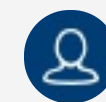




Rehani Shinuka Perera



Personal Information

Address

12A, V.C.Road,
Kalegana,
Galle,
Sri Lanka.

Phone

+94711627199

E-mail

pererars@miamioh.edu

Non-academic e-mail

rehanishinuka123@gmail.com

Date of birth

1991-12-09

LinkedIn

linkedin.com/in/rehanishinuka-perera

Citizenship

Sri Lankan



Research Interests

Protein dynamics & topology

Biological magnetic resonance

Cancer biology & molecular cancer
therapeutics

Gene therapy & gene expression
regulation

Protein-protein interactions

Immunology

Toxicology & Pharmacology

Bioenergetics

Enzyme kinetics

Bio-remediation techniques



Technical Skills

Protein expression & purification

Continuous Wave-Electron
Paramagnetic Resonance
Spectroscopy

Protein spin-labeling

Proteoliposome formation

DNA & RNA extraction, purification

PCR & RT-PCR

SDS-PAGE & gel electrophoresis

Infrared spectroscopy

Western blotting

Circular Dichroism Spectroscopy

Dynamic Light Scattering Spectroscopy

Microbiology Techniques

Bioinformatics (basic)



Objective

- To obtain a PhD in Chemistry with the aim of becoming a competent scientist and contributing to the advancement of Science, through academia, research, and innovations.



Education

2018-08 -
2020-08

- Miami University, Ohio, USA (www.miamioh.edu)**
MSc. in Chemistry
Cumulative GPA -3.83
Research work - Lorigan Laboratory (<https://blogs.miamioh.edu/lorigan-research-group>)

2013-03 -
2017-02

- University of Colombo, Sri Lanka (www.cmb.ac.lk)**
BSc. in Biochemistry and Molecular Biology -Second Class Honors
Cumulative GPA: 3.13
Research work - with Prof. Ranil Dassanayake
(<https://www.res.cmb.ac.lk/chemistry/ranil-dassanayake/>)

2017

- GRE: 156(Q), 149(V), 4.0(AW) Total: 305
TOEFL: 108 [29(R), 27(L), 23(S), 29(W)]

1997 -
2011

- Southlands College, Galle, Sri Lanka**
GCE Advanced Level- Biological Stream (English Medium) -2011
Biology - A ,Chemistry - A ,Physics - B, General English - B

GCE Ordinary Level - (English Medium) -2007
Distinction passes for all subjects



Research Experience

2018 -
2020

- Miami University, OH,USA**

Determining the Structural Topology & Dynamics of Canonical Holin using Continuous Wave-EPR Spectroscopy.
Holins are membrane proteins encoded by bacteriophages for promoting cell lysis by forming fatal “holes”. In phage infections of gram-negative bacteria cell lysis occurs destroying the three layers of the cell envelope: cytoplasmic membrane, peptidoglycan layer, and outer membrane by Holin, Endolysin, and Spanin proteins respectively. Holins are the key determinant of the host lysis timing in phage infections. Canonical holins of phage lambda are of two types, actual lethal holin - S105, and antiholin - S107 as a result of the dual start motif of the Sλ gene that encodes them. Previously, the structural dynamics and topology of this system have not been studied using EPR spectroscopy in native membrane mimetics. In this study, SDSL-EPR spectroscopy is used to unravel structural dynamics and topology of the S105 in a micelle, liposome, and SMALPs environments. CW-EPR line shapes of selected MTSL labeled cysteine mutants across the three transmembrane domains and C-terminus of S105 were used to probe the dynamics of S105. CW-EPR power saturation experiments were used to determine the topology of different segments of S105 in a membrane utilizing the accessibility of paramagnetic relaxants O2 and NiEDDA. Successful insertion of S105 in membrane mimetics was confirmed by this study.

2016 -
2017

- **University of Colombo,Sri Lanka**
Development of RNA interference assay for microfilaria in *C. quinquefasciatus* to study the functional role of novel parasitic nematode specific protein (SdNP) of goat & sheep parasite *S. digitata*.
Human filarial parasites results in Lymphatic Filariasis which is a major neglected health issue in the world. *Setaria digitata* is used as a model organism and is homologous to human filarial parasites in morphology,histology,antigenicity and response to drugs. *S.digitata* Novel Gene & Protein shows a greater sequence similarity to human filarial nematode *Wuchereria bancrofti*. The studies based on the molecular characterization of *S.digitata* genes and identifying its homologues in human parasitic nematodes, facilitates unveiling parasitism produced by them. *S.digitata* completes its life cycle in two hosts, the natural hosts being cattle/buffaloes and the intermediate host being mosquitoes such as *Culex*, *Aedes* and *Anopheles* etc. A RNA interference assay was developed for suppressing *S. digitata* uncharacterized gene in the microfilariae within the vector mosquito, to characterize the function of SdUG gene for the filarial parasite and developing a basic foundation for controlling the filarial parasite in-vivo. The gene suppression was quantified using real-time PCR. This can be modified and extended to control human filarial parasites.



