

# **RHODES UNIVERSITY, GRAHAMSTOWN, SOUTH AFRICA**

# **STUDENT INFORMATION**



MS LINDOKUHLE NENE (POST-DOCTORAL FELLOW) Supervisor: Distinguished Professor Tebello Nyokong

#### **STUDENT DETAILS:**

Surname: Nene First Name: Lindokuhle Title: Dr Preferred Name: Lindo Student Number: 2400081

# CONTACT DETAILS:

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### **REGISTRATION DETAILS:**

Academic Status: Post-Doctoral Fellow Faculty: Science Department: Chemistry **Degree:** Post Doctoral Fellow **Academic Year:** 2 **Registration Status:** Full Time

#### **EDUCATION DETAILS:**

PhD (Chemistry) 2023 - Rhodes University, Grahamstown, South Africa MSc – with distinction (Chemistry) 2019 - Rhodes University, Grahamstown, South Africa BSc Honours (Biochemistry) 2016 – Rhodes University, Grahamstown, South Africa BSc (Chemistry, Biochemistry and Microbiology) 2015 – Rhodes University, Grahamstown, South Africa

### **RESEARCH PROJECT:**

Synthesis of dual activity phthalocyanines for diagnostics and sonodynamic therapy of cancer.

#### PUBLICATIONS:

1. Oluwole, David O.; Nwaji, Njemuwa; Nene, Lindokhuhle C.; Mokone, Lesedi; Dube, Edith; Nyokong, Tebello

Novel nano-dyad of homoleptic sandwich-type phthalocyanines with nitrogen doped graphene quantum dots for nonlinear optics

New Journal of Chemistry (2018), 42(12), 10124-10133

DOI:10.1039/c8nj01707g

http://pubs.rsc.org/en/content/articlehtml/2018/nj/c8nj01707g

2. Nene, L.C., Managa, M.E., Oluwole, D.O., Mafukidze, D.M., Sindelo, A. and Nyokong, T. The photo-physicochemical properties and in vitro photodynamic therapy activity of differently substituted- zinc (II)-phthalocyanines and graphene quantum dots conjugates on MCF7 breast cancer cell line

#### Inorganica Chimica Acta (2019), 488, 304-311

DOI:10.1016/j.ica.2019.01.012

https://doi.org/10.1016/j.ica.2019.01.012

3. Nene, Lindokuhle C.; Managa, Muthumuni; Nyokong, Tebello Photo-physicochemical properties and in vitro photodynamic therapy activity of morpholinesubstituted Zinc(II)-Phthalocyanines p-p stacked on biotinylated graphene quantum dots

# Dyes and Pigments (2019), 165, 488-498

DOI:10.1016/j.dyepig.2019.03.002

https://doi.org/10.1016/j.dyepig.2019.03.002

4. Lindokuhle Cindy Nene, Azole Sindelo, Jonathan Britton and Tebello Nyokong

Effect of ultrasonic frequency and power on the sonodynamic therapy activity of cationic Zn(II) phthalocyanines Journal of Inorganic Biochemistry 217 (2021) 111397 (1-12) DOI: 10.1016/j.jinorgbio.2021.111397 https://doi.org/10.1016/j.jinorgbio.2021.111397 5. Lindokuhle Cindy Nene, Tebello Nyokong Photo-sonodynamic combination activity of cationic morpholino-phthalocyanines conjugated to nitrogen and nitrogen-sulfur doped graphene quantum dots against mcf-7 breast cancer cell line in vitro Photodiagnosis and Photodynamic Therapy 36 (2021) 102573 (1-11) DOI: 10.1016/j.pdpdt.2021.102573 https://doi.org/10.1016/j.pdpdt.2021.102573 Lindokuhle Cindy Nene, K. Buthelezi, E. Prinsloo and Tebello Nyokong The In Vitro Photo-Sonodynamic Combinatorial Therapy Activity of Cationic and Zwitterionic Phthalocyanines on MCF-7 and HeLa Cancer Cell Lines J. Photochem Photobiol. A: Chem. 432, 114116, 2022. https://doi.org/10.1016/j.jphotochem.2022.114116 7. Lindokuhle Cindy Nene, A. Magadla and Tebello Nyokong Enhanced Mitochondria Destruction on MCF-7 and HeLa Cell Lines In Vitro Using Triphenylphosphonium-Labelled Phthalocyanines in Ultrasound-Assisted Photodynamic Therapy Activity J. Photochem. Photobiol. B. Biology, 235, 112553, 2022. https://doi.org/10.1016/j.jphotobiol.2022.112553 8. Lindokuhle Cindy Nene and Tebello Nyokong The Synthesis and Enhancement of the In Vitro Anticancer Photo-Sonodynamic Combination Therapy Activity of Cationic Thiazole Phthalocyanines using Gold and Silver Nanoparticles J. Photochem and Photobiol. A: Chem. 435, 114339, 2022. https://doi.org/10.1016/j.jphotochem.2022.114339 9. Lindokuhle Cindy Nene and Heidi Abrahamse Design Consideration of Phthalocyanines as Sensitizers for Enhanced Sono-Photodynamic Combinatorial Therapy. Acta Pharmaceutica Sinica B. 14, 1077-1097. 2023 https://doi.org/10.1016/j.apsb.2023.11.030 10. Lindokuhle Cindy Nene and Heidi Abrahamse Phthalocyanine-based probes in alleviating or evading tumour-hypoxia for enhanced photo- and/ sono-mediated therapeutic efficacies. Photodiagnosis and Photodynamic Therapy. 46, 104024, 2024.

