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## EMPLOYMENT

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|---|---|
| 2019-present | Assistant Professor<br>Department of Molecular and Comparative Pathobiology<br>Department of Medicine, Division of Clinical Pharmacology<br>Johns Hopkins University School of Medicine |
| 2021-present | Assistant Professor<br>Department of Molecular Microbiology & Immunology<br>Johns Hopkins University School of Public Health |
| 2018-2019 | Instructor<br>Department of Molecular and Comparative Pathobiology<br>Department of Medicine, Division of Clinical Pharmacology<br>Johns Hopkins University School of Medicine |

## EDUCATION

| | |
|---|---|
| 2009-2014 | Ph.D. (Biomedical Science), Laboratory of Dr. Joan Berman<br>Department of Pathology<br>Albert Einstein College of Medicine, Bronx, NY |
| 2005-2009 | B.Sc. (Biochemistry, *Cum Laude*)<br>Hofstra University, Hempstead, NY |

## POSTDOCTORAL TRAINING

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|---|---|
| 2014-2018 | Laboratory of Dr. Janice Clements<br>Department of Molecular and Comparative Pathobiology<br>Johns Hopkins University, Baltimore, MD |

## PUBLICATIONS (*co-first authorship)

1. Rubin LH, O'Halloran JA, **Williams DW**, Li Y, Fitzgerald KC, Dastgheyb R, Damron AL, Maki PM, Spence AB, Sharma A, Gustafson DR, Milam J, Weber KM, Adimora AA, Ofotokun I, Fischl MA, Konkle-Parker D, Xu Y. Integrase inhibitors are associated with neuropsychiatric symptoms in women with HIV. J Neuroimm Pharmacol. (in press).
2. Gaskill PJ, Fields JA, Langford DT, Stauch KL, **Williams DW**. Editorial: Advances in Understanding NeuroHIV Associated Changes in Neuroimmune Communication in the Combined Anti-retroviral Therapy (cART) Era. Front Neurol. 2021;12:763448. doi: 10.3389/fneur.2021.763448. eCollection 2021.
3. Massanett Aparicio J, Xu Y, Li Y, Colatuoni C, Dastgheyb R, **Williams DW**, Asahchop E, McMillian JM, Power C, Fujiwara E, Gill MJ, Rubin LH. Plasma microRNAs are associated with domain-specific cognitive function in people with HIV. AIDS. 2021 Sep 1;35(11):1795-1804. doi: 10.1097/QAD.0000000000002966.
4. Rubin LH, Gustafson DR, Warrior L, Sheira L, Fitzgerald KC, Dastgheyb R, Weber KM, Tien PC, French A, Spence AB, Sharma A, **Williams DW**, White CJ, Seaberg EC, Frongillo EA, Weiser SD.

