Chinyere Agbaegbu Iweka

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Education

2019 – present	Stanford University, Stanford CA Postdoctoral training
2013 – 2018	Georgetown University, Washington DC Ph.D., Neuroscience
2009 – 2011	Johns Hopkins University, Baltimore MD M.S., Biotechnology
2002 – 2008	University of Maryland, Baltimore County, MD B.S., Biology

Research Experience

2019 – present — Postdoctoral Fellow, Stanford University, Stanford, CA
Advisor: Katrin Andreasson
Research Area: "Identifying metabolic pathways that influence innate immune cell response to stroke injury". I determined that the NAD^+ metabolome was significantly decreased and quinolinic acid, a neurotoxin, accumulated in the blood monocytes of aged mice in response to stroke injury, emphasizing the contributions of metabolism to the maladaptive innate immune response to stroke.
Research Area: "*Identifying the impact of circadian disruption by genetic ablation of clock protein, Bmal1, in myeloid-lineage cells on brain function and metabolism*". I determined that disruption of the circadian clock in myeloid-lineage cells impairs microglial function and accelerates cognitive decline in aged mice, highlighting the importance of maintaining circadian rhythmicity in aging.

2013 – 2018 — Graduate student, IPN/IRTA program, Georgetown University, Washington DC
National Heart, Lung and Blood Institute, NIH, Bethesda MD
Advisors: Mark P Burns and Herbert M Geller
Research Area: "*Elucidating the role of plasticity-related gene protein, PRG-3 (PLPPR1) in the central nervous system*". I determined that PRG-3 can overcome the inhibitory activity of chondroitin sulfate proteoglycan (CSPG) and lysosophatidic acid to axonal regeneration by activating Rho-GTPases.

2012 – 2013 — Research Associate, National Heart, Lung and Blood Institute, NIH, Bethesda, MD
Advisor: Herbert M Geller
Research Area: "*Identifying the cooperative interactions of PRG family members in membrane localization and alteration of cellular morphology*". I identified PRG-3 in a phoshoproteomic screen of proteins that respond to CSPGs in neurons and determined a cooperative interaction between the PRG family of proteins to promote neurite outgrowth.

Fellowships and Awards

2022	First place, Postdoctoral Poster Presentation, American Society for Cell Biology
2022	IPERT Travel Award, American Society for Cell Biology Conference
2022	Leading Edge Fellow, HHMI – an initiative to improve gender diversity in academia
2022	Postdoc Merit Award, Society for Research on Biological Rhythms – recognition of excellence in research through travel fellowships to the SRBR annual meeting

2022	Emmett Chappell Award, Society for Research on Biological Rhythms – an award to facilitate professional development tools and networking opportunities for awardees to become future leaders and role models in the biological rhythms community
2021	Postdoctoral JEDI Champion Award, Stanford University – recognition for contributions to diversity and inclusion
2021 – 2023	Accomplishing Career Transitions Program, American Society for Cell Biology – an award to provide professional development programs for postdocs
2021	American Society for Biochemistry and Molecular Biology Postdoctoral Award – travel fellowship to the ASBMB annual conference
2019	BRAINS Affiliate, University of Washington – NINDS-funded national program dedicated to advancing diversity and inclusion in neuroscience
2018	Gordon Research Conference Travel award to present at the Cell Biology of the Neuron conference
2018	Graduate Partnership Program Research Award, NIH – intramural program to facilitate partnership with Georgetown University for graduate training
2017	New York Academy of Science Travel fellowship to present at the Neuroplasticity, Neuroregeneration, and Brain Repair conference
2017	Biomedical Graduate Program Student Research Award, NIH – recognition of excellence in research
2016 – 2018	Neuroscience Scholars Program Award, Society for Neuroscience – an award to provide mentoring and professional development tools to underrepresented minorities in academia
2015	Coca Cola Award, Georgetown University – to recognize academic accomplishments and efforts to obtain external funding research
2006	Dean's List, University of Maryland, Baltimore County, MD

