

Olubisi T. ASHIRU

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Postdoctoral Research Fellow and Project Coordinator, Department of Medical Microbiology and Infection Prevention & Control, University of KwaZulu-Natal, Durban, South Africa (August 2013 – to date)

Title: Analysis of the aetiology of infant mortality in relation to the vaccination programme in KwaZulu-Natal Province. *Supervisor:* Prof P Moodley

Ph.D. Medical Microbiology, Department of Medical Microbiology and Infection Prevention & Control, University of KwaZulu-Natal, Durban, South Africa (2013)

Title: Interaction between *Mycobacterium tuberculosis* and pulmonary epithelium. *Supervisor:* Prof AW Sturm

M.Sc. Microbiology, University of Lagos, Lagos, Nigeria (1998)

Title: Cultivation of an edible mushroom (*Pleurotus sajorcaju*) using three types of agro industrial waste. *Supervisor:* Dr OO Aboaba

B.Sc. (Hons.) Microbiology, Ogun State University (Now: Olabisi Onabanjo University), Ago-Iwoye, Nigeria (1992)

Title: *In-vitro* and *in-vivo* control of a plant fungus (*Sclerotium rofsii*) using natural plant extract. *Supervisor:* Prof F Adebajo

TEACHING/SUPERVASORY PROJECTS

Co-supervising 1 PhD student research project, 2014

- Diversity of human rotaviruses and the impact evaluation of its vaccines among under-5 children in the Province of KwaZulu-Natal

Supervising 1 honour student research project, 2014

- Quantitative susceptibility of pathogenic gram-negative bacteria isolated in Hospital environments

Supervising 1 honour student research project bench work, 2014

- Quantitative susceptibility of bacterial pathogenic isolates from hospital environments

Supervised 1 honour student research project bench work, 2013

- The prevalence of *Trichomonas vaginalis* among sexually transmitted diseases clinic attendees

Co-supervised 3 honour students research projects, 2008

- Imaging of *Mycobacterium tuberculosis* infected epithelial cells, challenges in correlating light and electron microscopy
- The *mtp* gene of *Mycobacterium tuberculosis* is differentially expressed between clustering and non-clustering strains of the bacteria
- Differential expression of the *hbaA* gene of *Mycobacterium tuberculosis* in clustering and non-clustering strains

PUBLICATIONS

- 1) **Ashiru OT** and Sturm AW. "Cytotoxicity induction in A549 alveolar epithelial cells by *Mycobacterium tuberculosis* isolates cultured in the presence and absence of oxygen" *Journal of Basic and Applied Sciences*, 2015. **11**:118-124.
- 2) **Ashiru OT**, Pillay M and Sturm AW. "*Mycobacterium tuberculosis* isolates grown under oxygen deprivation invade pulmonary epithelial cells". *Anaerobe Journal*, 2012. **18(4)**:471-474.
- 3) **Ashiru O. T**, Pillay M and Sturm, AW. "Adhesion to and invasion of pulmonary epithelial cells by the F15/LAM4/KZN and the Beijing strains of *Mycobacterium tuberculosis*" *Journal of Medical Microbiology*, 2010. **59**:528-533.

In preparation

- 1) **Ashiru OT** and Sturm AW. "Expression of genes coding for genes potentially associated with virulence in oxygen deprived Beijing and F15/LAM4/KZN isolates of *Mycobacterium tuberculosis*"
- 2) Beeput S, **Ashiru OT** and Sturm AW. "A comparison of *Mycobacterium tuberculosis* single cell suspension protocols"
- 3) Asowata OE, **Ashiru OT** and Moodley P. "Diversity of Rotaviruses circulating among under 5 children in Africa"

TRAINING

- Supervision Workshop, December 2014
- Evidence-based Practice and the Cochrane Collaboration workshop, October 2013
- Good Clinical Laboratory Practice, May 2012
- Good clinical practice, April 2011
- KwaZulu-Natal Research Institute for Tuberculosis and HIV (K-RITH) writing course, 2010
- Applied Biosystems (ABI) 7500 Real-Time PCR system, 2009
- Division of Acquired Immunodeficiency Syndrome (DAIDS) policy training, August 2008
- Human subjects' protection / Good clinical practice training program, August 2008
- Good clinical laboratory practice, August 2008
- Introduction to statistical methods for health sciences using SPSS, March 2008
- Facilitator's workshop, 2007
- Microscopy and Imaging training, October 2006
- Applied Biosystems (ABI) Prism 7000 Sequence detection system, 2005

