



IWALOKUN Bamidele Abiodun PhD)

Chief Research Fellow / HOD

Molecular Biology & Biotechnology
Division

Head, Immunology & Vaccinology
Research Group

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Dr. Iwalokun, BA joined NIMR in 2008 as a Senior Research Fellow. He holds a PhD in Biochemistry from the College of Medicine; University of Lagos in 2005. He has had a lecturing and research career experience for 15 years at university of Lagos (1994 – 1996) and Lagos State University (1996 – 2008) before joining NIMR. Through sabbatical leave in the university and recognition of his huge contributions to the university system he has also served as an associated lecturer to Olabisi Onabanjo University (OOU) and Crawford University.

He has his pre- and post-doctoral training at institute endemic disease Research in Sudan, Boise State University (USA) and Liverpool/Wellcome Trust/Malawi Medical School Research Laboratory and Wellcome Trust Genome Centre, Hinxton. He has acquired tremendous training in Biochemistry, Molecular Biology, Bacterial pathogenesis, Microbial genetics and genomics, Bioinformatics, Immunogenetics, Immunology and health research ethics. His main trust is capacity building and mentorship in the area of molecular epidemiology of infectious diseases with interactions with non-communicable diseases such as diabetes and COPD and use of PCR, RFLP, RAPD, SDS-PAGE, Enzymology, Bioinformatics, Genomics and Sequencing to address public health problems in Nigeria.

He became the HOD, Molecular Biology and Biotechnology in August, 2015. He has been a recipient of many Travel Fellowships awards from Wellcome Trust, Gordon Research Conference, AMVTN, AMANET, ISID, ISPPD, AIS and Bill and Melinda Gate plus Ford Foundation grant as well as being a recipient of MTSS fund for a malaria survey in Takwa-Bay. His Department is now in collaboration with Centre of Proteomics and Genomics (CPG), Cape-Town, South-Africa plus many universities at both National and International levels. Dr. Iwalokun, BA has over 100 publications to his credit.

Personal profile:

I am a very hard working person who believes strongly in capacity building through continuous learning and adaptation to modern technological needs as a key requirement for research, development and innovation as well as having confidence in what you do as a mentor and as a mentee. I am committed in the area of molecular epidemiology of infectious diseases such as shigellosis, non-thyphoidal Salmonella (NTS), *Streptococcus pneumoniae*, Shiga toxin *E. coli* (STEC) and *P. falciparum* in the setting of non-communicable diseases, other infectious diseases and the environment.

RESEARCH and ACADEMIC EXPERIENCES

THESIS:

BSc. Pre-diabetes and serum lipid profiles among Nigerian Adolescents:
Prevalence and role of glycated haemoglobin.

MSc. The use of β -globin gene polymorphism for phylogenetic analysis of human, non-human primates and lower animals.

PhD. Molecular epidemiology and Virulence characteristics of *Shigella* isolates recovered from children with diarrhea in Lagos

Chief Research Fellow (Oct 2011 – present)

Current Research Interest

- Genomic and Transcriptomic elucidation of pathogenic variations among non-typhoidal *Salmonella* serovars in Nigerian HIV patients and malnourished children.
- Development of Microarray for rapid diagnosis of mycotoxigenic fungi
- Cloning and Expression of adhesins from Bifidobacteria and Lactobacilli
- Molecular identification, antibiotic resistance gene detection and virulotyping of gram positive and gram negative pathogens associated with surgical site infections on orthopaedic/trauma Nigerian patients.
- Identification of classes 1 and 2 integrons and associated genes in *Enterobacteriaceae*.
- *In silico* analysis of potential drug and vaccine targets against malaria and neglected tropical diseases.