Publications

a. **Chinyere Agbaegbu Iweka**, Erica Seigneur, Amira Latif Hernandez, Sur Herrera Paredes, Mica Cabrera, Eran Blacher, Connie Tsai Pasternak, Frank M. Longo, Luis de Lecea, and Katrin I. Andreasson. Myeloid deficiency of the intrinsic clock protein BMAL1 accelerates cognitive aging by disrupting microglial synaptic pruning. J Neuroinflammation. 2023 Feb 24;20(1):48. doi: 10.1186/s12974-023-02727-8. PMID: 36829230; PMCID: PMC9951430.

b. Blacher E, Tsai C, Litichevskiy L, Shipony Z, **Iweka CA**, Schneider KM, Chuluun B, Heller HC, Menon V, Thaiss CA, Andreasson KI. Aging disrupts circadian gene regulation and function in macrophages. **Nat Immunol**. 2021 Dec 23. doi: 10.1038/s41590-021-01083-0. Epub ahead of print. PMID: 34949832.

c. **Iweka CA**, Hussein RK, Yu P, Katagiri Y, Geller HM. The lipid phosphatase-like protein PLPPR1 associates with RhoGDI1 to modulate RhoA activation in response to axon growth inhibitory molecules. **J Neurochem**. 2021 Dec 15. doi: 10.1111/jnc.15271. Epub ahead of print. PMID: 33320336.

d. Tilve S, **Iweka CA**, Bao J, Hawken N, Mencio CP, Geller HM. Phospholipid phosphatase related 1 (PLPPR1) increases cell adhesion through modulation of Rac1 activity. **Exp Cell Res**. 2020 Apr 15;389(2):111911. doi: 10.1016/j.yexcr.2020.111911. Epub 2020 Feb 14. PMID: 32061832; PMCID: PMC7132996.

e. Nagase H, Higashi SL, **Iweka CA**, Pearson CS, Hirata Y, Geller HM, Katagiri Y. Reliable and sensitive detection of glycosaminoglycan chains with immunoblots. **Glycobiology**. 2020 Jul 02; 31(2):116–125PMID: 32614944. doi: 10.1093/glycob/cwaa060.

f. Main BS, Villapol S, Sloley SS, Barton DJ, Parsadanian M, **Agbaegbu C**, Stefos K, McCann MS, Washington PM, Rodriguez OC, Burns MP. Apolipoprotein E4 impairs spontaneous blood brain barrier repair following traumatic brain injury. **Mol Neurodegener**. 2018 Apr 4;13(1):17. doi: 10.1186/s13024-018-0249-5. PMID: 29618365; PMCID: PMC5885297.

g. Yu P, **Agbaegbu C**, Malide DA, Wu X, Katagiri Y, Hammer JA, Geller HM. Cooperative interactions of LPPR family members in membrane localization and alteration of cellular morphology. **J Cell Sci**. 2015 Sep 1;128(17):3210-22. doi: 10.1242/jcs.169789. Epub 2015 Jul 16. PMID: 26183180; PMCID: PMC4582190.

Oral and Poster Presentations

2023 **Invited talk**. “Reduced expression of the cell intrinsic clock protein, BMAL1, in myeloid cells alters microglial function and accelerates cognitive decline in aged mice”. San Francisco State University Biology Colloquium, San Francisco CA

2023 **Invited talk**. “The immunometabolic response to stroke injury in aging”. Stanford Neuro feedback lunch seminar series, Wu Tsai Neurosciences Institute, Stanford CA

2023 **Invited talk**. “The immunometabolic response to stroke injury in aging”. Stanford Cardiovasular Institute Early Career Roundtable seminar series, Stanford CA

2023 **Invited talk**. “The impact of circadian disruption on immunometabolism and its effect on stroke severity”. American Society for Biochemistry and Molecular Biology, Black history in the making: A postdoc research talk series, virtual

2022 **Poster Presentation**. “Reduced expression of the cell intrinsic clock protein, BMAL1, in myeloid cells alters microglial function and accelerates cognitive decline in aged mice”. American Society for Cell Biology Conference, Washington DC

2022 **Invited talk**. “The immunometabolic response to stroke injury in aging”. Department of Molecular Biology and Genetics Seminar Series. Cornell University, Ithaca NY