Dietary intake is associated with neuropsychological impairment in women with HIV. Am J Clin Nutr. 2021 Jul 1;114(1):378-389. doi: 10.1093/ajcn/nqab038.
5. Veenhuis RT*, **Williams DW***, Shirk EN, Abreu CM, Ferreira EA, Coughlin JM, Brown TT, Maki PM, Anastos K, Berman JW, Clements JE, Rubin LH. Higher circulating intermediate monocytes are associated with cognitive function in women with HIV. JCI Insight. 2021 Jun 8;6(11). doi: 10.1172/jci.insight.146215.
6. O'Halloran JA, Wang K, Spence AB, **Williams DW**, Dastgheyb R, Fitzgerald KC, Kamkwalala AR, Maki PM, Sharma A, Gustafson DR, Milam J, Weber KM, Adimora AA, Ofotokun I, Fischl MA, Konkle-Parker D, Lahiri CD, Sheth AN, Xu Y, Rubin LH. Integrase strand transfer inhibitor start or switch impacts learning in women with HIV. J Acquir Immune Defic Syndr. 2021 Apr 15;86(5):593-599. doi: 10.1097/QAI.0000000000002608.
7. **Williams DW**, Li Y, Dastgheyb R, Fitzgerald KC, Maki PM, Spence AB, Gustafson DR, Milam J, Sharma A, Adimora AA, Ofotokun I, Fischl MA, Konkle-Parker D, Weber KM, Xu Y, Rubin LH. Associations between Antiretroviral Drugs on Depressive Symptomatology in Homogenous Subgroups of Women with HIV. J Neuroimmune Pharmacol. 2021 Mar;16(1):181-194. doi: 10.1007/s11481-019-09899-2. Epub 2020 Jan 13.
8. Rubin LH, Li Y, Fitzgerald KC, Dastgheyb R, Spence AB, Maki PM, Sharma A, Gustafson DR, Milam J, Weber KM, Adimora AA, Haughey NJ, Ofotokun I, Fischl MA, Konkle-Parker D, Xu Y, **Williams DW**. Associations between Antiretrovirals and Cognitive Function in Women with HIV. Neuroimmune Pharmacol. 2021 Mar;16(1):195-206. doi: 10.1007/s11481-020-09910-1. Epub 2020 Mar 24.
9. Vecchio AC*, **Williams DW***, Xu Y, Yu, D, Saylor D, Lofgren S, O'Toole R, Boulware DR, Nakasujja N, Nakigozi G, Kisakye A, Batte J, Mayanja R, Anok A, Reynolds SJ, Quinn TC, Gray RH, Wawer MJ, Sacktor N, Rubin LH. Sex-specific associations between cerebrospinal fluid inflammatory marker levels and cognitive function in antiretroviral treated people living with HIV in rural Uganda. Brain Behav Immun. 2021 Mar;93:111-118. doi: 10.1016/j.bbi.2020.12.021. Epub 2020 Dec 24
10. Dastgheyb R, Buchholz AS, Fitzgerald KC, Xu Y, **Williams DW**, Springer G, Anastos K, Gustafson DR, Spence AB, Adimora AA, Waldrop D, Vance DE, Milam J, Bolivar H, Weber KM, Haughey NJ, Maki PM, Rubin LH. Patterns and predictors of cognitive function among virally suppressed women with HIV. Front Neurol. 2021 Feb 11;12:604984. doi: 10.3389/fneur.2021.604984. eCollection 2021.
