Mustapha Dibbasey CV

**CONTACT**

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**EDUCATION**

**PhD Institution: University of Ghana 2023-to date**

Department: Biochemistry, Cell and Molecular Biology

PhD Topic: Sickle cell Genomics and Epigenetics

**Supervisor: Professor Alfred Amambua-Ngwa, Dr Lucas Amenga-Etego**

**MSc Institution: Kingston University, London 2018-2019**

Degree Title: Biomedical Science (Haematology)

# Degree Classification: Distinction (First Class)

# Mentor: Dr Terry Gaymes

**BSc Institution: Ulster University 2015-2017**

Degree Title: Biomedical Science (honours)

# Degree Classification: Distinction (First Class)

# Mentor: Dr Peter Mitchell

**FdSc Institution: St George’s University of London 2011-2015**

Degree Title: Biomedical Science

Degree Classification: Distinction (First Class)

Supervisor: Dr Cathy Price, Gibril Bah (former Head of Haematology laboratory)

**AWARDS, ACHIEVEMENTS & GRANTS**

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| * + WACCBIP Fellowship   + Best Student Award | Awarded WACCBIP:DELTAS II fellowship by the Uni of Ghana  Achieved Best Student Award in the Kingston University faculty of life science | 08/2023  11/2019 |
| * + Commonwealth Scholarship Award | Commonwealth scholarship award to pursue full-time MSc degree programme in UK. | 08/2018 |
| * + MRC Undergraduate Scholarship Award | Undergraduate scholarship award to pursue biomedical science programme with Ulster university | 09/2016 |
| * + MRC the Gambia FdSc scholarship award | FdSc scholarship award to pursue foundation programme in biomedical science with St George’s Uni. of London | 09/2011 |
| * + Virtual Conference Grant Award | Awarded Virtual conference Grant to attend European Haematology Association EHA22 HYBRID conference | 06/2022 |
| * + Certificate of Participation | Awarded certificate of participation for European Haematology Association Hybrid Conference | 08/2022 |
| * + Certificate of Participation | Awarded certificate of participation for Annual Academy for Sickle Cell and Thalassaemia Conference | 10/2022 |

**RESEARCH EXPERIENCE & RELEVANT SKILLs ACQUIRED**

**Student-based Projects**

1. **CRISPR/Cas 9 technology to generate STAG2-mutated Leukaemic cell line model** 5 months

MSc Biomedical Science programme; Science Lab; Supervised by: Fatemia (PhD student)

* Wrote a proposal and ordered the reagent (guide RNA and Cas 9 nucleases) from Dharmafect
* Performed cell culture and transfected the guide RNA and Cas9 nucleases
* Performed touchdown PCR and Mismatch assay to confirm the knockdown of STAG2 gene
* Sourced the sample for Sequencing to Sanger Institute

1. **Homologous recombination: Introducing a novel PCR-based technique for quantification of homologous recombination efficiency** 2019-2020

MSc Thesis; Supervised by: Dr Terry Gaymes; IRTL Lab; Kingston University

* Designed the experimental approach and ordered the reagents.
* Assessed transfection efficiency of transfection reagents with GFP protein.
* Performed mammalian cell culture using cell lines such as HeLa and pancreatic cell lines.
* Transfected the cell lines with PUC19 plasmid using Nucleofection.
* Performed DNA/Plasmid extraction using Elution method from the transfected cells.
* Performed Gel-based PCR to detect band of interests.
* Performed Real-time PCR to quantify recombinant gene product.

1. **Studying the anti-inflammatory effects of Curcumin (major component of turmeric powder) on LPS-activated Microglial cells** 3 months

Summer Intern; IRTL; Supervised by Dr Whiting and Stolinski; Group Project

* Performed cell culture on Microglial cell line
* Activated the cell line with Liposaccharide
* Measured the proinflammatory cytokines (TNF and IL-6) with ELISA method
* Exposed the activated Microglial cells to Turmeric Powder, curcumin
* Measured the impact of curcumin on activated microglial cells overtime

1. Detecting PML-RARA fusion gene with reverse transcriptase PCR 3 weeks

MSc Biomedical Science programme; Science Lab; Supervised by: Dr Terry Gaymes

* RNA extraction using phenol chloroform method
* Performed reverse transcription to generate cDNA
* Perform gel-based/conventional PCR to detect PML-RARA fusion gene

**Work-based Projects at Medical Research Council, the Gambia**

1. Pneumococcal vaccine 10 (PCV10) Vaccine trial

* Vaccine safety: Performed full blood count and clinical chemistry tests prior and after the vaccine administration
* Vaccine efficacy: performed ELISA and flow cytometry to assess immune response to the vaccine

1. Pharmacokinetic study of malaria drug DHA/PQ in children without complicated malaria

* Drug safety: Performed full blood count and clinical chemistry tests prior and after the drug administration
* Performed malaria microscopy to identify and quantify malaria parasites: checked the effect of the drug on parasite density overtime
* Presented the preliminary data to the PI and co-PI and generated blood spot for PCR identification