2022 **Invited talk**. “Reduced expression of the cell intrinsic clock protein, BMAL1, in myeloid cells alters microglial function and accelerates cognitive decline in aged mice”. Cell Biology of the Neuron Gordon Research Conference, Waterville Valley, NH

2022 **Poster Presentation**. “Reduced expression of the cell intrinsic clock protein, BMAL1, in myeloid cells alters microglial function and accelerates cognitive decline in aged mice”. Neuroimmune interactions in the CNS, Keystone, CO

2022 **Invited talk**. “Mitochondrial function in optic disc drusen and anterior ischemic optic neuropathy”. Stanford Optic Disc Drusen Conference, Stanford CA

2022 **Invited talk**. “Reduced expression of the cell intrinsic clock protein, BMAL1, in myeloid cells alters microglial function and accelerates cognitive decline in aged mice”. Wu Tsai Neurosciences Institute Retreat, Santa Cruz, CA

2022 **Poster Presentation**. “Reduced expression of the cell intrinsic clock protein, BMAL1, in myeloid cells alters microglial function and accelerates cognitive decline in aged mice”. Society for Research in Biological Rhythms, Amelia Island, FL

2021 **Invited talk**. “Assessing the metabolic status of myeloid cells after cerebral ischemia in young and aged mice”. AHA-Allen Brain Health Seminar, Stanford University, Stanford, CA

2021 **Poster Presentation**. “Reduced expression of the cell intrinsic clock protein, Bmal1, in myeloid cells accelerates cognitive decline and alters microglial function in aging mice”. American Society for Biochemistry and Molecular Biology, Experimental Biology Conference, virtual

2021 **Poster Presentation**. “Assessing the metabolic status of myeloid cells after cerebral ischemia in young and aged mice”. Cell Biology virtual Conference, virtual.

2021 **Invited talk**. “Reduced expression of the cell intrinsic clock protein, BMAL1, in myeloid cells alters microglial function and accelerates cognitive decline in aged mice”. The NIH Blueprint Diversity virtual Conference

2018 **Poster Presentation**. “PRG-3 attenuates CSPG and LPA Inhibition of Neurite Outgrowth through the RHOA-ROCK Pathway”. Society for Neuroscience Conference, San Diego, CA.

2018 **Poster Presentation**. “PRG-3 attenuates CSPG and LPA Inhibition of Neurite Outgrowth through the RHOA-ROCK Pathway”. Cell Biology of the Neuron, Gordon Research Conference, Waterville Valley, NH.

2017 **Poster Presentation**. “PRG-3 attenuates CSPG and LPA inhibitory activity by reducing myosin light chain II phosphorylation”. Neuroplasticity, Neuroregeneration, and Brain Repair Conference, NY.

2016 **Poster Presentation**. “An integral membrane Lipid Phosphate Phosphotase-related protein, LPPR1, overcomes CSPG inhibition and regulates plasticity”. Society for Neuroscience, San Diego, CA.

2015 **Poster Presentation**. “An integral membrane Lipid Phosphate Phosphotase-related protein, LPPR1, overcomes CSPG inhibition and regulates plasticity”. International Symposium for Neuroregeneration Conference, Asilomar, CA.

Teaching/Mentoring Experience

2019 – present **Instructor,** AP Biology
Stanford Online High School, Stanford CA
As an educator, I have incorporated active learning during lectures, promoted self-directed learning while providing guidance, and encouraged the use of the 4 elements of critical thinking in lab assignments with the goal of providing an inclusive learning environment for students

2019 – present Teaching Certificate, Stanford University, CA
Enrolled to obtain comprehensive teaching training and attend workshops and courses that provide a holistic foundation for teaching improvement and/or pedagogical theory

2016 – 2018 **Instructor**, Drugs, Brain and Behavior, ICOS326/PHAR589
Georgetown University, Washington DC

Other Experience

2008 – 2018 Endocrine Medical Technologist
Shady Grove Fertility, Rockville MD

Professional Activities, Service and Outreach

2023 **Member**, National Black Postdoc Association Outreach Committee.

2022 **Member**, Abstract Programming Committee task force for Cell Biology Meeting 2022.

2022 **Poster Judge,** Annual Biomedical Research Conference for Minoritized Scientists.

