL DATA

Place of Birth: Birmingham, Alabama

2. EDUCATION

08/1998-05/2002 BA, Latin and Mathematics, *summa cum laude*, Marshall University, Huntington, WV
08/2002-05/2006 MA, Mathematics, Marshall University, Huntington, WV
08/2006-05/2010 MD, Joan C Edwards Marshall University School of Medicine, Huntington, WV

3. POSTGRADUATE TRAINING

07/2010-06/2013 Resident in Internal Medicine, University of Wisconsin, Madison, WI
07/2014-06/2017 Fellow in Infectious Diseases, University of Washington, Seattle, WA

4. FACULTY POSITIONS HELD

07/2017-09/2020 Research Associate, Fred Hutchinson Cancer Research Center, Seattle, WA
07/2017-09/2020 Acting Instructor, Division of Infectious Diseases, University of Washington, Seattle, WA
10/2020- Associate, Fred Hutchinson Cancer Research Center, Seattle, WA
10/2020- Acting Assistant Professor, Division of Infectious Diseases, University of Washington, Seattle, WA

5. HOSPITAL POSITIONS HELD

07/2013-06/2014 Staff Physician, William S Middleton Memorial VA Hospital, Madison, WI
07/2017- Attending Physician, Seattle Cancer Care Alliance, University of Washington Medical Center, Harborview Medical Center, Seattle, WA

6. HONORS

2006 Anagene B. Heiner Memorial Basic Science Poster Presentation Award, Marshall University SOM, Research Day
2012 David Sundee Humanism in Medicine Award, Internal Medicine Residency, University of Wisconsin
2012 Winner Oral Research Presentation Competition, Wisconsin State ACP Meeting
2013 Winner of Research Poster Competition, University of Wisconsin, Internal Medicine Research Day
2016 Winner of Poster Competition, Conference for Gene and Cell Therapy for HIV Cure, Seattle, WA
2016 IDSA Travel Award, New Orleans, LA
2016 Office of Post-doctoral Affairs Travel Scholarship, University of Washington
2017 Scholarship Award, Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID)
2018 Best Abstract Award, BMT Tandem Meetings 2018

2020 IDWeek Diagnostics Abstract Award 2020

7. BOARD CERTIFICATION

2013 Diplomate, American Board of Internal Medicine
2016 Diplomate, American Board of Internal Medicine, Infectious Diseases

8. LICENSURE

2011-2014 Wisconsin State Medical License
2014- Washington State Medical License

9. DIVERSITY, EQUITY, AND INCLUSION ACTIVITIES

2018 "Speed Mentoring" for University of Washington Network for Underrepresented Residents and Fellows, Mentor
2019 "Mentoring Over Coffee" for Hutch United Mentoring Network, Speaker
2019- Informal meetings with women and underrepresented minorities, including LGBTQ, interested in mathematical modeling, medical research, and applying to medical school

10. PROFESSIONAL ORGANIZATIONS

2010-2014 American College of Physicians
2014- Infectious Diseases Society of America
2018- American Society for Transplantation and Cellular Therapy (previously American Society for Bone Marrow Transplantation)

11. TEACHING RESPONSIBILITIES

A. Courses

2002-2005 College Algebra for Business Majors, Marshall University, Full Responsibility
2003 Trigonometry, Marshall University, Full Responsibility
2005 Business Calculus, Marshall University, Full Responsibility
2002-2003 Building English Vocabulary from Greek and Latin Elements, Marshall University, Full Responsibility
2021- Vector-borne Infections Lecture, Invaders and Defenders Course, University of Washington School of Medicine

B. Clinical Teaching

2013-2014 Internal Medicine, VA Hospital, Madison, WI
2017- Seattle Cancer Care Alliance Infectious Diseases (inpatient consultations), University of Washington Medical Center, Seattle, WA
2017- Madison Clinic (HIV outpatient/primary care), Harborview Medical Center, Seattle, WA

C. Medical Students

2019- Chiara Wychera, Ludwig-Maximilians-Universität München, research year at Fred Hutch

D. Undergraduate Students

2021-2022 Yeager Scholars, Adria Fox and Alex Conley, Marshall University, Summer internship, Clinical shadowing and research projects

E. Invited teaching talks

- 2015- "Rickettsial Diseases," Infectious Disease Fellows Board Review, University of Washington
- 2016- "Antiretroviral Therapy Basics," Infectious Disease Fellows Board Review, University of Washington
- 2017- "Inpatient and Outpatient Infectious Disease Consultations using ORCA and EPIC," Infectious Disease Fellows Orientation Workshop, University of Washington
- 2021 "SCCA ID Provider Training for EPIC Go-Live," Transitions of Care Provider Meeting, Fred Hutch, Seattle, WA
- 2021 "ID Fellow and Provider Preparation for EPIC Go-Live," University of Washington ID City-wide Case Conference, Seattle, WA