https://doi.org/10.1016/j.pdpdt.2024.104024

11. Lindokuhle Cindy Nene, Nkune Williams Nkune and Heidi Abrahamse Anticancer photodynamic activities of triphenylphosphine-labelled phthalocyanines and their bovine serum albumin-gold nanoparticles- complexes on melanoma A375 cell lines in vitro. Journal of Inorganic Biochemistry. 256, 112570, 2024. https://doi.org/10.1016/j.jinorgbio.2024.112570

#### **AWARDS/OTHER ACHIEVEMENTS:**

1. 2019 - Awarded the South African Women in Science Awards: DST-Albertina Sisulu Fellowship

2. 2019 - Member of "Team E-Smart" which consists of four Chemistry PhD students from Rhodes University. The team won the Hult Prize Regional Summit hosted in Brookhouse international school in Nairobi, Kenya.

The 46 participating teams in the Nairobi summits were from 16 countries including Germany, Brazil, Kenya, Irag, USA (Massachusetts), Jordan, London, Nigeria, Austria, Chad, Tunis and others, were Team E-Smart (represented South Africa) came out 1st (selected by a panel of 12 Judges).

The Hult Prize was established in 2010 by Ahmad Ashkar and Bertil Hult, and is an annual, year-long competition that crowd-sources ideas from MBA and college students after challenging them to solve a pressing social issue around topics such as food security, water access, energy, and education.

3. Featured in a youtube video that shares what it's like working in Rhodes University's top-rated nanotech labs under internationally renowned Prof Tebello Nyokong. <u>https://www.youtube.com/watch?v=8F6SmyhB\_2U</u>

4. Rhodes University 3 Minute thesis overall winner. Rhodes University three-minute thesis representative at the SANORD International Conference in Norway, 2023. Talk Title: The power of sound for cancer treatment. https://sanord.uwc.ac.za/news/3-minute-thesis-early-career-researchers/

#### **Conferences**

International Conference on Porphyrins and Phthalocyanine (2022) Oral Presentation Title: Photo-Sonodynamic Combination Activity of Morpholino-Phthalocyanines Conjugated to Graphene Quantum Dots Against the MCF-7 Breast Cancer Cell Line

Optics and Photonics Africa (OPA) 2023, International

**Poster Presentation** 

Title: Preparation and In Vitro Evaluation of the Anticancer Photodynamic Therapy Efficacies of Carboxyphenoxy Zinc Phthalocyanine and their Triphenylphosphine-Labelled Gold Nanoparticle Conjugates.

Southern African and Nordic Centre Conference (SANORD) 2023, International Title: The Power of Sound for Cancer Therapy (Three minute thesis), Oral Presentation

#### **OVERSEAS TRAVEL:**

Shinshu University, Ueda, Japan

1 Sept to 31 Oct 2017 Research Collaboration (NRF SA/Japan) – Exchange students

Ecole Nationale Supérieure de Chimie de Paris, Paris, France 1 Feb 2018 – 31 July 2018 MSc Exchange Student