Senior Research Fellow (Oct 2008- Sept 2011)

Department of Biochemistry & Nutrition, Molecular Biology & Immunogenetics Unit, Nigerian Institute of Medical Research, Lagos. Nigeria

Research interests

- Non-invasive approaches for burden assessment and treatment monitoring of chronic obstructive pulmonary disease and co-morbidities among Nigerian patients with Type 2 Diabetes Mellitus.
- Use of transcriptomic and functional genomic approaches for the identification and validation of predictive and diagnostic biomarkers for TB relapse in treated Nigerian patients with or without co-morbidities.
- Identification and molecular epidemiology of sulphadoxine-pyrimethamine resistance *P. falciparum* and methicillin resistance *Staphylococcus aureus* (MRSA) in Nigerian pregnant women and diabetic patients with leg ulcer.
- Molecular and pathophysiological characterization of viral and respiratory pathogens in local diabetic, sickle cell anemia and pediatric patients.
- Microalbuminuria in diabetes, metabolic syndrome and sickle cell anaemia patients in Nigeria.
- Adipocyte dysfunction and COPD risk and severity among Nigerian smokers.

- Serum leptin, leptin receptor polymorphism and cardiometabolic disorders in a Nigerian population.
- Adipocyte dysfunction and COPD risk and severity among Nigerian smokers.
- Diabetes and tuberculosis: The role of cellular immunity and host genetic factors among co-infected Nigerian patients.
- TB relapse: impact of host genetic factors and strain variation
- TB relapse: impact of host genetic factors and strain variation
- Molecular characterization of *S. pneumonia* strains from Nigerian patients with non-communicable diseases.
- Investigation of potentials of Nigerian plants for anti-hypertensive, anti-cancer and hepatoprotective activities with safety consideration.
- Survey of death among Nigerian adults. Identification and validation of biomarkers predictive cardiovascular sudden death in Nigeria.

INTERNATIONAL AND LOCAL RESEARCH AND ADMINISTRATIVE ENGAGEMENTS.

Head of Division. June 2015

Molecular Biology and Biotechnology Division,
Nigerian Institute of Medical Research, Lagos. Nigeria.

Head, November 2015 – present.

Immunology and Vaccinology Research group, Nigerian Institute of Medical Research, Lagos. Nigeria.

Deputy Head, January 2013 – present.

Non-Communicable Disease Research group, Nigerian Institute of Medical Research, Lagos. Nigeria.

Committee Member, January 2011 –present

Proposal and Grant Writing Committee, Nigerian Institute of Medical Research, Lagos. Nigeria.

Editor-in-Chief, March 2007 to present

International Journal of Malaria and Tropical Diseases

Editor, 2002 to present

African Journal of Biotechnology, 2001 to present

Editor, 2010 to present

Asian Pacific Journal of Tropical Medicine

Resource Person (Technical Instructor), Jan 2011

Molecular Epidemiology Tools for Tuberculosis Surveillance Workshop, Department of Medical Microbiology and Parasitology, College of Medicine, University of Ibadan, Nigeria.

Exam Moderator and External Assessor , September 2010 – present
Department of Chemical Sciences, Yaba College of Technology, Lagos Nigeria

Visiting Scientist: April, 2010

Department of Cellular & Molecular Medicine, University of Bristol, Shigella Research Group. Research Collaboration arrangement on functional analysis and diversity of *ipaD*: A Type III secretory system (TTSS) gene in intracellular pathogens, including *Shigella*.

Technical Instructor & Guest speaker: November 2009 to present.

Danifol Biotechnology Consortium, Lagos, Nigeria. Instruction in the use of Basic and Applied Molecular biology Techniques, Biotechnology and Bioinformatics and Studying probiotics and Epidemiology and Multiple Drug Resistance of Diarrheic and respiratory pathogens.

Technical Instructor & Lecturer: May, 2005

West Africa Biotechnology Workshop Series. ICRO/UNESCO/EMBO Training course. Instructor on the Basic Techniques in Molecular Biology & Biotechnology.

EDUCATION

PhD Biochemistry: Department of Biochemistry, College of Medicine, University of Lagos. Lagos, Nigeria. 2006

MSc Biochemistry: Department of Biochemistry, College of Medicine, University of Lagos, Lagos, Nigeria, 1995

BSc Biochemistry: Department of Biochemistry, Lagos State University, Ojoo, Lagos, Nigeria. 1990

Certificate Course on Basic Health Research. African Malaria Network (AMANET) Basic Health Research Ethics Course, Bagamoyo, Tanzania. 2008

Diploma (E-Tech) in Information Technology. NIIT, Lagos, Nigeria. 2004.