12. SPECIAL NATIONAL RESPONSIBILITIES

- 2021- EPIC (Electronic Medical Record) Infectious Diseases Steering Committee

13. SPECIAL LOCAL RESPONSIBILITIES

- 2011-2012 Hand Hygiene Committee, University of Wisconsin Hospitals and Clinics
- 2018 Planning Committee for the University of Washington Virology and Infectious Disease Sciences Symposium
- 2020- SCCA Infectious Diseases EPIC SuperUser
- 2020- Member of UWMC Infectious Disease Group EPIC Implementation Committee, Lead on creating microbiology report
- 2020-2021 Member of UWMC Infectious Disease EPIC Group for OPAT Implementation
- 2020 Clinical lead on establishing SCCA patient COVID-19 drive-through testing

14. RESEARCH FUNDING

A. Current

N/A

B. Past

- 2017-2020 Sponsor: NIH/NCATS
Title: Optimizing Anti-viral Treatment for Cytomegalovirus Infection following Hematopoietic Cell Transplant
KL2 TR002317, Institute of Translational Health Sciences, University of Washington
Total Costs: \$437,841
Role: Principal Investigator
- 2019-2020 Sponsor: Center for Clinical and Translational Research Pediatric Pilot Funds at Seattle Children's Hospital
Title: Association of BK virus and kidney injury in the hematopoietic cell transplant population
Total Costs: \$20,000
Role: Co-Investigator
- 2015-2017 Sponsor: NIH/NIAID
Title: Host Defense Training in Allergy and Infectious Diseases

T32 AI 0070-44, Van Voorhis (PI), University of Washington
Goal: Salary support for training of academicians in Infectious Diseases, Allergy, and Geographic Medicine, with emphasis on research training
Total Costs: \$2,522,670
Role: Fellow/Trainee

15. BIBLIOGRAPHY

A. Publications in Refereed Journals

1. Keller BR, **Duke ER**, Amer AS, Zill SN (2007) Tuning posture to body load: decreases in load produce discrete sensory signals in the legs of freely standing cockroaches. *J Comp Physiol A* 93:881-891. PMID: 17541783 [original work]
2. Zill SN, Keller BR, **Duke ER** (2009) Sensory signals of unloading in one leg follow stance onset in another leg: Transfer of load and emergent coordination in cockroach walking. *J Neurophysiol* 101:2297-2304. PMID: 19261716 [original work]
3. Zill SN, Keller BR, Chaudry S, **Duke ER**, Neff D, Quinn R, Flannigan C (2010) Detecting substrate engagement: responses of campaniform sensilla in cockroaches. *J Comp Physiol A Neuroethol Sens Neural Behav Physiol* 196:407-420. PMID: 20396892 [original work]
4. **Duke ER**, Reeves DB, Prlic M, Hladik F, Schiffer JT (2017) Anti-proliferative therapy for HIV cure: a compound interest approach to HIV cure. *Sci Rep* 7:4011. PMID: 28638104 [original work]
5. Murphy SC, **Duke ER**, Shipman KJ, Jensen RL, Fong Y, Ferguson S, et al. (2018) A randomized trial of prophylactic activity of DSM265 against pre-erythrocytic *Plasmodium falciparum* controlled human malaria infection by mosquito bites and direct venous inoculation. *J Inf Dis* 217:693-702. PMID: 29216395 [original work]
6. Reeves DB, **Duke ER**, Wagner TW, Palmer SE, Spivak AM, Schiffer JT (2018) A majority of HIV persistence during antiretroviral therapy is due to infected cell proliferation. *Nat Commun* 16:4811. PMID: 30446650 [original work]
7. McGuffin SA, Bharadwaj R, Gonzalez-Cuyar LF, Schiffer JT, Stacey AW, Walter RB, **Duke ER** (2019) In the eye of the beholder: a conjunctival lesion in a woman with acute myelogenous leukemia. *Clin Infect Dis* 18:525-529. PMID: 30657904 [case report]
8. Imlay H, Xie H, Leisenring W, **Duke ER**, Kimball L, Huang M, Pergam S, Hill J, Jerome K, Milano F, Nichols G, Pang P, Hirsch H, Limaye A, Boeckh M (2020) Presentation and Outcome of BK Polyomavirus-associated Hemorrhagic Cystitis after Hematopoietic Cell Transplantation. *Blood Advances* 4:617-628. PMID: 32074279 [original work]
9. Reeves DB, Huang Y, **Duke ER**, Mayer B, Cardozo-Ojeda F, Boshier F, Swan D, Rolland M, Robb M, Mascola J, Cohen M, Corey L, Gilbert P, Schiffer JT (2020) Mathematical Modeling to Reveal Breakthrough Mechanisms in the HIV Antibody Mediated Prevention (AMP) Trials. *PLOS Comput Biol* 16(2):e1007626. PMID: 32084132 [original work]
10. Roychoudhury P, Swan DA, **Duke ER**, Corey L, Zhu J, Dave VA, Spuhler LR, Lund J, Prlic M, Schiffer JT (2020) HSV-2 infected cell elimination is mediated predominantly by paracrine effects of tissue-resident T-cells. *J Clin Invest pii: 132583* PMID: 32125285 [original work]
11. Waghmare A, Krantz EM, Baral S, Vasquez E, Loeffelholz T, Chung EL, Pandey U, Kuypers J, **Duke ER**, Jerome KR, Greninger AL, Reeves DB, Hladik F, Cardozo-Ojeda EF, Boeckh M, Schiffer JT (2020) Reliability of self-sampling for