11. Kamkwalala AR, Wang K, O'Halloran J, **Williams DW**, Dastgheyb R, Fitzgerald KC, Spence AB, Maki PM, Gustafson DR, Milam J, Sharma A, Weber KM, Adimora AA, Ofotokun I, Sheth AN, Lahiri CD, Fischl MA, Konkle-Parker D, Xu Y, Rubin LH. Starting or Switching to an Integrase Inhibitor-Based Regimen Affects PTSD Symptoms in Women with HIV. AIDS Behav. 2020 Jul 7;. doi: 10.1007/s10461-020-02967-2
12. Fitzgerald KC, Maki PM, Xu Y, Jin W, Dastgheyb R, **Williams DW**, Springer G, Anastos K, Gustafson D, Spence AB, Adimora AA, Waldrop D, Vance DE, Bolivar H, Valcour VG, Rubin LH. Factors Predicting Detrimental Change in Declarative Memory Among Women With HIV: A Study of Heterogeneity in Cognition. Front Psychol. 2020; 11:548521. doi: 10.3389/fpsyg.2020.548521. eCollection 2020
13. Kamkwalala AR, Wang X, Maki PM, **Williams DW**, Valcour VG, Damron A, Tien PC, Weber KM, Cohen MH, Sundermann EE, Meyer VJ, Little DM, Xu Y, Rubin LH. Brief Report: Higher Peripheral Monocyte Activation Markers Are Associated With Smaller Frontal and Temporal Cortical Volumes in Women With HIV. J Acquir Immune Defic Syndr. 2020 May 1;84(1):54-59. doi: 10.1097/QAI.0000000000002283
14. Rubin LH, Xu Y, Norris PJ, Wang X, Dastgheyb R, Fitzgerald KC, Keating SM, Kaplan RC, Maki PM, Anastos K, Springer G, Benning L, Kassaye S, Gustafson DR, Valcour VG, **Williams DW**. Early Inflammatory Signatures Predict Subsequent Cognition in Long-Term Virally Suppressed Women With HIV. Front Integr Neurosci. 2020;14:20. doi: 10.3389/fnint.2020.00020. eCollection 2020.
15. **Williams, DW**, Elahi, S. Profound Immune Consequences for Young Adults Infected with HIV Perinatally or During Childhood: A Cautionary Tale Regarding Adherence to Antiretroviral Therapy. AIDS. 2019 Nov 15;33(14):2251-2.
16. Byrd, A, Dina, Y, Okoh, U, Quartey, Q, Carmona-Rivera, C, **Williams, DW**, Kerns, M, Miller, R, Petukhova, L, Naik, H, Barnes, L, Shipman, W, Caffrey, J, Sacks, J, Milner, S, Aliu, O, Broderick, K, Kim, D, Liu, H, Dillen,C, Ahn, R, Frew, JF, Kaplan, M, Kang,S, Garza, L, Miller, L, Alavi, A, Lowes, M, and Okoye, G. Specimen Collection for Translational Studies in Hidradenitis Suppurativa. Scientific Reports. 2019 Aug 21;9(1):1-1.