1. Gambia Adult Reference Interval studies to establish reference range for Gambians

* Collected blood samples from blood donor
* Performed full blood count and clinical chemistry tests for reference range study in the Gambia
* Collated the data and contributed to the interpretation of the results

**TECHNICAL EXPERIENCE**

**Technical Skills Summary**

* **Microbiology: Bacterial microscopy, cultures and sensitivity; acid fast bacilli identification; catalase and coagulase biochemical tests etc.; agar preparation; identification of bacterial pathogens; Antimicrobial susceptibility testing using using disc diffusion method.**
* Competent in haematological assays such as peripheral blood film examination, Haemoglobin electrophoresis and reticulocyte counting, and molecular haematology methods to identify fusion gene with block PCR
* Competent in DNA/plasmid extraction, gel-based Polymerase Chain Reaction (PCR), Real time PCR, Reverse transcriptase PCR and Restriction Fragment Length Polymorphism (RFLP), and CRISPR-cas9 nuclease technology for gene (*STAG2 gene*) knock-out
* **Functional Immunological assays: Enzyme-Linked Immunosorbent Assay, ELISPOT and Flow Cytometry**
* Imaging skills:
* Floid microscope: studied GFP expression in transfected cells using Floid microscope
* Light microscope: identifies malaria parasites and study blood cells morphologies
* Confocal microscope (demo): studied mammalian cells ultrastructural architecture
* Fluorescent microscope: Identifies acid-fast bacilli for TB diagnosis
* Competent in performing mammalian cell culture, and transfection, and DNA digestion using restriction enzymes
* Bioinformatic Skills: Genome assembly and alignment, phylogenetic tree construction, identify conserved domain in a protein sequence, predict the secondary structure, Key terms and protocols in bioinformatics; Nucleic acid and protein sequence retrieval and analysis; Peptidomics; In-silico restriction digestion; Molecular docking; Phylogenetic analysis; Guide for future work in bioinformatics
* Statistics: use of SPSS statistical package and analyzing scientific data using R (Installing R, loading R packages, Load and Saving Data in R, perform minor statistics such a mean, median, and standard deviations, pairwise alignment with R etc)

**Soft skills**

* Networking skills; Communication skills; Time management skills; Problem Solving skills; Ability to work under pressure; Teamwork spirit; Leadership and Management skills

**WORK EXPERIENCE**

**Professional Positions**

**Supervisor/Head of Haematology Laboratory 01 November 2021-to date**

Medical Research Council the Gambia @London School of Hygiene and Tropical Medicine

* Supervise Haematology laboratory staff and visiting laboratory staff.
* Establishing generic research assays and methods on the platform and implementing them.
* Oversee and lead all the haematology related activities in clinical trials and research projects
* Training laboratory technicians on the range of procedures and assays implemented in a specific work area.
* Present to laboratory meetings and research groups the data and outcome of preliminary analysis of laboratory investigations/ research.
* Participate in the Medical Research Council the Gambia Unit’s seminar presentations where appropriate.
* Contribute to manuscript preparation towards publication of research work undertaken in the Haematology Laboratory.
* Oversee and support the Unit’s research agenda and portfolio by assisting PIs and scientists in training of trainee scientific officers and ensuring that training folders are regularly updated.
* Present posters and abstracts as required at international conferences and workshop

**Medical Laboratory Scientist/Technician May 2011- August 2018**

Medical Research Council the Gambia @London School of Hygiene and Tropical Medicine

* Perform a range of laboratory assays such as bacterial identification and culture, mycobacterial culture, immunophenotyping required to support scientific research and diagnostic services.
* Develop and write Standard Operating Procedures and ASSAY working Instructions for specific areas of work in the haematology laboratory
* Undertake independent research activities within the workplace to improve diagnostic delivery and work closely with principal investigators during clinical trials.
* Train and supervise laboratory Trainee Scientific Officer (TSO) and Interns in assay performance.
* Performed haematology assays such as Hb electrophoresis and D-dimer, Malaria parasites identification and speciation, and full blood count on clinical and project samples.
* Performed molecular and immunological assays such as DNA extraction, RNA extraction, block PCR, real time PCR and Enzyme-linked Immunosorbent assays on clinical and research samples
* Present pre-liminary data in weekly and monthly schedule meeting where applicable
* Trained laboratory staff on laboratory assay such as protein electrophoresis with cellulose acetate

**Internships**

**Great Ormond Street Hospital Specialist Haematology Laboratory UK Jan-July 2019**

MSc Internship coordinated by Kingston University, London: Life Science Department

* + Performed Sample reception.
  + DNA/RNA extraction with elution method
  + Molecular haematology assays like reverse transcriptase PCR

**PROFESSIONAL AFFILIATIONS**

Member, British Society of Haematology 2023-present

European Haematology Association (EHA) 2022-present

Member, Kingston University Alumni Association 2020-present

Member, Gambia Commonwealth Alumni Association 2021-present

Member, Gambia Biomedical Science Association 2018-Present

Member, Gambia Sickle Cell Foundation 2020-present

Board Member, Africa Sickle Cell Alliance 2020-present

**PROFESSIONAL TRAINING**

Webinars

* Recently attended blood academy webinar series on blood morphology and diagnosis of leukaemia.
* Attended webinar on European School of haematology: Erythropoiesis control and ineffective erythropoiesis from bench to bedside