- accurate assessment of respiratory virus viral and immunologic kinetics. *J Infect Dis* doi:10.1093/infdis/jiaa451 PMID: 32710762 [original work]
12. Kublin J, Murphy SC, Maenza J, Seilie AM, Jain JP, Goswami B, Berger D, Spera D, Stein D, Zhao R, Hackling M, Soon RL, Czartoski JL, Potochnic MA, **Duke ER**, Chang M, Vaughan A, Kappe SHI, Leong FJ, Pertel P, Prince WT (2020) Safety, pharmacokinetics and causal prophylactic efficacy of KAF156 in a *Plasmodium falciparum* human infection study. *Clin Infect Dis* doi:10.1093/cid/ciaa952 PMID: 32644127 [original work]
 13. Ford ES, **Duke ER**, Cheng GS, Yoke LM, Liu C, Hill JA et al. (2020) Outcomes of hematopoietic cell transplantation (HCT) in patients with incomplete control of confirmed or suspected invasive fungal infection before HCT. *Transplant Cell Ther* 21:00882-4. PMID: 33964516 [original work]
 14. **Duke ER**, Williamson BD, Borate B, Golob JL, Stevens-Ayers T, Huang M, Cossrow N, Wan H, Mast TC, Marks MA, Flowers ME, Jerome KR, Corey L, Gilbert PB, Schiffer JT, Boeckh MJ (2021) CMV viral load kinetics as surrogate endpoints after allogeneic transplantation. *J Clin Invest* 131(1);e133960. PMID: 32970635 [original work]
 15. Cardozo-Ojeda EF, **Duke ER**, Peterson CW, Reeves DB, Mayer BT, Kiem HP, Schiffer JT (2021) Thresholds for post-rebound SHIV control after CCR5 gene-edited autologous hematopoietic cell transplantation. *eLife* 10:e57646. PMID: 33432929 [original work]
 16. Zamora D, **Duke ER**, Hu Xie, Edmison B, Akoto B, Kiener R et al. (2021) Cytomegalovirus-specific T-cell Reconstitution following Letemovir Prophylaxis after Haematopoietic Cell Transplantation. *Blood* 138(1);34-43. PMID: 33657225 [original work]
 17. Heldman MR, Ma J, Gauthier J, O'Hara R, Cowan AJ, Yoke LM, So L, Gulleen E, **Duke ER**, Liu C, Turtle CJ, Hill JA (2021) CMV and HSV Pneumonia after Immunosuppressive Agents for Treatment of Cytokine Release Syndrome due to Chimeric Antigen Receptor-Modified T (CAR-T)-Cell Immunotherapy. *J Immunother* *In press* [original work]
 18. **Duke ER**, Boshier FAT, Boeckh M, Schiffer JT, Cardozo-Ojeda EF (2021) Mathematical modeling of within-host, untreated, cytomegalovirus infection dynamics after allogeneic transplantation. *Viruses* 13(11):2292. PMID: 34835098 [original work]
 19. Mollan KR, Eron JJ, Krajewski TJ, Painter W, **Duke ER**, Morse CG et al. (2021) Infectious SARS-CoV-2 virus in symptomatic COVID-19 outpatients: host, disease, and viral correlates. *Clinic Inf Dis* doi: 10.1093/cid/ciab968 PMID: 35022711 [original work]
 20. Fisher W, Eron JJ, Holman W, Cohen MS, Fang L, Sheahan TP, Baric R, Mollan KR, Wolfe CR, **Duke ER** et al. (2022) A phase 2a clinical trial of molnupiravir in patients with COVID-19 shows accelerated SARS-CoV-2 RNA clearance and elimination of virus. *Sci Transl Med* 14(628):eabl7430. PMID: 34941423 [original work]
 21. Schiffer J, Goyal A, **Duke ER**, Cardozo-Ojeda EF (2022) Modeling explains prolonged SARS-CoV-2 shedding in nasal passages but not in lungs of remdesivir treated rhesus macaques. *iScience* [original work] *In press*
 22. Johnson MG, Puenpatom A, Andres Moncado P, Burgess L, **Duke ER**, Ohmagari N, et al. (2022) Additional clinical benefits with molnupiravir for COVID-19: Secondary analyses from the MOVE-OUT randomized, placebo-controlled trial. *Ann Int Med* [original work] *In press*