17. Veenstra, M, Byrd, DA, Inglese, M, Buyukturkoglu, K, **Williams, DW**, Fleysher, L, Li, M, Gama, L, Leon-Rivera, R, Calderon, TM, Clements, JE, Morgello, S, Berman, JW. (2018). CCR2 on Peripheral Blood CD14+ CD16+ Monocytes Correlates with Neuronal Damage, HIV-Associated Neurocognitive Disorders, and Peripheral HIV DNA: reseeding of CNS reservoirs?. Journal of Neuroimmune Pharmacology, 2019; 14(1): 1-14.
18. **Williams, DW,** Askew, LC, Jones, E, Clements, JE. CCR2 Signaling Selectively Regulates IFN-α: Role of β-Arrestin 2 in IFNAR1 Internalization. Journal of Immunology. 2019; 202(1):105-118.
19. Byrd, AS, Kerns, ML, **Williams, DW**, Zarif, JC, Rosenberg, AZ, Delsante, M, Liu, H, Dillen, C, Maynard, JP, Sacks, JM, Millner, SM, Aliu, O, Broderick, KP, Lew, L, Miller, LS, Kang, S, Okoye, GA. Collagen Deposition in Chronic Hidradenitis Suppurative: Potential Role for CD163+ Macrophages. The British Journal of Dermatology. 2018; 179(3):792-794.
20. Veenstra, M, **Williams, DW**, Calderon, TM, Anastos K, Morgello, S, Berman, JW. CXCR7 Mediates CD14+CD16+ Monocyte Transmigration Across the Blood Brain Barrier: A Potential Therapeutic Target for NeuroAIDS. Journal of Leukocyte Biology. 2017; 102(5):1173-1185.
21. Calderon, TM, **Williams, DW**, Lopez, L, Eugenin, EA, Cheney, L, Gaskill, PJ, Veenstra, M, Anastos, K, Morgello, S, Berman, JW. Dopamine Increases CD14+CD16+ Monocyte Transmigration Across the Blood Brain Barrier: Implications for Substance Abuse and HIV Neuropathogenesis. Journal of Neuroimmune Pharmacology. 2017 June 1; 12(2): 353-370.
22. Dickens, AM, Tovar-y–Romo, LB, Yoo, S, Trout, AL, Bae, M, Kanmogne, M, Megra, B, **Williams, DW**, Witwer, KW, Gacias, M, Tabatadze, N, Cole, R, Casaccia, P, Berman, JW, Anthony, DC, Haughey, NJ. Astrocyte-Shed Extracellular Vesicles Regulate the Peripheral Leukocyte Response to Inflammatory Brain Lesions. Science Signaling. 2017 April 4; 10(473): eaai7696.
23. **Williams, DW**, Engle, EL, Shirk, EN, Queen, SE, Gama, L, Zink, CM, Clements, JE. Splenic Damage During SIV Infection: Role of T Cell Depletion and Macrophage Polarization and Infection. American Journal of Pathology. 2016 August 1; 186(8): 2068-2087.
24. McFarren, A, Lopez, L, Tsukrov, D, **Williams, DW**, Bryan, RA, Goldsmith, A, Morgenstern, A, Bruchertseifer, F, Zolla-Pazner, S, Gorny, MK, Eugenin, EA, Berman, JW, Dadachova, E. A Fully Human Antibody to gp41 Selectively Eliminates HIV-Infected Cells that Transmigrated Across a Model Human Blood Brain Barrier. AIDS. 2016 February 20; 30(4): 563-72.
25. **Williams, DW**, Tesfa, L, Berman, JW. Novel Flow Cytometric Analysis of the Blood Brain Barrier. Cytometry Part A. 2015 October 1; 87(10): 897-907.
26. Carvallo, L, Lopez, L, Che, F, Lim, Jihyeon, Eugenin, E, **Williams, DW**, Nieves, E, Calderon, TM, Madrid-Aliste, C, Fiser, A, Weiss, L, Angeletti, RH, Berman, JW. Buprenorphine Decreases the Inflammatory Response of Monocytes in the Context of NeuroAIDS. Journal of Immunology. 2015 April 1; 194(7): 3246-3258.
27. **Williams, DW**, Anastos, K, Morgello, S, Berman JW. JAM-A and ALCAM Are Therapeutic Targets to Inhibit Diapedesis Across the BBB of $CD14^+CD16^+$ Monocytes in HIV Infected Individuals. Journal of Leukocyte Biology. 2015 February 2; 97(2): 401-412.
28. **Williams, DW**, Byrd, D, Rubin, L, Anastos, K, Morgello, S, Berman, JW. CCR2 on $CD14^+CD16^+$ Monocytes Is A Biomarker of HIV Associated Neurocognitive Disorders. Neurology: Neuroinflammation and Neuroimmunology. 2014 October 1; 1(3): e36.
29. **Williams, DW**, Veenstra, M, Gaskill, PJ, Calderon, TM, Berman, JW. Monocytes Mediate HIV Neuropathogenesis: Mechanisms that Contribute to HIV Associated Neurocognitive Disorders. Current HIV Research. 2014 May 1; 12(2): 85-96.
30. Orellana, J, Velasquez, S., **Williams, DW**, Saez, JC, Berman, JW, Eugenin, EA. Pannexin1 Hemichannels are Critical for HIV Infection of Human Primary $CD4^+$ T Lymphocytes. Journal of Leukocyte Biology. 2013 September 1; 93 (6) 1-9.
31. **Williams, DW**, Calderon, TM, Lopez, L, Carvallo, L, Gaskill, PJ, Eugenin, EA, Morgello, S, Berman, JW. Mechanisms of HIV Entry Into the CNS: Increased Sensitivity of HIV Infected $CD14^+CD16^+$ Monocytes to CCL2 and Key Roles of CCR2, JAM-A, and ALCAM in Diapedesis. PLOS One. 2013 July 26; 8(7): e69270.
32. **Williams, DW**, Eugenin, EA, Calderon, TM, Berman, JW. Monocyte Maturation, HIV Susceptibility, and Transmigration Across the Blood Brain Barrier are Critical in HIV Neuropathogenesis. Journal of Leukocyte Biology. 2012 March 1; 91 (3) 401-415.
33. Buckner, CM, Calderon, TM, **Williams, DW**, Belbin, TJ, Berman, JW. Characterization of Monocyte Maturation/Differentiation That Facilitate Their Transmigration Across the Blood Brain Barrier and

