KAJAL FOWDAR
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EDUCATION

2014-2017	University of Kwa-Zulu Natal, South Africa PhD in Biochemistry **Thesis title: Expression of monocyte Heat Shock Protein 70 (HSP70) during malaria fever in the presence of antimalarial, anti-inflammatory drugs and β-haematin** Supervisor: Professor JPD Goldring
2011-2012	University of Surrey, United Kingdom MSc Biomedical Engineering with Distinction **Dissertation title**: **Finite element simulation of trans-femoral implant** Supervisor: Dr Xu Wei
2008-2011	Macquarie University, Sydney, Australia Bachelor of Medical Sciences with specialisation in Biomedical, with GPA 3.9/4.0

EMPLOYMENT

Jan 2017-Till Date	**Research Engineer (Natec Medical Ltd)** Development and optimisation of medical products in accordance with Quality Management Standards Project management
Jul 2014- Nov 2016	**Tutor (University of Kwa-Zulu Natal)** Taking lectures and practicals for students in Biochemistry/Microbiology modules in School of Life Sciences
Apr 2013-Jan 2014	**Intern Occupational Disease (Ministry of Labour, Industrial Relations and Employment, Government of Mauritius)** Assist Occupational Health Engineers, Occupational Health and Safety Inspectors to inspect the workplace and provide recommendations to ameliorate the health of employees Participate in the sensitization of health and safety project
Jan 2013-Apr 2013	**Trainee (Biotechnology department, Mauritius Sugar Industry Research Institute, Mauritius Cane Industry Authority)** Perform nucleic acid extraction PCR techniques and molecular techniques (agarose gels)

RESEARCH

I have completed my PhD in Biochemistry at the University of KwaZulu-Natal, under the supervision of Professor JPD Goldring, in January 2017. The study evaluated the effects of antimalarial drugs, anti-inflammatory drugs and β-haematin on host monocyte HSP70 protein expression during malaria fever. Malaria is a mosquito-borne disease which affects 97 countries and territories. There were an estimated

198 million cases of malaria worldwide in 2013, and an estimated 584 000 deaths. Malaria is caused by the parasitic protozoan of *Plasmodium* species (*falciparum, vivax, knowlesi, malariae, ovale*). The host copes with the stress by inducing febrile episodes, which is one of the main symptoms of malaria. It has been reported that high temperatures experienced during fever decrease parasite growth. The host expresses heat shock proteins that act as chaperones to prevent protein aggregation, and help renature denatured protein. One of the main heat shock proteins expressed is the major heat shock protein 70 (HSP70). The latter has been reported to decrease cell cytotoxicity, and decrease apoptosis when cells are exposed to stress. Antimalarial drugs have been used to treat malaria but their effects on host monocyte HSP70 protein expression have been poorly documented.

Mouse monocytes (J774A.1) and human monocytes (U937) were cultured at physiological temperature and temperature encountered during malaria fever, and the levels of monocyte HSP70 protein expression monitored. All drugs were used at therapeutic concentrations. Human HSP70 was cloned, expressed and affinity-purified. Using the pure protein, polyclonal antibodies against HSP70 were raised in chicken and they were used to study the levels of HSP70 protein expression in monocytes. Phage display technology was used to screen a chicken antibody library for HSP70 monoclonal antibodies.

FUNDING and ACADEMIC AWARDS

- Macquarie University International Scholarship (Full scholarship for the duration of my undergraduate studies; 2008-2011)
- Sigma-Aldrich Award in Biochemistry and Molecular Biology, Macquarie University
- Le Fevre Award in Chemistry, Macquarie University

SKILLS

Research Skills

- Molecular techniques (**Cloning, Colony PCR, nested PCR**)
- Biochemical techniques (**SDS-PAGE, Western Blots, ELISAs**)
- Cell culture
- Recombinant expression and purification of protein
- scFv (phage display) technology
- Polyclonal antibody production in chicken using IgY technology
- Report writing
- Data collection

Project management skills

Presentation skills

Raising antibodies against Heat Shock Protein 70 (HSP70) in chickens - School of Life Sciences, Research Day 22nd May 2016, University of KwaZulu-Natal

FURTHER INFORMATION

Volunteer work	**Mentor (Macquarie University)**	**February 2010**
Languages	English, French, Hindi	
Driving licence	Valid driving licence	

REFEREES

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