B. Collaborative Authorship

1. Beigel JH, Tomashek KM, Dodd LE, Mehta AK, Zingman BS, Kalil AC, Hohmann E, Chu HY et al. and the **ACTT-1 Study Group** (2020) Remdesivir for the Treatment of Covid-19-Final Report. NEJM 383;19. PMID: 32445440 [original work]
2. Jayk Bernal A, Gomes de Silva M, Musungaie DB, Kovalchuk E, Gonzalez A, Delos Reyes V et al. for the **MOVE-OUT Study Group** (2021) Molnupiravir for Oral Treatment of Covid-19 in Nonhospitalized Patients NEJM doi: 10.1056/NEJMoa2116044 PMID: 34914868 [original work]

C. MedEDPortal or other peer-reviewed curricula

n/a

D. Book Chapters

1. **Duke ER**, Boeckh M, Geballe AP (2020). Cytomegalovirus, In: Encyclopedia of Gastroenterology 2nd Edition, vol 1, pages 807-814. Ed Ernst Kuipers. Oxford: Academic Press [Review]

E. Published Books, Videos, Software, etc.

1. **Duke ER** (2002) Translating Martial—Latin translations, theory, and student guide. <http://eduke.org/martial> [original work]
2. **Duke ER** (2006) Solving Higher Order Dynamic Equations on Time Scales as First Order Systems. Theses, Dissertations and Capstones. Paper 577. <http://mds.marshall.edu/etd/577> [original work]

F. Other Publications

1. **Duke ER**, Hall KJ, and Oberste-Vorth RW (2004) Changing time scales I: The continuous case as a limit. Proceedings of the Sixth WSEAS Intl Conf on Applied Mathematics, Poulos, Mastorakis, Mladenov, Gorla. [Published in Conference Proceedings] [original work]
2. **Duke ER**, Hall KJ, and Oberste-Vorth RW (2004) Changing time scales II: Bifurcations in second degree equations. Proceedings of the Sixth WSEAS Intl Conf on Applied Mathematics, Poulos, Mastorakis, Mladenov, Gorla. [Published in Conference Proceedings] [original work]
3. Boshier FAT, Reeves DB, **Duke ER**, Swan DA, Prlic M, Cardozo-Ojeda EF, Schiffer JT (2020) Blind Uneven Proliferation of CD4+ T cells During Primary Infection Generates the Majority of the HIV Reservoir. medRxiv doi:10.1101/2020.04.06.20053231

G. Manuscripts Submitted

1. Boshier FAT, Reeves DB, **Duke ER**, Swan DA, Prlic M, Cardozo-Ojeda EF, Schiffer JT (2022) Blind Uneven Proliferation of CD4+ T cells During Primary Infection Generates the Majority of the HIV Reservoir. J Virus Erad [original work] *In review*
2. Wychera C, Imlay HN, **Duke ER**, Faino A, Huang M, Stevens-Ayers T, et al. (2022) BK virus infections and changes in eGFR in children and young adults after hematopoietic cell transplantation. Clin J Am Soc Nephrol [original work] *In review*
3. Goswami H, Alsumali A, Jiang Y, Schindler M, **Duke ER**, Cohen J, et al. (2022) Cost-effectiveness analysis of molnupiravir versus best supportive care for the

treatment of outpatient COVID-19 in adults in the US. *Pharmacoeconomics* [original work] *In submission*

