

TAAHIRAH BOLTMAN

(Email: 27780171@sun.ac.za / taahirahboltman@gmail.com)

PERSONAL PROFILE

Highly motivated and adaptable researcher with a strong focus on nanoscience-based biomedical research and diseases prevalent in South Africa. Experienced in scientific writing, teaching, student supervision, and laboratory management. Demonstrates excellent communication, data analysis, and problem-solving skills, with a proven ability to consistently meet deadlines. Detail-oriented, proactive, and capable of working both independently and collaboratively within a team.

EDUCATION

PhD Medical Biosciences | 2022 | University of the Western Cape

- Thesis Title: The development of targeting nanosystems for the treatment of glioblastoma and neuroblastoma tumours
- Supervisors: Prof. Okobi Ekpo and Prof. Mervin Meyer

M.Sc. Nanoscience Cum Laude | 2015 | University of the Western Cape

- Thesis Title: Liposomal Drug Delivery to Brain Cancer Cells
- Supervisors: Prof. Okobi Ekpo and Prof. Mervin Meyer

B.Sc. Honours (Medical Bioscience) | 2013 | University of the Western Cape

- Thesis Title: The effects of Bisphenol A and Rooibos (*Aspalathus linearis*) on bEnd 5 cells
- Supervisor: Prof. Okobi Ekpo, Prof. David Fischer and Dr Kareemah Najaar

B.Sc. (Medical Bioscience) | 2012 | University of the Western Cape

PROFFESIONAL EXPERIENCE

Postdoctoral Fellow | 2022-Present | Centre for Cardiometabolic Disease in Africa, Stellenbosch University

- Co-supervision of Honour and Master students.
- Involvement in mitochondrial function research linked to cardiometabolic disease in HIV.
- Manage websites for the Division of Medical Physiology and CARMA. Create content for Division's social media accounts

Lecturer (Part-time) | 2021-2022 | Cape Peninsula University of Technology, Bellville Campus

- Taught Physiology to Emergency Medical Care undergraduates.

Lab Manager | 2017-2021 | University of the Western Cape

- Managed cell culture laboratory, including inventory control, ordering consumables, requesting quotations, and overseeing autoclaving processes.

Research Assistant & Trainer | 2014-2021 | University of the Western Cape

- Supervised MSc students, conducted nanoparticle synthesis, and trained on cell culture techniques.

LABORATORY SKILLS

- Nanoparticle synthesis: Liposomes for drug delivery and functionalized metallic nanoparticles.
- Cell culture: Expertise in human and animal cell lines, including cancer cells, fibroblasts, and co-culture techniques.
- Biological assays: Proficient in trypan blue, XTT, MTT, WST-1, TMRE, Annexin V, ROS, and other assays.
- Molecular techniques: Cloning, DNA/RNA purification, PCR, qPCR, and gel electrophoresis.
- Microbiology: Basic skills in plate preparation and streaking.
- Microscopy: Skilled in light, darkfield, and electron microscopy.
- Retinal imaging and inter-media thickness analysis.

- High-Resolution Respirometry: Mitochondrial function research and analysis.

EQUIPMENT HANDLING SKILLS

Capable of operating laboratory equipment: UV-vis analysis, photon correlation spectroscopy, confocal microscopy, transmission electron microscopy and scanning electron microscopy, flow cytometry, fourier transform infrared spectroscopy and raman spectroscopy, high-performance liquid chromatography, Canon CR-2 non-mydratic digital retinal camera, Esaote MyLab Five Ultrasound System and Oroboros O2k Fluorescence Respirometer.

ANALYTICAL SKILLS

- Basic programming: Linux (Ubuntu) command line and bash scripting and Python programming language
- Microsoft Word, Excel, PowerPoint and Outlook
- Statistical programs: MedCalc, GraphPad Prism, SPSS and Origin 8
- Microscopy and imaging analysis programs: Image J and BioRender.com
- Bioinformatics software programs: STRING and DAVID
- Blackboard teaching platform and Primal Pictures 3D human Anatomy Software
- Canon Retinal Imaging Control Software (RICS)
- O2k-Software for data acquisition and analysis for high-resolution respirometry (DatLab8)

HONOURS AND AWARDS

2024: 163rd International Workshop on High-Resolution Respirometry (IOC163) Certificate

2024: 50th Anniversary of the Physiology Society of Southern Africa Conference Certificate

2024: Stellenbosch University Faculty of Medicine and Health Sciences Scientific Travel Fund

2024: NRF Travel Grant for Equipment-related Travel and Training

2023: CHPC-NITheCS Coding Summer School Certificate (92.36% pass)

2023: Harry Crossley Foundation Research Project Funding

2023: NIH funded scholarship

2023: Global Health Network Certificates (GCLP: Sample Management, Conduct of Work, Data Recording, Quality Management, Facilities and Equipment, Method Validation, SOPs, and Personnel Management)

