Applicant: Mkpouto Pius (89424022)

Program: Ph.D. in Genome Science and Technology (VGDPHD-LE)

Entry period: September 2024

Application comments:

No comments available

Order of content:

Application form
Resume
Statement of Interest/Intent
Transcripts & Diplomas – Unofficial
eReference (eRef) Responses
Reference Letter

PIUS, MKPOUTO ()
89424022

Degree Selection

Submission Date: 28/Oct/2023

Campus	Program (VGDPHD-LE)	Academic Year	Term	Term Start
Vancouver	Ph.D. in Genome Science and Technology	2024-2025	W1	Sep 2024

Source of Interest

How did you find out about UBC?

Personal and Contact Details

Student Number	Family Name (Surname)	Preferred Name
89424022	PIUS	

Title	Given Name	Middle Name	Former Family Name (Surname)
MISS	MKPOUTO		

Date of Birth	Gender	Country of Birth	Country of Current Citizenship
05/Apr/1991	Female	Nigeria	Nigeria
Dual Citizenship	**Primary Spoken Language**	**Other Spoken Language**	**Visa Type**
	English		International Student

Address Line (1 & 2)			
HOTEL FELIX			
City	**Province, State or Region**	**Postal or Zip Code**	**Country**
CAMBRIDGE			United Kingdom

Day Telephone Number	Evening Telephone Number	Email Address
447731783074		piusmkpouto@gmail.com

Do you identify yourself as an Aboriginal person of Canada?
Do you identify yourself as a Racialized person?
Yes

Academic History

- Applicant indicates that they have only attended post-secondary institution(s) other than UBC.

University of Cambridge

Institution Country:	**United Kingdom**
Start Date:	01/Sep/2019
End Date (or Expected End):	30/Sep/2020
Program of Study:	Genomic Medicine
Credential Status	Conferred / Complete
Date Conferred:	31/Jul/2023
Credential Received:	M. Philosophy
Awards & Honours received with this degree:	Gates Cambridge scholarship for MPhil at University of Cambridge, April 2019, awarded by the Bill and Melinda Gates Foundation through the Gates Cambridge Trust. National Institute of Health (NIH) and Howard Hughes Medical Institute scholarship to attend the 28th Annual Short Course on Experimental Models of Human Cancer, held August 2020 at The Jackson Laboratory in Bar Harbor, Maine, United States.
Required to withdraw:	No
Self Reported GPA:	
Used for Basis of Admission to UBC:	No

University of Manchester

Institution Country:	**United Kingdom**
Start Date:	01/Sep/2018
End Date (or Expected End):	30/Sep/2019
Program of Study:	Biotechnology and Enterprise
Credential Status	Conferred / Complete
Date Conferred:	31/Dec/2019
Credential Received:	Master's
Awards & Honours received with this degree:	Petroleum Technology Development Fund (PTDF) Nigeria scholarship for MSc at University of Manchester, June 2018, awarded by the Federal Government of Nigeria. National Institute of Health (NIH) and Howard Hughes Medical Institute scholarship to attend the 28th Annual Short Course on Experimental Models of Human Cancer, held 15th -24th August 2019 at The Jackson Laboratory in Bar Harbor, Maine, United States.
Required to withdraw:	No
Self Reported GPA:	
Used for Basis of Admission to UBC:	Yes

GPA Calculations Summary

Calculation Name	Purpose	Date of Calculation	Minimum GPA Req'd	GPA Calculation	GPA Rank	Meets Progrm Requirements	Meets UBC Requirements	First Class Standing?
Biotechnology and Enterprise	Admissions	06/11/2023		65.33		Yes	Yes	No

University of Calabar

Institution Country:	**Nigeria**
Start Date:	01/Apr/2009
End Date (or Expected End):	30/Apr/2014
Program of Study:	Genetics and Biotechnology
Credential Status	Conferred / Complete
Date Conferred:	30/Apr/2014
Credential Received:	Bachelor's
Awards & Honours received with this degree:	- Vice Chancellor’s prize for the best student in the graduating class, with the best academic performance, March 2015 - Tony and Awele prize for the over-all best-graduating student in the graduating class, from Tony Elumelu Foundation, March 2015 - University of Calabar Alumni Association (Calabar Chapter) prize for the best all-round graduating student in the graduating class, March 2015. - Most outstanding student in the Faculty of Science, University of Calabar, December 2014
Required to withdraw:	No
Self Reported GPA:	
Used for Basis of Admission to UBC:	No

- No **UBC** academic history found for this student number (89424022)

Funding

Standard Questions

Primary Funding

SOURCE of the support	
DOLLAR amount	
Includes TUITION fees?	
WHEN the support will commence	
WHEN the support will end	

Please indicate the SOURCE(S) of any awards, scholarships, sponsorships or fellowships for which you have applied or will apply.	International Development Research Centre (IDRC) Research Awards, Graduate Support Initiative (GSI),
Please indicate the Canadian Dollar amount PER YEAR of support applied for.	50000
Please indicate the NUMBER OF YEARS of study this support would cover.	5
If you do not receive this financial support, will you be able to attend.	Unlikely
How do you plan to fund your studies?	