H. Abstracts

1. **Duke ER**, Reeves DB, Prilic M, Hladik F, and Schiffer JT (2016) A compound interest approach to HIV cure. *Keystone HIV Persistence: Pathogenesis and Eradication (X7)*, Abstract 4011. [original work]
2. Reeves DB, **Duke ER**, Spivak AM, and Schiffer JT (2016) Latent Cell Proliferation Sustains the HIV Reservoir on Long-term ART—A Mathematical Modeling Study with Implications for Cure. *IDWeek*, Abstract 58639. [original work]
3. **Duke ER**, Reeves DB, Prlic M, Hladik F, and Schiffer JT (2016) Estimates of achieving HIV cure with anti-proliferative therapy. *HIV/AIDS Research: Its History and Future*, Cold Spring Harbor Laboratory, <http://library.cshl.edu/Meetings/HIV-AIDS/abstract.php> [original work]
4. Murphy SC, **Duke ER**, Jensen R, Fong Y, Fritzen E, VonGoedert T, et al. (2016) A proof-of-concept, randomized study in non-immune healthy adult volunteers to investigate the safety, tolerability, pharmacokinetic profile and prophylactic activity of a single dose of DSM265 in a controlled human malarial infection challenge either by direct venous inoculation of *Plasmodium falciparum* sporozoites of a single episode of bites by mosquitoes carrying *P. falciparum*. *American Society of Tropical Medicine & Hygiene*, Abstract 1534. [original work]
5. Reeves DB, **Duke ER**, Spivak AM, and Schiffer JT (2017) Stochastic simulations show that long-term antiretroviral therapy shifts the mechanism of HIV persistence toward proliferating latently infected cells. *Keystone Symposia on Molecular and Cellular Biology: Modeling Viral Infections and Immunity (E1)*, Estes Park, Colorado. [original work]
6. Murphy SC, **Duke ER**, Shipman KJ, Jensen RL, Fong Y, Ferguson S, et al. (2017) Prophylactic activity of DSM265 against pre-erythrocytic *Plasmodium falciparum* controlled human malaria infection by mosquito bites and direct venous injection. *American Society of Tropical Medicine & Hygiene*, Abstract 11. [original work]
7. **Duke ER**, Gilbert PB, Stevens-Ayers TL, Golob JL, Cossrow N, Marks MA, et al. (2018) Viral Kinetic Correlates of Cytomegalovirus Disease and Death after Hematopoietic Cell Transplant. *BMT Tandem Meetings*, Salt Lake City, UT, Abstract 1. [original work]
8. Reeves DB, **Duke ER**, Huang Y, Gilbert P, Schiffer JT (2018) Viral dynamics model illustrates diverse outcomes in simulated AMP trials. *Keystone Symposia J6: Progress and Pathways Toward an Effective HIV Vaccine*, Banff, Alberta. [original work]
9. Cardozo Ojeda EF, **Duke ER**, Peterson CW, Kiem HP, Schiffer JT (2018) Sequential cART Interruptions after CCR5-modified Stem Cell Transplantation May Induce a SHIV Functional Cure. *Strategies for an HIV Cure*, NIH, Bethesda, MD. [original work]
10. **Duke ER**, Williamson BW, Stevens-Ayers TL, Cossrow N, Marks MA, Wan H, et al. (2018) Determination of Optimal Viral Kinetic Markers for Predicting Antiviral Treatment Effect for the Prevention of Cytomegalovirus Disease after Hematopoietic Cell Transplant Using Machine Learning and a Novel Non-Parametric Estimation Method. *Transplantation and Cellular Therapy Meetings of ASBMT and CIBMTR*, Houston, TX. [original work]