Pre-Doctoral Training

Visiting Scientist. June – August, 2004

- Institute of endemic Disease Research, Sudan. *P. falciparum* culture, Population Genetics tools and Bioinformatics.
- West African Bioinformatics Training Workshop: College of Medicine, University of Ibadan. Ibadan, Nigeria. May – Jun 2003
- West African Molecular Biology and Biotechnology Training Workshop: University of Lagos/Nigerian Institute of Medical Research, Lagos, Nigeria 11 – 24 May 2002
- Molecular Basis of the normal Immune Response. College of Medicine, University of Ibadan. Ibadan, Nigeria. December, 2001.

Post-doctoral Training

- Wellcome Trust Overseas Training course on Bioinformatics: Working with Parasite Databases. Hinxton, UK. Oct, 2015
- Wellcome Trust Overseas course on Molecular approaches to clinical Microbiology. Liverpool/Wellcome Trust/University of Malawi Research Laboratory. Blantyre, Malawi. Nov, 2010
- Wellcome Trust Overseas Training Course on Bioinformatics: Working with Pathogen Genomes. Kilifi, Kenya. 2010
- Wellcome Trust Overseas Training Course on Bioinformatics: Working with Human Genomes. Hixton, UK. 2008
- Training and Certificate Course on Basic Health Research Ethics. African Malaria Network Trust, Bagamoyo, Tanzania. 2008
- **Visiting Scientist, March–April, 2008**
Department of Biological Sciences, Boise State University, Idaho. USA. Functional Characterization of P-ATPases in infections (TB & Malaria) and Diabetes Mellitus and Prospects in Drug Design.
- **TDR Scholarship Recipient**
South-South Initiative WHO/TDR Training on Ethics and Biomedical use of non-human primates for research in Tropical Diseases; featuring *P. knowlesi* and *P. falciparum* culture, gene cloning in plasmids, gene expression and Western blotting techniques. Institute of Primate Research (IPR), Kilifi, Kenya. July 2007

Professional Membership

Fellow, Royal Society of Tropical Medicine and Hygiene-0010912 (2011 to date).
European Society of Clinical Microbiology and Infectious Diseases (2010)
Diabetes association of Nigeria (2009–date)
Nigerian society of endocrinology (2007 to date)
International Society for Infectious Diseases (2006).
American Society for Microbiology (2005).
American Society of Biochemistry & Molecular Biology (2005)

HONORS and AWARDS

Wellcome Trust Scholarship/Travel Award (Hinxton, Britain), 2015
EDCTP 7 Forum Travel Award (Berlin, Germany), 2014
WANETAM/IANPHI Training Award (Lagos, Nigeria), 2013
ISPPD-8 Travel Grant (Iguacu, Brazil), 2012
Keystone Symposia Travel Award (New Delhi, India), 2011
Wellcome Trust Scholarship/Travel Award (Kilifi, Kenya), 2010
Wellcome Trust Scholarship/Travel Award (Blantyre, Malawi), 2010
Gordons Research Scholarship/Travel Award (California, USA), 2010
Wellcome Trust Scholarship/Travel Award (Hinxton, Britain), 2009
Gordons Research Scholarship/Travel Award (California, USA), 2008
Microbicides2008 Scholarship/Travel Award (New Delhi, India), 2008
TDR/WHO/South-South Initiatives Training/Travel Award (Kilifi, Kenya), 2007
MIM/TDR Scholarship/Travel Award to PAN African Malaria conference (Yaounde, Cameroun), 2005

Microbicides Travel Scholarship (London, Great Britain), 2006
AMANET Scholarship and Travel Award on good Laboratory Practice (GLP) (Addis Ababa, Ethiopia), 2004
AMANET Scholarship/Travel Award on Bioethics (Khatoum, Sudan), 2004
MIM Scholarship/Travel Award on PAN-African malaria conference, (Arusha, Tanzania), 2002
AMVTN Travel Award (Molecular Biology & Immunology of Malaria Vaccine), (Maputo, Mozambique), 2002
African Malaria Vaccine Testing Network (AMVTN) Travel Award (Bagamoyo, Tanzania), 2001
Nutrition Society of Nigeria, Young Researcher Award , (Ekpoma, Nigeria), 2000