2022: DSI/NRF Innovation Postdoctoral Scholarship

2019: NRF Extension Support Doctoral Scholarship

2018: NRF Travel Grant for International Travel

2016: NRF Freestanding, Innovation and Scarce Skills Masters and Doctoral Scholarship

2013: Department of Science and Technology Full Scholarship for MSc Nanoscience

2010: Golden Key Award (Certificate)

CONFERENCE PRESENTATIONS

- August 2024: 50th Anniversary of the Physiology Society of Southern Africa Conference, Polokwane, South Africa. Oral presentation: **"Mitochondrial function and retinal microvascular changes in people living with HIV: Findings from the MitoSAKen study."** Authors: T. Boltman et.al.,
Affiliation: ¹Centre for Cardiometabolic Research in Africa, Division of Medical Physiology, Faculty of Medicine and Health Sciences, Stellenbosch University, South Africa.
- September 2018: International Conference on Nanomedicine and Nanobiotechnology (ICONAN-2018), Rome, Italy. Poster presentation: **"Preliminary investigation of metallic nanosystems against glioblastoma and neuroblastoma cell lines."** Authors: T. Boltman¹, O. Ekpo¹, M. Meyer²

Affiliations: ¹Department of Medical Bioscience, University of the Western Cape, South Africa; ²DST/Mintek Nanotechnology Innovation Centre, University of the Western Cape, South Africa.

- October 2016: 1st Nanoscience Symposium of the National Nanoscience Postgraduate Teaching and Training Platform, Hotel Verde, Cape Town, South Africa. Oral presentation: "**Liposomal drug delivery to brain cancer cells.**" Authors: T. Boltman¹, O. Ekpo¹, M. Meyer²

Affiliations: ¹Department of Medical Bioscience, University of the Western Cape, South Africa; ²DST/Mintek Nanotechnology Innovation Centre, University of the Western Cape, South Africa.

- November 2014: 7th International Symposium on Macro- and Supramolecular Architectures and Materials, Emperors Palace Hotel, Boksburg, South Africa. Poster presentation: "**Development of a novel drug delivery system for betulinic acid.**" Authors: T. Boltman^{1,2}, N. Ebrahim³, O. Ekpo², M. Meyer^{1,4,5}

Affiliations: ¹National Nanoscience Postgraduate Teaching and Training Program; ²Department of Medical Bioscience, University of the Western Cape, South Africa; ³School of Pharmacy, University of the Western Cape, South Africa; ⁴DST/Mintek Nanotechnology Innovation Centre; ⁵Department of Biotechnology, University of the Western Cape, South Africa.

WORKSHOPS ATTENDED

- **June 2024:** 163rd International Workshop on High-Resolution Spirometry, Schröcken, Vorarlberg, Austria.
- **January-February 2023:** 13th CHPC Coding Summer School and 5th NITheCS Summer School on The Foundations of Theoretical and Computational Science.
- **November 2019:** 5th South African Nanoscience and Nanotechnology Summer School, Devonvale Gold and Wine Estate, Stellenbosch, Western Cape.
- **2017:** 8th International Congress on Nanotechnology in Biology & Medicine, Krems, Austria (Abstract accepted for presentation).
- **January 2017:** 7th Annual DST/MINTEK Nanotechnology Innovation Centre Workshop, University of the Western Cape, South Africa.
- **December 2014:** 1st Nanotechnology-Cancer Symposium, SANBI, New Life Sciences Building, University of the Western Cape.
- **November 2013:** South African Nanoscience and Nanotechnology Summer School, University of the Western Cape, South Africa.

MANUSCRIPTS AND PUBLICATIONS

- Boltman T, Sibuyi, N, Meyer M, Ekpo O. **Synthesis of chlorotoxin functionalized metallic nanoparticles and their in vitro evaluation of cytotoxic effects in nervous system cancer cell lines.** 2024. Nano Express. Accepted Manuscript. DOI 10.1088/2632-959X/ad80b0
- Boltman T, Meyer M, Ekpo O. **Diagnostic and Therapeutic Approaches for Glioblastoma and Neuroblastoma Cancers Using Chlorotoxin Nanoparticles.** 2023. Cancers (Basel)., 15(13):3388. doi: 10.3390/cancers15133388. PMID: 37444498; PMCID: PMC10341066

PROFFESIONAL MEMBERSHIP

- Member of the Physiology Society of Southern Africa and The African Association of Physiological Sciences

REFERENCES

- **Prof. Hans Strijdom** | Stellenbosch University | hstrijdom@sun.ac.za
- **Prof. Mervin Meyer** | University of the Western Cape | memeyer@uwc.ac.za
- **Prof. Okobi Ekpo** | Khalifa University | okobi.ekpo@ku.ac.ae