11. **Duke ER**, Boeckh MJ, Schiffer JT, Cardozo-Ojeda EF (2019) Mathematical Modeling of Cytomegalovirus following Hematopoietic Cell Transplantation Reproduces Viral Dynamics and Demonstrates Importance of Immune Control. 7th International Congenital CMV Conference and the 17th International CMV Conference, Birmingham, AL, Abstract 146. [original work]
12. Cardozo Ojeda EF, **Duke ER**, Peterson CW, Kiem HP, Schiffer JT (2019) Mathematical Modeling of SHIV Post-rebound Control after Autologous Hematopoietic Stem/Progenitor Cell Transplantation with CCR5 Gene-edited Cells. Keystone Symposia X8: Functional Cures and Eradication of HIV, Whistler, British Columbia, Poster 1029. [original work]
13. **Duke ER**, Tettamanti Boshier F, Mayer BT, Boeckh M, Schiffer JT (2019) Mathematical Modeling of Untreated Cytomegalovirus Infection following Hematopoietic Cell Transplantation Reproduces Viral Dynamics and Demonstrates the Importance of a Dynamic Immune Response. 4th Workshop on Viral Dynamics, Paris, France. [original work]
14. Boshier FAT, Reeves D, **Duke ER**, Swan D, Cardozo-Ojeda EF, Schiffer JT (2019) Blind Homeostatic Proliferation During Primary HIV Infection May Contribute to the Formation of the HIV Reservoir, 4th Workshop on Viral Dynamics, Paris, France. [original work]
15. Cardozo F, **Duke ER**, Peterson C, Reeves D, Mayer B, Kiem HP, Schiffer J (2019) Conditions for post-rebound SHIV control in autologous hematopoietic-stem cell transplantation. 9th International Workshop on HIV Persistence During Therapy, Miami, FL, Abstract 00206. [original work]
16. **Duke ER**, Williamson BD, Wychera C, Cossrow N, Marks MA, Wan H, et al. (2020) CMV Viral Load Kinetics as Surrogate Endpoints for Antiviral Prophylaxis Trials. Transplantation and Cellular Therapy Meetings of ASBMT and CIBMTR, Orlando, FL, Abstract 501. [original work]
17. Wychera C, **Duke ER**, Imlay H, Xie H, Leisenring W, Nichols G, et al. (2020) BK Viremia Was Not Associated with Acute Kidney Injury in Hematopoietic Cell Transplant Recipients, Transplantation and Cellular Therapy Meetings of ASBMT and CIBMTR, Orlando, FL, Abstract 496. [original work]
18. Wychera CM, **Duke ER**, Faino A, Imlay H, Scott BK, Boeckh M, et al. (2020) Association of BK viremia with chronic kidney disease in pediatric hematopoietic cell transplant recipients, Pediatric Academic Societies Meeting, Philadelphia, PA, Abstract 43. [original work]
19. Zamora D, **Duke ER**, Xie H, Edmison B, Akoto B, Kiener R, et al. (2020) Combinatorial Polyfunctionality Analysis of Antigen Specific T-cell Subsets (COMPASS) as a Predictor for Clinically Significant CMV Infection in the Letemovir Era, IDWeek, Philadelphia, PA. [original work]
20. Poindexter M, Fish CS, Cassidy N, **Duke E**, Wamalwa D, Langat A, et al. (2022) Differential clearance of intact and defective HIV DNA in the pediatric reservoir, CROI, Denver, CO, ID 2026. [original work]
21. Garba S, **Duke ER**, Krantz E, Salgado M, Urrea Gales V, Martinez-Picado J, et al. (2022) Assessing the impact of conditioning and graft-vs-host in reducing the HIV reservoir under allogeneic hematopoietic stem cell transplantation, Keystone: Next Generation Vaccines and Therapies, Banff, Canada, ID 1017. [original work]
22. Cardozo-Ojeda EF, **Duke ER**, Goyal A, Schiffer JT (2022) Mathematical modeling of gene and cell therapy approaches for HIV cure, ECMTB, Heidelberg, Germany, ID 489. [original work]

15. OTHER

A. Clinical trials experience

1. **Title:** Proof-of-concept, Single Center Study in Health Adult Volunteers to Investigate Safety, Tolerability, Pharmacokinetics and Prophylactic Activity of Single Dose DSM265 in a Controlled Human Malaria Challenge Either by Direct Venous Inoculation of Plasmodium Falciparum Sporozoites or Mosquito-borne Plasmodium Falciparum
Site: Fred Hutchinson Malaria Clinical Trials Center
Sponsor: Medicines for Malaria Venture
Role: Sub-investigator
Status: Completed (2017)
Publication: Murphy SC, **Duke ER**, Shipman KJ, Jensen RL, Fong Y, Ferguson S, et al. (2018) A randomized trial of prophylactic activity of DSM265 against pre-erythrocytic *Plasmodium falciparum* controlled human malaria infection by mosquito bites and direct venous inoculation. J Inf Dis 217:693-702. PMID: 29216395
2. **Title:** A Two-part Randomized, Double-blind, Placebo-controlled, Single-center Study to Evaluate the Safety and Causal Prophylactic Efficacy of KAF156 in a Controlled Human Malaria Challenge Model
Site: Fred Hutchinson Malaria Clinical Trials Center
Sponsor: Novartis Pharmaceuticals
Role: Sub-investigator
Status: Completed (2019)
Publication: Kublin J, Murphy SC, Maenza J, Seilie AM, Jain JP, Goswami B, Berger D, Spera D, Stein D, Zhao R, Hackling M, Soon RL, Czartoski JL, Potochnic MA, **Duke ER**, Chang M, Vaughan A, Kappe SHI, Leong FJ, Pertel P, Prince WT (2020) Safety, pharmacokinetics and causal prophylactic efficacy of KAF156 in a Plasmodium falciparum human infection study. Clin Infect Dis PMID: 32644127
3. **Title:** A Randomized, Open Label, Multi-center, Comparative Trial, to Assess the Efficacy and Safety of Pritelivir Versus Foscarnet for the Treatment of Acyclovir-resistant Mucocutaneous HSV (Herpes Simplex Virus) Infections in Immunocompromised Adults (PRIOH-1)
Site: Fred Hutchinson Cancer Research Center
Sponsor: AiCuris Anti-Infective Cures GmbH
Role: Sub-investigator
Status: Active, recruiting
4. **Title:** A Multi-Site, Randomized Trial of Subject-Collected Dried Blood Spot CMV Testing With Mobile Technology Support to Optimize Preemptive Therapy Late After Allogeneic HCT
Site: Fred Hutchinson Cancer Research Center
Sponsor: National Institute of Allergy and Infectious Diseases
Role: Sub-investigator
Status: Recruiting
5. **Title:** A Phase 3 Randomized, Double-blind, Placebo-controlled Clinical Trial to Evaluate the Safety and Efficacy of Letemovir (LET) Prophylaxis When