Grants

1. Capacity building for Molecular Epidemiology of infectious Diseases in Nigeria. Society for Applied Microbiology (SFAM). International Capacity Building and development Economies Grant.
Role: Co-PI
Status: Awarded and Completed – 2010
2. Site characterization for malaria research and clinical trials of Takwa-Bay, a coastal settlement in Lagos. (Position PI.) 2009
Mid Term Sectoral Ministry of Health Grant (Nigeria)
Status: *Awarded and completed*
3. Oxidative stress markers and uncomplicated malaria in Nigerian children: role of selenium and erythrocyte gene polymorphism. (Position PI). 2004
Ford Foundation Grant for Research at Lagos State University. Status: *Awarded and completed*

Publications since 2010

1. Folorunso, JB; Thomas, BT; Raheem-Ademola, RR; **Iwalokun, BA**; Oluwadun, A. Plasmid analysis of aetiologic agents of pyrexia of undetermined origin in Ago Iwoye, Ogun state, Nigeria. *European Journal of Biological Sciences*. 2015; 7 : 45 - 49
2. **Iwalokun, BA**; Iwalokun, SO; Adebodun, V; Balogun, M. Carriage of mutant dihydrofolate reductase (*dhfr*) and dihydropteroate synthase (*dhps*) genes among *Plasmodium falciparum* isolates recovered from pregnant women with asymptomatic infection in Lagos, Nigeria. *Med Princ Pract* 2015; (DOI:10.1159/000430987)
3. **Iwalokun BA**; Oluwadun, A; Iwalokun, SO; Agomo, PU. Toll-like receptor (*TLR4*) Asp299Gly and Thr399Ile polymorphisms in relation to clinical falciparum malaria among Nigerian children: A multi-site cross sectional immunogenetic study in Lagos. *Gene and environment*, 2015; 37: 3
4. Akinyemi, KO; **Iwalokun, BA**; Alafe, AA; Mudashiru, SA; Fakorede, C. bla-CTX-M-1 group extended spectrum beta lactamase producing *Salmonella typhi* from

