# Adewale, Oluwatosin Emmanuel

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## EDUCATIONAL BACKGROUND

**2023- Present** **Doctor of Philosophy, Medicinal and Pharmaceutical Chemistry**
University at Buffalo, New York

**2018 - 2021** **Master of Science in Biochemistry**
Osun State University, Osogbo, Nigeria

**2010 -2015** **Bachelor of Science in Biochemistry**
Osun State University, Osogbo, Nigeria

## RESEARCH EXPERIENCE

**Aug 2023- Present** **Research Assistant**
**Murkin Lab, De**partment of Chemistry, University at Buffalo, New York
**Research:** My current research focuses on understanding the mechanism of 1-deoxy-D-xylulose-5-phosphate reductoisomerase (DXR), which catalyzes the first committed step in the non-mevalonate (MEP) pathway responsible for isoprenoid biosynthesis. Through kinetic isotope effect (KIE) studies, we aim to establish the transition state model of DXR computationally, which can serve as a blueprint for the future design of tight-binding inhibitors of this drug target.

**2023(Jan – July)** **Research Trainee,**
**Helix Biogen Institute, Nigeria**
**Research:** Designing of Point-of-Care Diagnostics Kits for Infectious Diseases.
**Roles**
- Running Linear B-cells prediction using SVMTrip and IEDB servers.
- IL4 and IL10 prediction, accessing solubility & physicochemical properties of chimeric protein constructs.
- In-silico cloning and molecular docking

**2021 - 2022** **Research Intern**
**Drug Discovery Group B, HackBio Bioinformatics Virtual Research Program**
**Research:** Bioactive Constituents of Safflower plant as potential inhibitors of mutant LRRK2: Docking, ADMET properties, and molecular dynamics studies**.**
**Roles**
- Worked with an international team to conduct computational studies on the bioactive constituents of Safflower plant as potential drug candidates for Parkinson's disease.
- Acquired knowledge of using drug discovery databases and software such as Pymol, Discovery Studio, PyRx,, admetSAR web server, and SwissADME.

**2018 – 2021** **Graduate Research Assistant (M.S.), Osun State University-Nigeria**
**Thesis:** Cardioprotective potential of Calotropis procera (giant milkweed) leaf extracton Sodium nitrite–induced toxicity in Wistar rats.
**Advisors:** Professor Olu Israel Oyewole & Prof. Isaac O. Adewale
**Roles**
- Evaluated antioxidant & cardioprotective potentials of *Calotropis procera* on Sodium nitrite -induced oxidative stress in Wistar rats.
- Performed phytochemical analyses on *Calotropis procera* leaf extract.
- Conducted data analysis using statistical tools such as Excel and R.

**2010 – 2015** **Undergraduate Research Assistant, Osun State University, Nigeria**
**Thesis:** Effects of Oral Administration of Ethanolic Seed Extract of Castor Bean and Vitamin C on Some Biochemical Parameters in Rat Brain.
**Advisor:** Professor Olu Israel Oyewole
**Roles**
- Investigated the effects of coadministration of Ricinus communis seed and vitamin C on some biochemical parameters in the rat brain.
- Learned research ethics, communication, and handling rat models of diseases.

**2013(Mar-Aug)** **Chemist Intern- GlaxoSmithKline**
Quality Assurance Laboratory, GlaxoSmithKline Plc. Ogun state, Nigeria.

**Roles**

- Determined chemical composition of samples for product development purposes.
- Performed visual assessment & chemical analysis (using HPLC, UV Spec, Centrifuge,) on products to evaluate conformance with quality standards.
- Documented laboratory reports & performed routine maintenance and calibration of laboratory equipment.

**INTERESTS**: Drug Discovery/Development | Protein Chemistry | Molecular Pharmacology | Computational & Structure- Guided Drug Design | Chemical Biology

## TEACHING EXPERIENCE

**2023-present** **Teaching Assistant**

**Roles**

- Teaching organic chemistry CHE 203/204 (recitation) and CHE 205/206 Labs) for undergraduates.
- Exams proctoring and grading
- Conducting office hours weekly for chemistry students.

**2016 -2018** **Home Science Tutor**

**Roles**

- Taught chemistry, biology, physics, and mathematics to senior secondary school students to prepare them for senior school examinations in Nigeria
- Students achieved excellent grades, including distinctions in chemistry and mathematics

**2015 – 2016** **Chemistry Tutor, National Youth Service, Oyo State, Nigeria**

**Roles**

- Taught, graded, and supervised laboratory activities for over thirty (30) students in chemistry, which boosted their chemistry grades.

**2010 - 2014** **Tutorial Leader, Biochemistry Students, Osun State University, Nigeria**

**Roles**

- Tutored over 60 undergraduate biochemistry students and successfully improved their academic performances in departmental courses.

## HONORS & AWARDS

**2024** Mattern-Tyler Teaching Award (Issued by University at Buffalo Chemistry)
**2023** Teaching assistantship/Tuition scholarship (Issued by University at Buffalo Chemistry)
**2022** The Michael Taiwo Annual Scholarships- One of 47 awardees amongst 10,689applicants from 52 countries to win the 2022 MT Scholarship. Prize: >$1000
**2021** Best Graduating Student, MSc Biochemistry (2019/2020 academic session) - Osun State University
**2021** Victor Agboga Bursary Award for Graduate Application Support
**2019** Dean's Nomination – Faculty of Basic and Applied Sciences, Osun State University
Nominated as a student in the top 1% of the faculty to attend the international Inaugural symposium of the Global Affairs and Sustainable Development Institute of Osun State University, Nigeria.
**2016** Award of National Service; National Youth Service Corps, Nigeria.