2022 – present **Faculty sponsor,** OHS STEM Magazine, Stanford Online High School

2021 – present **Chair**, Stanford University Postdoctoral Association, Stanford University
Advocacy for all Stanford University postdoctoral trainees and initiated programs to promote diversity and inclusion within postdoctoral community.
Worked closely with the Dean of Equity and Inclusive for the School of Medicine to ensure that issues and the needs of underrepresented minority postdocs were addressed.
Incorporated program “Someone like Me” mentoring program to facilitate mentoring between underrepresented minority postdocs and faculty.
Successfully advocated for housing for Stanford postdocs and program for transitional housing for incoming postdocs.
Successful in advocating for increased financial aid support for Stanford postdocs with dependents, and extended email access from 120 days to 2 years for postdocs leaving Stanford.
Facilitated and organized events for the annual postdoc appreciation week.
Organized, invited and moderated special seminar for Professor Condoleeza Rice.
Organized Postdoctoral Symposium where postdocs were able to present their work.
Represented Stanford postdocs at the Faculty Senate bi-monthly meetings.

2021 **– present** Postdoc Representative, **Stanford University Faculty Senate**
Served as the sole postdoc representative, interfaced with Stanford faculty to advocate for postdoc needs and ensure inclusion in changes to polices.

2021	**Journal Peer Review,** Nature Communications
2021	**Invited Moderator**, Experimental Biology Conference Moderated Signal Transduction and Cellular Regulation session
2021	**Judge,** Poster presentation for ASBMB 2021virtual Conference Read abstracts and judged poster presentations for the undergraduate poster competition.
2020 – present	**Faculty Sponsor,** PreMed Club, Stanford Online High School
2019 – present	**Mentor**, Greene Scholars Program for underrepresented minorities, CA Participates as Science Fair Judge and provided feedback to research conducted by middle schoolers.
2018 – 2022	**Chair**, Gordon Research Seminar, Cell Biology of the Neuron Developed program for the Gordon Research Seminar, Cell Biology of the Neuron Fundraised for the seminar, selected abstracts for oral and poster presentations including discussion session leaders, invited keynote speaker and career panel participants.
2018 – present	**Mentor**, ACT-SO mentoring program for underrepresented minorities Provided guidance in the development of research project for high school students.
2017 – 2018	**Committee Member**, NHLBI CBPC Distinguished Seminar Series Committee Invited speakers to the seminar series at NIH.
2014 – 2015	**Travel Grant Officer,** Medical Center Graduate Student Organization Georgetown University, Washington DC Read grant applications and awarded travel grants for graduate students.

Grant Funding

Burroughs Wellcome Postdoctoral Diversity Enrichment Program
Iweka (PI) – 9/01/2022–8/29/2025
Effects of circadian disruption on immunometabolism and stroke severity.
The goal of this project is to identify the circadian clock controlled metabolic pathways that contribute to the maladaptive immune response to stroke.

Jump Start Award, Stanford University
Iweka (PI) – 9/14/2020–7/31/2021
Assessing the metabolic status of myeloid cells after cerebral ischemia in young and aged mice.
The goal of this project was to assess the metabolic status of blood monocytes in young and aged mice after stroke, and correlate changes in metabolism with immune activation state.

R01NS100180 Diversity supplement, NINDS
Andreasson (PI) – 8/1/2017–7/31/2022
Modulating the post-stroke inflammatory response to improve outcome in models of cerebral ischemia.
The goal of this study is to examine post-stroke innate immune responses mediated by TREM1.
Role: Diversity supplement trainee

SUMS Seed Funding Grant, Stanford University
Iweka (PI) – 12/20/2019–8/31/2020
Investigating the metabolic state of resident and infiltrating immune cells after ischemic stroke.
The goal of this study is to develop methodology for NAD metabolome measurements in liquid chromatography/mass spectrometry.

Student Research Grant Program Award, Georgetown University
Iweka (PI) – 7/1/2017–6/30/2018
PRG-3 modulates CSPG and Nogo-66 inhibition of neurite outgrowth through the RhoA-ROCK pathway.
The goal of this study is to assess the effect of PLPPR1 on the CSPG and Nogo-66 induced inhibition of neurite outgrowth.