Infection by HIV: Implications for NeuroAIDS. Cellular Immunology, 2011 December 25; 267 (2) 109-123.

## RESEARCH SUPPORT

**Ongoing**

R00 DA044838 **Role: PI** 09/19-08/22
NIH/NIDA
"Effects of Cocaine on Antiretroviral Therapy Efficacy in the Central Nervous System"
This goal of this project is to examine the mechanisms by which cocaine alters drug transport pathways across the blood brain barrier that mediate influx and retention of HIV antiretroviral therapies in the brain.

P30 AI094189 **Role: PI** 09/20-08/21
NIH/NIAID
Pilot Award: "Myeloid Cells as Contributors to Dolutegravir-Mediated Adverse Neuropsychiatric Effects"
We will examine the mechanisms by which dolutegravir mediates its adverse CNS effects by examining monocyte activation, monocyte-endothelial interactions, and energy metabolism.

R01 MH125300 **Role: Co-I** 09/20-08/25
NIH/NIMH
"Immune dynamics shaping blood brain barrier (BBB) integrity in virally suppressed people with HIV"
We will investigate the relationship between blood brain barrier, neuroinflammation, and neuropsychiatric dysfunction in HIV using a novel MRI technique WEPCAST that measures BBB integrity.

R01 DA052859 **Role: PI** 09/20-06/25
NIH/NIDA
"Cannabidiol and Macrophage Chronic Inflammation in a Virally Suppressed Rhesus Macaque Model"
We propose to evaluate 1) to evaluate the impact of cannabidiol (CBD) on myeloid immune activation, 2) to determine the effect of CBD on myeloid antiviral signatures, and 3) to define the impact of CBD on the monocytic and microglial neuroinflammatory and neuroprotective transcriptome.

**Completed**

Translational Research in NeuroAIDS and Mental Health Center **Role: Co-I** 06/18-05/20
**"**Soluble and Cellular Immune Activation and Inflammation Markers in Detrimental Cognitive Change Despite Suppression of Plasma RNA in HIV-Infected Women**"**
PI: Leah Rubin
This collaborative project focuses on identifying plasma immune contributors as longitudinal indicators predictive of cognitive change in a cohort of HIV-infected women.

## HONORS AND AWARDS

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| 2022 | Young International Brain Research Organization Member |
| 2021 | NIH Study Section, ZNS1 SRB-X (16), NINDS K Awards to Promote Diversity, *Ad Hoc Reviewer* |
| 2021 | NIH Study Section, ZDA1 SKM-D (04) S, NIDA Career Development and Education Special Emphasis Panel, *Ad Hoc Reviewer* |
| 2020 | 100 Inspiring Black Scientists in America, Cell Press |
| 2019 | NIDA Early Career Investigator Showcase Travel Award |
| 2019 | Collaborative Research on Addiction at NIH Mentored Career Development Workshop |
| 2018 | NIDA Diversity Scholar Travel Award |
| 2017 | NIDA K99/R00 Pathway to Independence Award |
| 2017 | Helmsley Scholarship, Cellular Biology of Addiction Cold Spring Harbor Course |
| 2017 | Mentoring Institute for Neuroscience Diversity Scholars |
| 2016 | Johns Hopkins University Provost's Postdoctoral Fellowship |
| 2016 | Rising Star in Biomedical Science, MIT |
| 2016 | National Medical Association Academic Medicine Fellow |
| 2016 | NIDA Diversity Scholars Network |

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| 2016 | Keystone Symposia Underrepresented Trainee Scholarship |
| 2015 | NIH Loan Repayment Program for Health Disparities Research |
| 2015 | Novartis Institutes for BioMedical Research Award |
| 2013 | Arthur Falek Young Investigator Award, Society on NeuroImmune Pharmacology |
| 2013 | Junior Investigator Pioneer Award, International Society for NeuroVirology |
| 2012 | Junior Investigator Pioneer Award, International Society for NeuroVirology |
| 2012 | UNCF/Merck Graduate Research Dissertation Fellowship |

## PROFESSIONAL ACTIVITIES

*Editorial Experience*

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|---|---|
| 2019-present | Ad Hoc Reviewer, Journal of Immunological Methods |
| 2019-present | Ad Hoc Reviewer, Brain Research |
| 2019-present | Ad Hoc Reviewer, Frontiers in Neuroscience |
| 2018-present | Ad Hoc Reviewer, AIDS |
| 2018-present | Ad Hoc Reviewer, Journal of NeuroImmune Pharmacology |
| 2017-present | Ad Hoc Reviewer, Journal of Leukocyte Biology |
| 2015-present | Ad Hoc Reviewer, Journal of Biomedical Science |
| 2014-present | Ad Hoc Reviewer, PLOS One |

*Societies*

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|---|---|
| 2017-present | International Brain Barriers Society |
| 2017-present | Society for Neuroscience |
| 2011-present | Society on NeuroImmune Pharmacology |
| 2011-present | International Society for NeuroVirology |