Extended From 100 Days to 200 Days Post-transplant in Cytomegalovirus (CMV) Seropositive Recipients (R+) of an Allogeneic Hematopoietic Stem Cell Transplant (HSCT)

Site: Fred Hutchinson Cancer Research Center

Sponsor: Merck & Co., Inc

Role: Sub-investigator

Status: Active, not recruiting

6. **Title:** A Multicenter, Adaptive, Randomized Blinded Controlled Trial of the Safety and Efficacy of Investigational Therapeutics for the Treatment of COVID-19 in Hospitalized Adults
Site: University of Washington Virology Research Center
Sponsor: National Institute of Allergy and Infectious Diseases
Role: Sub-investigator
Status: Completed (2020)
Publication: Beigel JH, Tomashek KM, Dodd LE, Mehta AK, Zingman BS, Kalil AC, Hohmann E, Chu HY et al. and the **ACTT-1 Study Group** (2020) Remdesivir for the Treatment of Covid-19-Final Report. NEJM 383;19. PMID: 32445440

7. **Title:** A Phase IIa Randomized, Double-Blind, Placebo-Controlled Trial to Evaluate the Safety, Tolerability and Efficacy of EIDD-2801 to Eliminate Infectious Virus Detection in Persons with COVID-19
Site: Fred Hutchinson Cancer Research Center
Sponsor: Ridgeback Biotherapeutics, LP
Role: Primary Investigator
Status: Completed (2021)
Publications: Mollan KR, Eron JJ, Krajewski TJ, Painter W, **Duke ER**, Morse CG et al. (2021) Infectious SARS-CoV-2 virus in symptomatic COVID-19 outpatients: host, disease, and viral correlates. Clin Infect Dis PMID: 35022711

Fisher W, Eron JJ, Holman W, Cohen MS, Fang L, Sheahan TP, Baric R, Mollan KR, Wolfe CR, **Duke ER** et al. (2022) A phase 2a clinical trial of molnupiravir in patients with COVID-19 shows accelerated SARS-CoV-2 RNA clearance and elimination of virus. Sci Transl Med 14(628):eab17430. PMID: 34941423

9. **Title:** A Phase 3 Randomized, Double-Blind Placebo-Controlled Trial to Evaluate the Efficacy and Safety of Remdesivir (GS-5734) Treatment of COVID-19 in an Outpatient Setting
Site: Fred Hutchinson Cancer Research Center
Sponsor: Gilead Sciences
Role: Sub-investigator
Status: Completed

10. **Title:** A Phase 3, Randomized, Observer-Blinded, Placebo-Controlled Study to Evaluate the Efficacy, Safety, and Immunogenicity of a SARS-CoV-2 Recombinant Spike Protein Nanoparticle Vaccine (SARS-CoV-2 rS) With Matrix-M1™ Adjuvant in Adult Participants ≥ 18 Years
Site: University of Washington VTEU
Sponsor: Novavax
Collaborator: US Department of Health and Human Services
Role: Sub-investigator, PUI Team Lead