RESEARCH EXPERIENCES / LABORATORY TECHNIQUES

- **Tissue culture:** Aseptic culturing and maintenance of cell monolayer

- **Cytotoxicity assays**
- **Microorganism culturing:** Working safely with highly infectious bacteria, pathogenic as well as edible fungi
- **Microorganism susceptibility testing to antimicrobial drugs:**
 - Using the micro-broth dilution method
 - Using the multi-point agar dilution method
- **Electron microscopy:** Processing/viewing for scanning and transmission electron microscopy
- **Molecular work**
 - Extraction of total RNA both from bacteria isolates as well as infected cell monolayer
 - Synthesis of cDNA from total RNA
 - Performing real time polymerase chain reaction (PCR) to assess gene expression levels
 - Extraction of genomic DNA from bacteria isolates

PROFESSIONAL MEMBERSHIP

Health Professions Council of South Africa

AWARDS/GRANTS

- Fiona Graham Prize for First Time accepted Abstract at the 49th Annual Meeting of the Microscopy Society of Southern Africa in Pretoria - 2011
- University of KwaZulu-Natal, Doctoral Research Grant Award 2010
- Graduate School Scholarship for academic achievement 2007 - 2009
- Best oral presentation at the 1st South Africa TB Conference in Durban, 2008

CONFERENCE PRESENTATIONS & PUBLISHED ABSTRACTS

- 1) Asowata OE, **Ashiru OT**, Sturm AW and Moodley P. "Rotavirus diarrhoea among under-6 children attending King Edward VIII hospital in KwaZulu-Natal" - at the College of Health Sciences Research Symposium, held in UKZN Durban from 11th – 12th September, 2014
- 2) Beeput S, **Ashiru OT** and Sturm AW. "A comparison of *Mycobacterium tuberculosis* single cell suspension protocols" – at the College of Health Sciences Research Symposium, held in UKZN Durban from 12th – 13th September, 2013
- 3) **Ashiru OT**, Pillay M and Sturm AW. "Expression of genes coding for putative virulence genes in oxygen deprived Beijing and F15/LAM4/KZN isolates of *Mycobacterium tuberculosis*" – at the College of Health Sciences Research Symposium, held in UKZN Durban from 12th – 13th September, 2012
- 4) **Ashiru OT**, Pillay M and Sturm AW. "Expression of genes coding for iron-regulated heparin binding hemagglutinin (*hbhA*), mycobacterial DNA-binding protein 1 (*mdp1*), ferredoxin (*fxdA*) and heat shock protein (*hspX*) in oxygen deprived Beijing and F15/LAM4/KZN isolates of *Mycobacterium tuberculosis* is

up-regulated after exposure to A549 cells” – at the 3rd South Africa TB/HIV Integration Conference, held in Durban from 12th – 15th June, 2012

- 5) **Ashiru OT**, Pillay M, Wesley-Smith J and Sturm AW. “Clinical isolates of *Mycobacterium tuberculosis* induce morphological changes in A549 cells” – at the 49th Annual Meeting of the Microscopy Society of Southern Africa (MSSA), held in Pretoria from 6th – 9th of December, 2011
- 6) **Ashiru OT**, Pillay M and Sturm AW. “*Mycobacterium tuberculosis* isolates cultured in the presence and absence of oxygen induces cytotoxicity in A549 alveolar epithelial cells” – at the 4th Federation of Infectious Diseases Societies of Southern Africa (FIDSSA) Congress, held in Durban from 8th – 11th of September, 2011
- 7) **Ashiru OT**, Pillay M and Sturm AW. “Adhesion and invasion of clustering and non-clustering strains of *Mycobacterium tuberculosis* in pulmonary epithelial cells” – at the 1st South Africa TB conference, held in Durban from 1st – 4th of July, 2008