- hospitalized patients in Lagos, Nigeria. *Infection and Drug Resistance*. 2015; 8: 99-106
5. Adenipekun EO, Jackson CR, Oluwadun A, **Iwalokun BA**, Frye JG, Barrett JB, Hiott LM, Woodley TA. Prevalence and Antimicrobial Resistance in *Escherichia coli* from Food Animals in Lagos, Nigeria. *Microb Drug Resist*. 2015 Feb 6. [Epub ahead of print]
 6. Olukosi, YA; Agomo, CO; Aina, OO; Akindele, SK; Okoh, HI; Akinyele, MO; Ajibaye, O; Orok, AB; **Iwalokun, BA**; Enya, VNV; Ugbasi, UT; Awololola, ST (2015). Assessment of competence of participants before and after 7-day intensive malaria microscopy training courses in Nigeria. *MWJ*. 6:6
 7. Oyebola MK, Idowu ET, Olukosi YA, **Iwalokun BA**, Agomo CO, Ajibaye OO, Tola M, Otubanjo AO (2014). Genetic diversity and complexity of *Plasmodium falciparum* infections in Lagos, Nigeria. *Asian Pac J Trop Biomed*. 4(Suppl 1):S87-91.
 8. Olukosi, YA; Oyebola, MK; Ajibaye, O; Orok, BA; Aina, OO; Agomo, CO; Iwalokun, BA; Akindele, SK; Enya, VNV; Okoh, HI (2014). Persistence of markers of chloroquine resistance among *P. falciparum* isolates recovered from two Nigerian communities. *MWJ*. 2014;5 :3
 9. Akinduti, PA; Oluwadun, A; **Iwalokun BA**; Ejilude, O (2014). Community-Acquire CTX-M Beta-Lactamase Enteric Isolates in Abeokuta, Nigeria. *British Microbiology Research Journal*. 5 : 351- 358
 10. Akinyemi, KO; **Iwalokun, BA**; Agboyinu, JA; Ogunyemi, O and A. K. Fasura (2014). Emergence of Third Generation Cephalosporin Resistance and Typing by Randomly Amplified Polymorphic DNA (RAPD) among Clinical Salmonella Isolates from Lagos, Nigeria. *British Microbiology Research Journal*. 4 : 668- 677
 11. Akinsinde, KA; **Iwalokun, BA**; Oluwadun, A; Smith, SI; Fowora, M; Nwaokorie, FO; Bamidele, TJ; Olukoya, DK; Ujah, IAO (2014). Distribution of phage types of *Vibrio cholerae* 01 biotype El Tor in Nigeria (2007-2013): Implication in cholera mortality. *International Journal of Medicine and Medical Sciences*. 6: 245 – 250
 12. **Iwalokun BA**, Iwalokun SO, Hodonu SO (2013). Seroprevalence of parvovirus B19 antibodies and evidence of viremia among Nigerian patients with sickle cell anemia. *J Biomed Res*. 27(4):272-82.
 13. Olaniyan, JA, Banjo, TA, Olooto, WE, Ogundahunsi, OA, Amoo, OJ, **Iwalokun, BA** (2013). Malaria and Typhoid as a Cause of Febrile Illness Amongst People Attending Redeemer's Camp Centre in Mowe, Ogun State, Nigeria, *Nigerian Journal of Parasitology*, 34(2), 153-158.
 14. Orok, A; Fagbenro-Deyioku, A; Iboma, G; Mayowa, A; Okoh, H; Ajibaye, O; **Iwalokun, BA**; Egbuna, K; Agomo, C; Olukosi, Y; Aina, OO; Akindele, S; Enya, V; Akinyemi, J; agomo, PU (2013). Glucose 6-phosphate dehydrogenase deficiency and adverse drug reactions to antimalarial drugs in Lagos State. *Asian. J. Pharm. Hea. Sci*. 2013; 3: 615 – 619
 15. Enwuru, CA; **Iwalokun, BA**; Enwuru, NV; Ezechi, O; Idika, N; Oluwadun, A (2013). The Occurrence and Modified Method for Phenotypic Identification of Ambler Group A and B Extended Spectrum β -Lactamases Production in Urino-

Genital Gram Negative Bacterial Isolates from, Nigeria. *Nature and Science*. 8 : 48 -53

16. Iwalokun BA, Iwalokun SO, Hodonu SO, Aina OA, Omilabu S (2012). A study on the association between parvovirus B19 infection, serum tumour necrosis factor and C-reactive protein levels among Nigerian patients with sickle cell anaemia. *Singapore Med J*. 53(11):726-31.
17. **Iwalokun BA**, Iwalokun SO, Hodonu SO, Aina OA, Agomo PU (2012). Evaluation of microalbuminuria in relation to asymptomatic bacteruria in Nigerian patients with sickle cell anemia. *Saudi J Kidney Dis Transpl*. 23(6):1320-1330.
18. **Iwalokun, BA**; Iwalokun, SO; Hodonu, SO; Aina, OA; Agomo, PU (2011). Serum Levels of Leptin in Nigerian Patients with Sickle Cell Anaemia. *BMC. Blood Disorders*. 11:2
19. **Iwalokun BA**, Hodonu SA, Nwoke S, Ojo O, Agomo PU (2011). Evaluation of the Possible Mechanisms of Antihypertensive Activity of *Loranthus micranthus*: An African Mistletoe. *Biochem Res Int*. 2011:159439.
20. **Iwalokun, BA**; Oyenuga, AO; Saibu, GM; Ayorinde, J (2011). Analyses of cytotoxic and genotoxic potentials of *Loranthus micranthus* using the *Allium cepa* test. *Current Research Journal of Biological Sciences*. 3 : 459 – 467
21. Nwokoye N.N., Nwaokorie F.O, **Iwalokun B.A**, Onubogu C.C. and Idigbe E.O. (2012). Genotyping of *Mycobacterium tuberculosis* complex based on restriction enzyme analysis of the *hsp65* gene. *African J. microbiological Research*. 6:6199 – 6203.
22. **Iwalokun, BA**; Fowora, M; Akinloye, O; Oluwadun, A; Antonio, M; Adegbola, RA (2012). A Retrospective Study of Clinical *Streptococcus pneumoniae* Isolates from Four Health Facilities in South-West Nigeria. *International J. Med. Med Sciences*. 4:160-170
23. **Iwalokun, BA**; Oluwadun, A; Otunba, A; Oyenuga, OA (2012). Chemical composition and antimicrobial activity of a new chemotype of *Hyptis suaveolens* (poit) from Nigeria. *Current Research Journal of Biological Sciences*. 4 : 265 -272
24. **Iwalokun, BA**; Oluwadun, A; Iwalokun, SO; Olukosi, YA; Agomo, PU (2011). Reduction in Febrile Episodes and Dynamics of Pyrogenic Threshold in Nigerian Children with *Plasmodium falciparum* Malaria. *Journal of Paediatric Infectious Diseases*. 6: 185 – 194
25. Akinloye OM, Rönkkö E, Savolainen-Kopra C, Ziegler T, Iwalokun BA, Deji-Agboola MA, Oluwadun A, Roivainen M, Adu FD, Hovi T (2011). Specific viruses detected in Nigerian children in association with acute respiratory disease. *J Trop Med*. 2011:690286.
26. **Iwalokun BA**, Oluwadun A, Akinsinde KA, Niemogha MT, Nwaokorie FO (2011). Bacteriologic and plasmid analysis of etiologic agents of conjunctivitis in Lagos, Nigeria. *J Ophthalmic Inflamm Infect*. 3:95-103.
27. Enya, VNV; Idika, N; Egbuna, KN; Mafe, AG; Agomo, CO; **Iwalokun, BA**; Agomo, PU; Ibeh, IN; Wemambu, SNC (2010). *Streptococcus pneumoniae* and

