Phillip Munashe Muza, PhD

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I am an experienced neuroscientist with 8 years of research experience and a proven track record in large-scale data analysis, tool development, and scientific research. Seeking a transition into a role using analytical and problem-solving skills to contribute to science and technology development and policy.

Education

MPhil/PhD in Cellular and Molecular Neurosciences

University College London, London, UK | 2019 - 2023

BSc in Neurosciences (with Professional Training Year)

Cardiff University, Cardiff, UK | 2014 – 2018

Professional Experience

Research Fellow | 2024 - Current

UCL – Department of Imaging in London, UK

- Project title: Novel therapeutic strategies to treat Alzheimer's disease.
  - In collaboration with AstronauTx, a UCL/ARUK spinout, we are testing novel therapeutic strategies to treat Alzheimer's disease using mouse models. This project involves rodent behavioural training, small animal surgery, drug treatment, brain imaging using MRI and optical clearing techniques, including development of automated image analysis tools, and biochemical techniques to find perturbations in protein homeostasis.

Postdoctoral Fellow | 2023 - 2024

UCSF – Department of Neurology, USA

- Project: Understanding body-brain mechanisms underlying cognitive enhancement with Klotho.
  - Using viral tools and proteomics, including mass spectrometry, to investigate how blood-borne factors produced by organs other than the brain contribute to brain health and function.
- Project: Investigating how Klotho attenuates APOE4-induced vulnerability in Alzheimer's disease
  - Using high-throughput *in vitro* techniques and automated tools to capture a myriad of phenotypes. I have developed scripts in R for data collection, wrangling, and analysis.

PhD Student/Research Technician | 2018 - 2023

UCL – Institute of Neurology, London, UK

- Developed an automated pipeline image analysis to investigate anatomical and cellular mechanisms underlying cognitive impairment in Down syndrome.
  - o Utilized brain optical clearing techniques, image registration, and computational workflows. Proficient in ImageJ (Java), Python, R, and command line (Windows/Bash).

Undergraduate Research Project | 2017 - 2018

Cardiff University, Cardiff, UK

- Characterized a novel mouse model of brain derived neurotrophic factor (BDNF) expression.
  - o Demonstrated strong analytical and research skills.

Research Internship | 2016-2017

Roskamp Institute, Florida, USA

- Characterized a novel model of repetitive mild traumatic brain injury.

  - o Demonstrating adaptability and problem-solving skills.

Skills

Analytical Skills: Proven ability to analyze large datasets and develop insights.

Data Visualization: Proficient in data visualization tools and techniques.

Programming: Strong skills in python, R, and CLI (git & powershell) for data analysis and automation.

Project Management: Managed complex projects, coordinating data collection and analysis.

Scientific Writing: Published articles in reputable journals.

Communication: Effectively communicated research findings in conferences and seminars.

Supervision: Co-supervised and mentored master's students and staff scientists.

Leadership Experience

Organized union events and actions for UCSF Postdocs.

Board member of the UCSF Postdoc Association.

Volunteered for UCL's Athena Swan committee, working towards gender equality.

Organized conferences, workshops, and social events for post-graduate students.

Treasurer for Cardiff University Neuroscience Society

Executive member of the Cardiff University Student Union Welfare Team

Publications

Muza P, Bush D, Pérez-González M, Zouhair I, Cleverley K, Sopena ML, Aoidi R, West SJ, Good M, Tybulewicz VLJ, Walker MC; Fisher EMC; Chang P (2023). Dp(10)2Yey mouse model of Down syndrome exhibits aberrant cognition, hippocampal-prefrontal neural dynamics and cytoarchitecture. **iScience**. doi: [10.1016/j.isci.2023.106073](#)

Muza P.M, Perez-Gonzalez M, Noy S, Kurosawa M, Katsouri L, Tybulewicz V.L.J., Fisher E.M.C., and West S.J. (2023). Affordable Optical Clearing and Immunolabelling in Mouse Brain Slices. **BMC Research Notes**. doi: 10.1186/s13104-023-06511-y

Muza P, Bachmeier C, Mouzon B, Algamal M, Rafi NG, Lungmus C, Abdullah L, Evans JE, Ferguson S, Mullan M, Crawford F, and Ojo JO (2019). APOE Genotype Specific Effects on the Early Neurodegenerative Sequelae Following Chronic Repeated Mild Traumatic Brain Injury. **Neuroscience.** doi: 10.1016/j.neuroscience.2019.01.049

Algamal M, Ojo JO, Lungmus CP, **Muza P**, Cammarata C, Owens MJ, Mouzon BC, Diamond DM, Mullan M, Crawford F (2018). Chronic Hippocampal Abnormalities and Blunted HPA Axis in an Animal Model of Repeated Unpredictable Stress**. Front Behav Neurosci.** doi: 10.3389/fnbeh.2018.00150

References

1. **Professor Elizabeth Fisher**
   - Primary PhD Supervisor at UCL
   - **elizabeth.fisher@ucl.ac.uk**
2. **Dr. Dena Dubal**
   - Supervisor at UCSF
   - **dena.dubal@ucsf.edu**
3. **Dr. Ian Harrison**
   - Current Line Manager at UCL
   - **ian.harrison@ucl.ac.uk**