Status: Active, not recruiting

11. **Title:** Long-Acting Cabotegravir Plus VRC-HIVMAB075-00-AB (VRC07-523LS) for Viral Suppression in Adults Living with HIV-1
Site: University of Washington AIDS CRS (ACTU)
Sponsor: National Institute of Allergy and Infectious Diseases
Collaborator: University of Texas Health Science Center, Houston
Role: Sub-investigator, Lead study clinician
Status: Recruiting
12. **Title:** A Single-Arm, Open-Label, Pilot Study of Semaglutide for Non-Alcoholic Fatty Liver Disease (NAFLD), a Metabolic Syndrome with Insulin Resistance, Increased Hepatic Lipids, and Increased Cardiovascular Risk (The SLIM LIVER Study)
Site: University of Washington AIDS CRS (ACTU)
Sponsor: National Institute of Allergy and Infectious Diseases
Collaborator: ViiV
Role: Sub-investigator, Lead study clinician
Status: Recruiting
13. **Title:** Efficacy and Safety of Molnupiravir (MK4482) in Non-Hospitalized Adult Participants with COVID-19 (MOVE-OUT, MK4482-002)
Site: Fred Hutchinson Cancer Research Center
Sponsor: Merck Sharp & Dohme Corp.
Role: Primary Investigator
Status: Active, not recruiting
Publication: Jayk Bernal A, Gomes de Silva M, Musungaie DB, Kovalchuk E, Gonzalez A, Delos Reyes V et al. for the **MOVE-OUT Study Group** (2021) Molnupiravir for Oral Treatment of Covid-19 in Nonhospitalized Patients NEJM doi: 10.1056/NEJMoa2116044 PMID: 34914868 [collaboration]

Johnson MG, Puenpatom A, Andres Moncado P, Burgess L, **Duke ER**, Ohmagari N, et al. (2022) Additional clinical benefits with molnupiravir for COVID-19: Secondary analyses from the MOVE-OUT randomized, placebo-controlled trial. *Ann Int Med* [original work] *In press*
14. **Title:** A Phase 3, Multicenter, Randomized, Double-blind, Placebo-controlled Study to Evaluate the Efficacy and Safety of MK4482 for the Prevention of COVID-19 (Laboratory-confirmed SARS-CoV-2 Infection With Symptoms) in Adults Residing With a Person With COVID-19
Site: Fred Hutchinson Cancer Research Center
Sponsor: Merck Sharp & Dohme Corp.
Role: Primary Investigator
Status: Recruiting
15. **Title:** A Phase 1 Clinical Trial of a 3-dose, 28-day Regimen of PfSPZ Vaccine in Healthy, Malaria-Naïve, Adult Subjects to Determine Safety, Tolerability and Efficacy Against Heterologous CHMI Conducted 14, 42 or 70 Days After Immunization
Site: Fred Hutchinson Cancer Research Center
Sponsor: Sanaria, Inc.

Collaborator: Fred Hutchinson Cancer Research Center

Role: Sub-investigator

Status: Active, Not recruiting

16. **Title:** A Randomized, Placebo-Controlled Trial to Evaluate the Anti-inflammatory Efficacy of Letermovir (Prevymis) in Adults With Human Immunodeficiency Virus (HIV)-1 and Asymptomatic Cytomegalovirus (CMV) Who Are on Suppressive ART and Its Effect on Chronic Inflammation, HIV Persistence, and Other Clinical Outcomes

Site: University of Washington AIDS CRS (ACTU)

Sponsor: National Institute of Allergy and Infectious Diseases

Collaborator: Merck Sharp & Dohme Corp.

Role: Primary investigator

Status: Recruiting

B. Manuscript Review

1. Journal of Medical Virology (1)
2. Biology of Blood and Marrow Transplantation (2)
3. Blood (2)
4. Blood Advances (1)
5. Viruses (1)
6. Cell Host Microbe (1)
7. Clinical Infectious Diseases (1)
8. Journal of Infectious Diseases (1)
9. iScience (1)

C. Invited Lectures

- 2015 "Listeriosis as a possible complication of Fecal Microbiota Transplant," Frontiers in Gastroenterology and Hepatology, University of Washington, Seattle, WA
- 2016 "A compound interest approach to HIV cure," University of Wisconsin and Midwest AIDS Training and Education Center, Madison, WI
- 2017 "Cytomegalovirus kinetics after hematopoietic cell transplant," Mixed Chimerism Investigators' Meeting, Fred Hutchinson Cancer Research Center, Seattle, WA
- 2018 "Viral Kinetic Correlates of CMV Disease and Death after Hematopoietic Cell Transplant," University of Washington Virology and Fred Hutch Infectious Disease Sciences Symposium, Seattle, WA
- 2019 "Viral Load Kinetics as Surrogates for CMV Clinical Outcomes after HCT," Allergy and Infectious Diseases Division Retreat, University of Washington, Seattle, WA
- 2021 "Harnessing computational tools to advance antiviral treatment development and improve clinical trials," Vaccine and Infectious Disease Division Scientific Seminar Series, Fred Hutch, Seattle, WA