- Plasmodium falciparum* infections among children under 5 years in Lagos, south Western Nigeria. *International J. Malaria and Trop. Dis.* 6:209 – 214
28. **Iwalokun, BA**; Agomo, PU; Egbuna, KN; Iwalokun, SO; Adebodun, V; Olukosi, OO; Aina, O; Okoh, HI; Agomo, CU; Ajibaye, O; Orok, O; Enya, V; Akindele, S; Akinyele, A (2011). Environmental Survey and Health Seeking Behavior of Caregivers of Children Suspected to have Malaria in Takwa-Bay, Lagos State. *Journal of Medicine and Medical Sciences.* 2: 675-687
 29. A.P. Akinniyi, O. Afolabi, **BA. Iwalokun**, E. Oluwaseun and K.O. Onagbesan, 2011. Clonal Dissemination of blaTEM β -lactamase Strains among Enteric Isolates in Abeokuta, Nigeria. *Research Journal of Microbiology*, 6: 919-925.
 30. Akinyemi, KO; **Iwalokun, BA**; Foli, F; Oshodi, K; Coker, AO (2011). Prevalence of multiple drug resistance and screening of enterotoxin (stn) gene in *Salmonella enterica* serovars from water sources in Lagos, Nigeria. *Public Health.* 125: 65 – 71
 31. Niemogha, MT; Adewole, TA; Ikea, JA; Olukoya, DK; Atoyebi, OA; **Iwalokun, BA**; Egbuna, KN; Olukosi, YA. (2010). Trends in cotrimoxazole resistance among clinical isolates of *Escherichia coli*. 1989 -2009. *International Journal of Malaria and Tropical Diseases.* 6 : 181 -188
 32. Enya, VNV; Idika, N; Egbuna, KN; Mafe, AG; Agomo, CO; **Iwalokun, BA**; Agomo, PU; Ibeh, IN; Wemambu, SNC (2010). *Streptococcus pneumoniae* and *Plasmodium falciparum* infections among children under 5 years in Lagos, south Western Nigeria. *International J. Malaria and Trop. Dis.* 6: 209 – 214
 33. Raheem, TY; Adedeji, SO; Oluwadun, A; Daini, OA; **Iwalokun, BA**; Ahmed, OA; Mafe, AG (2010). Intestinal helminthiasis and concurrent bacterial infections among apparently healthy school children in a Local Government Area, Nigeria. *International Journal of Malaria and Tropical Diseases.* 199 -203