Collegiate Presentations

2019 -
2020

- **Determining the Structural Topology & Dynamics of Canonical Holin using Continuous Wave-EPR Spectroscopy**

Poster Presentation at 64th Biophysical Society Annual Meeting - February 2020-San Diego ([https://www.cell.com/biophysj/fulltext/S0006-3495\(19\)33996-7](https://www.cell.com/biophysj/fulltext/S0006-3495(19)33996-7))
Poster Presentation at Miami Graduate Research Forum (1st November 2019)

2019

- **Methods and Applications of Site-Directed Spin Labeling EPR Spectroscopy**

Oral presentation in partial fulfillment of the requirements for the graduate level course CHM 760 - Biological Magnetic Resonance Spectroscopy

2018

- **Structural basis for cancer immunotherapy by the first-in-class checkpoint inhibitor ipilimumab**

Oral presentation in fulfillment of the requirements for the CHM-650 Graduate Seminar in Molecular Biology.

2017

- **Development of RNA interference assay for microfilaria in *C. quinquefasciatus* to study the functional role of novel parasitic nematode specific protein of *S. digitata***

Oral presentation in fulfillment of the requirements for the undergraduate research project

2016

- **Anticancer Drug Development and Tyrosine Kinase Inhibitors**

Oral presentation in fulfillment of the requirements for the undergraduate course "BC 3006: Biochemistry Seminar "

2016

- **Human Resource Policy of "Hela Clothing" Company,Sri Lanka & interview with Human Resource Manager in "Ceylon Grain Elevators PLC – Prima Group"**

Oral presentation in partial fulfillment of the requirements for the undergraduate course "MS4002: Strategic Human Resource Management "



Software

MS Office Word,PowerPoint & Excel
ChemDraw
MATLAB
Igor Pro
BioEdit
Rasmol
Gaussian
WinMopac
HyperChem
Abalone
Hex
LoggerPro



Co-Curricular Activities

Blogger in Faculty of Science,
University of Colombo Media Club- FOS
Media-
<http://fos.cmb.ac.lk/blog/author/rehani/>

Team member of conducting a workshop done by University of Colombo Environmental Management Club, on developing awareness on Chronic Kidney Disease for school children in Debarawewa Central College, Hambantota, Sri Lanka.

Member of Southlands College Young Entrepreneurs Association - Manager Advertising of "Authentic Company".

Trained at leadership training programme conducted by Ministry of Higher Education,Sri Lanka for developing leadership qualities and positive thinking.

Member of Southlands College Photography Club.

Member of Southlands College Science Society.

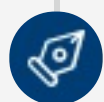
Group leader of exhibition display on "Fishing Industry of Sri Lanka" organized by Southern Provincial Council, Sri Lanka.

Lyricist - Theme Song for Leo District 306A1- <https://youtu.be/nsA-afJvo6g>



Certificates

- 2020 ● HarvardX- Certificate for Quantitative methods for biology (MATLAB)
- 2009 ● Royal Australian Chemical Institute- Australian National Chemistry Quiz - Credit Pass
- 2008 ● Human Rights Commission of Sri Lanka - Certificate for the Participation of Photography Competition to celebrate the 60th Anniversary of the Universal Declaration of Human Rights
- 2007 ● Southlands College, Galle - Certificate of Training of Basic Photography Course with Theory & Practicals
- 2006 ● Young Entrepreneurs Sri Lanka- Certificate for the Participation of Training of Company Officials - Manager Advertising
- 2003 ● The Sri Lankan Festival For the Performance Arts - Verse Speaking - Merit Award (Bronze Medal)
- 2002 ● Southlands College, Galle- English Day Competition - Dictation 3rd place
- 2000 ● The University of New South Wales- International Competition for Schools Mathematics - Credit Pass



References

- Prof. Gary A. Lorigan - Research Supervisor
Miami University
Department of Chemistry and Biochemistry
160 Hughes Laboratories
651 E. High St.
Oxford, OH 45056
Email: lorigag@miamioh.edu
Phone: +1513-529-3338
- Dr. Carole Dabney-Smith - Graduate Committee Chair
Miami University
Department of Chemistry and Biochemistry
160 Hughes Laboratories
651 E. High St.
Oxford, OH 45056
E-mail: smithac5@miamioh.edu
Phone: +1513-529-8091
- Dr. Indra Dev Sahu -Former Research Scientist
Assistant Professor of Physics
Campbellsville University
1 University Drive
Campbellsville, KY 42718
E-mail: idsahu@campbellsville.edu
Phone: +1270-789-5597



Work Experience

2018-02

Junior Executive-Business Management at Institute of Lean Management, Sri Lanka - Coordinated International Lean Transformation Summit,Colombo 2018 (<http://leansummit.lk>).

2018-08

Graduate Teaching Assistant at the Department of Chemistry & Biochemistry, Miami University, USA.

2019-06

Graduate Research Assistant at the Department of Chemistry & Biochemistry, Miami University, USA.

2019-01

In-charge of ordering material for Lorigan Biochemistry Lab.