## LEADERSHIP AND VOLUNTEERING EXPERIENCE

**2026** **Judge, State Science Day – Ohio Academy of Science**
Columbus, Ohio

- Selected as a judge for statewide science fair evaluating middle and high school research projects in life sciences and chemistry.
- Assessed projects based on scientific rigor, experimental design, data analysis, and conceptual understanding.
- Delivered structured feedback to participants, fostering scientific communication and inquiry skills.
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**2025- present** **President, Nigeria Graduate Students Association (NGSA)**
University at Buffalo, New York

- Fostering a vibrant and supportive Nigerian/African student community at UB by providing representation**,** opportunities for involvement**,** and access to essential resources and funding for all association members.

**2023-2024** **Diversity and Inclusion Committee Member (UB Chemistry)**

- Fostered collaboration among students, staff, and faculty to promote an inclusive community
- Advocated for policies and practices that made the department welcoming to people of all backgrounds

**2021 – 2023** **Team Lead, Dekempify**
**Roles**

- Led a multidisciplinary team using data-driven insights and diverse expertise to create valuable solutions to bridge the gaps in raw material transformation in Nigeria

**2010 – 2015** **Student Representative, Department of Biochemistry, Osun State University**
**Roles**

- Served as the primary formal communication channel between the Faculty and a class of over 80 undergraduate students

## ACADEMIC PUBLICATIONS

**Adewale, O. E.** et al. (2025). *Cardioprotective potential of Calotropis procera leaf extract on sodium nitrite–induced toxicity in Wistar rats*. *Am J Biomed Res.* https://doi.org/10.12691/ajbr-13-1-2

Omena-Okpowe, B., Khaled, M., Akinseye, S.P., Hammouda, M.A., Anusuiya, B., Abayomi, M. A., Delgado, L.C., **Adewale, O. E**., Sivanandan, P.K., Olatunde, K., Olasope, D. K., Mohamed, M.S., Mohamed, N.H., Adebisi, A.R., Isong, J., Ropon-Palacios, G., Vilka-Quispe, J., Vega-Chozo, K. and Attah, E.I .(2022). Bioactive Constituents of Safflower plant as potential inhibitors of mutant LRRK2: Docking, ADMET properties, and Molecular Dynamics studies. https://doi.org/10.21203/rs.3.rs-1854127/v1

**Manuscripts in Preparation**

Nweze, V.N., **Adewale, O.E.,** Oyedeji, F.O. & Fajobi, S.J. Therapeutic Potentials of Metallic ion complexesfor the treatment of COVID-19: a review

Nweze, V.N., **Adewale, O.E.,** Uzoechina, J.O., Solaru, B. & Ayodele, A. Implications of SustainableDrug Discovery and Development on Global Health.

## CONFERENCE/WEBINAR ATTENDANCE

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| **2026** | 15th Annual Howard Tieckelmann Memorial Lecture: "Non-Traditional Modulation of Polypeptide Information: Novel Agonists of Class B1 GPCRs.- Prof. Samuel H. Gellman |
| **2025** | UB Chemistry Graduate Student Symposium |
| **2023- Present** | Foster Seminars at UB Chemistry |
| **2022- Present** | Drug Hunter Flash Talks Series\| Host**:** Dr. Dennis Hu, CEO/Editor-in-Chief. |
| **2022** | SMU's Building a Resilient Scientist (SMU-BARS) program organized by NIH Office of Intramural Training and Education & South Methodist University, Texas. |
| **2022** | Malaria in Africa: Translating Science into Practice-Johns Hopkins Malaria Institute |
| **2021** | Developments in Drug Discovery Biochemical Society Webinar. |
| **2020** | International Conference on Recent Advancements in Biotechnology (RAIB-2020) |

## SELECTED CERTIFICATIONS AND TRAININGS

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| **2024** | Biomedical Responsible Conduct of Research Course (CITI Program) |
| **2022** | Thesis and Scientific Paper Writing Workshop, Helix Biogen Institute. |
| **2022** | Drug Discovery, University of California San Diego via Coursera. |
| **2022** | Browsing Genes and Genomes with Ensembl (Host- Ben Moore) EMBL's European Bioinformatics Institute (EMBL-EBI) and Noblekinmat Ltd |
| **2021** | ACS Reviewer Lab Course, American Chemical Society. |
| **2020** | Computational Biology Workshop at Jaris Computational Biology Centre in Jos, Nigeria |
| **2020** | Writing in the Sciences, Stanford School of Medicine via Coursera. |
| **2020** | Understanding Cancer Metastasis, Johns Hopkins University via Coursera |

## PROFESSIONAL AFFILIATIONS

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| **2026 - Present** | National Organization of Black Chemists and Chemical Engineers (NOBCChE) |
| **2026 - Present** | American Society for Biochemistry and Molecular Biology (ASBMB) |
| **2021 - Present** | American Chemical Society |
| **2020 - Present** | Nigerian Society of Biochemistry and Molecular Biology (NSBMB) |
| **2019 - Present** | Biochemical Society |

## SKILLS & ABILITIES

**Laboratory**: Nuclear Magnetic Resonance (NMR) Spectroscopy, Ultraviolet-Visible Spectroscopy, Fast Protein Liquid Chromatography (FPLC), Gel Electrophoresis, High-Performance Liquid Chromatography,Polymerase Chain Reaction, and Immunoassay.
**Software**: MestReNova, KinTek Explorer, GraphPad Prism, KaleidaGraph, Microsoft Office suite, Pymol, R & Python (basic proficiency), Discovery Studio, PyRx, andFireworks graphic software.
**Databases**: admetSAR web server, SwissADME, Ensembl**,** PDB, PubChem, ChemSpider and Chembl,

## HOBBIES

Athletic participation, community service, reading, playing musical instruments, and hiking

## REFERENCES

Available on request