Immunophenotyping

* Flow cytometry training at the Medical Research Council Immunology laboratory and Kingston university London to diagnose acute leukaemia and chronic leukaemia

Statistic Training in Kingston University

* Statistic training on Graph Pad Prism, Microsoft Word Excel and SPSS, Kingston University London on experiment design and biological data analysis

R Workshop Webinar & Coursera Courses

* Recently attended R workshop conducted by a group of PhD students in McGill University in Canada
* Introduction to bioinformatics in R (course ongoing)
* Introduction to system biology (certificate obtained)
* Experimental methods in system biology (course ongoing)

Laboratory Leadership and Management Training Workshop

* Organisation Structure and management
* Human Resources
* Communication and Conflict Resolution
* Leading a successful Team
* Problem Solving and Decision Making
* Budgeting and Finance
* Planning, Monitoring and Evaluations
* Ethics

**BIBLIOGRAPHY**

# Peer-reviewed and Image Publications

1. Mustapha Dibbasey, Solomon Umukoro, Abdoulie Bojang (2024) Comparative and stability study of glucose concentrations measured in both sodium fluoride and serum separator tubes, Practical Laboratory Medicine,29(e00360). <https://doi.org/10.1016/j.plabm.2024.e00360>

1. Mustapha Dibbasey; Francess Sarfo; Rosyna Begum; Mamudou Dahaba (2023). 64602 – Delayed Haemolytic Transfusion Reaction. Available at: <https://imagebank.hematology.org/collection/64602>
2. Dibbasey M, Dahaba M, Sarfo F, Jallow-Manneh I, Ceesay B, Umukoro S, Diop MF, Amambua-Ngwa A (2023). Laboratory indices of hospitalized sickle cell disease patients, prevalence and antimicrobial susceptibility of pathogenic bacterial isolates at MRCG ward in the Gambia. BMC Infect Dis;23(1):546. doi: 10.1186/s12879-023-08542-z
3. **Dibbasey M. and Dahaba M. (2023) 64449 – Hereditary Pyropoikilocytosis. Available at:** <https://imagebank.hematology.org/image/64449/hereditary-pyropoikilocytosis>
4. **Dibbasey M. and Dahaba M. (2023) 64450 – Nucleated Red Blood Cells. Available at:** <https://imagebank.hematology.org/image/64450/nucleated-red-blood-cells>
5. **Dibbasey M. (2023) 64262 – Sickle Cell Patients with Crisis. Available at:** <https://imagebank.hematology.org/image/64262/sickle-cell-crisis>
6. Bolarinde Joseph Lawal, Solomon Umukoro, Nuredin Ibrahim Mohammed, **Mustapha Dibbasey** (2020) Full Blood Count Estimation Using Abbott Cell-Dyn Ruby 5-Parts in Comparison with Boule Medonic M-Series 3-Parts Differential Haematology Analyser. Am J Biomed Sci & Res.11(3). DOI: 10.34297/AJBSR.2020.11.001636

1. **Mustapha Dibbasey** and Terry Gaymes (2021) Introducing Novel Molecular-based Method for Quantification of Homologous Recombination Efficiency. bioRxiv; doi: <https://doi.org/10.1101/2021.01.17.427032>**(pre-print)**

**Current project (manuscript Submitted):**

1. Performance Evaluation and Measurement Uncertainty of Sysmex XN-1500 automated full blood count analyser – **In Review**
2. Understanding the impact of seasonal and yearly variations on haematological indices: a platform for reference range study- **In Review**
3. Mustapha Dibbasey, Bolarinde Joseph Lawal, Solomon Umukoro, Peter Mitchell (2021) Prevalence of Iron Deficiency, Iron Deficiency Anaemia and General Anaemia in Male Gambian Blood Donors Residing in Greater Banjul Region. medRxiv; doi: <https://doi.org/10.1101/2021.01.25.21249996> **(In Review)**

**Conference papers\_\_**

7. Dibbasey M. (2018) Comparative and Stability Study of Glucose Concentrations Measured in both Sodium Fluoride and Serum Separator Tubes. *ASLM2018*. PS-2.2-043. Conference paper

**REFERENCES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Referee 1: Professor Alfred Amambua-Ngwa

Status: Head of Malaria Biology group and

Institution: Medical Research Council@ LSHTM

Email: [alfred.ngwa@lshtm.ac.uk](mailto:alfred.ngwa@lshtm.ac.uk)

Referee 2: Dr Lucas Amenga-Etego

Status: Research Fellow, West African Center for Cell Biology of Infectious Pathogen

Institution: University of Ghana

Email: [lshad1@lshtm.ac.uk](mailto:lshad1@lshtm.ac.uk)

Referee 3: Dr Abdoulie Bojang

Status: Lecturer (Applied Molecular Biology and Undergraduate project supervisor)

Institution: Medical Research Council@ LSHTM

Email: [Abdoulie.Bojang@lshtm.ac.uk](mailto:Abdoulie.Bojang@lshtm.ac.uk)