Experience & Interests

Standard Questions

Areas of Interest

Faculty Members

Aparicio, Samuel
Dennis, Jessica
Brooks-Wilson, Angela

Please provide a brief statement of your academic and/or professional goals and how these align with this graduate program.
Please describe any research and/or work experience (including publications, etc.) you've undertaken that is relevant to your proposed field of study.
During my MPhil program at the University of Cambridge, I completed a 6-month dry lab research where I characterized breast cancer in younger versus older women. The study was part of a larger pilot program called the Personalized Breast Cancer Program (PBCP) which sought to personalize breast cancer screening services in the UK by age of onset of cancer. I analyzed samples collected from patients enrolled in this study and conducted variant calling and annotation, as well as analysis by cancer sub-type, age of onset, and pathogenicity status of the underlying genes. One of the end goals of the study was to build a polygenic risk score to improve breast cancer risk prediction but the pandemic hit and restricted access to research facilities. This study involved the use of several computational tools and databases, and I became proficient in R programming which I employed for my data analysis. Following the successful completion of my MPhil program, I have worked as a data analyst research assistant at the Wellcome Genome Institute where I analyzed samples that came from next-generation sequencing pipelines and needed to have quality control checks carried out on them. This work was computational, and I learned to use several bioinformatics tools and software such as fluidigm for genomic data processing and quality control. These skills will be directly transferrable to this PhD program. I have 10 peer-reviewed papers as part of my publication profile, and these are mostly on the subject of personalized medicine and genomics with 2 of these papers currently undergoing peer review. I have recently been accepted to conduct a short research program as a visiting research fellow in the laboratory of Dr. Manuel Corpas at the University of Westminster where I will be exploring the potential of using polygenic risk scores to predict breast cancer risk in Nigerian women. This research visit which begins in January 2024 will be prospectively funded by a fellowship from the Union of International Cancer Control.

Program-Specific Questions

Briefly discuss your background in life sciences, including academic, work or other experiences that may assist the admissions committee. Please limit your response to one page.	I have 14 years of combined experience in the biological sciences, especially in genetics and genomics. I possess a BSc in Genetics and Biotechnology where I studied courses in molecular biology, genetics, biotechnology, and biochemistry amongst others, culminating with a wet laboratory research component. I went on to pursue 2 masters degrees; one in Biotechnology and Enterprise where I conducted research on the synthetic production of mucins, a group of o-glycosylated proteins implicated in lung cancer. My most recently completed masters degree is an MPhil in Genomic Medicine from the University of Cambridge where I conducted research on breast cancer risk prediction. I possess experience working within the field of genomics as an educator, a data analyst, and a life science entrepreneur. I currently provide genomics public health education using various online platforms like a newsletter on Linkedin and a genomics podcast on youtube.
Briefly discuss your background in quantitative sciences (math, statistics, computer science, engineering, physics) including academic, work or other experiences that may assist the admissions committee. Please limit your	I possess experience in computational biology and statistics obtained as part of formal education. My BSc education included courses in algebra and trigonometry, calculus, introductory computer science, statistics, and biostatistics. I am also proficient in the use of R programming and Python

response to one page.	for biological data analysis. In addition to the above, I have undertaken extra learning courses with in-depth computer science and statistics components including: 1. Genomic Data Science Certification - offered by John Hopkins University on Coursera. Topics include: Python for genomic data science, algorithms for DNA sequencing, command line tools for genomic data science, Bioconductor for genomic data science, statistics for genomic data science. 2. Data Science in Stratified Healthcare and Personalized Medicine - offered by the University of Edinburgh on Coursera. Topics include: Sequence processing, image analysis, network modelling, probabilistic modeling, and machine learning.

Additional Questions

Standard Questions

Please discuss any other information you feel would be important to the Admission Committee in evaluating your application. If you feel that your credentials and any other information you have already provided on this form or will be submitting in support of your application represents you fairly, you should feel no obligation to write anything further here.	My current work interest is a genomics startup that seeks to provide easy access to genetic screening, testing, and counseling services. I currently am a cofounder of a healthtech startup focused on providing predictive breast cancer services in Nigeria. I am very passionate about science communication, especially in the field of genomics, and express this using several mediums of communication. Currently, I provide genomics public health education through a weekly LinkedIn newsletter, a genomics podcast, and lay genetics courses which I curate. I have also published several review papers in genetics and presented posters at academic conferences.

Referee 1

Name	Godwin Aleku
Job Title / Occupation	Assistant Professor
Institution / Company / Organization	KINGS COLLEGE LONDON
Type of Reference	**Academic**
Address	KINGS COLLEGE LONDON LONDON United Kingdom
Referee Email / Website	godwin.aleku@kcl.ac.uk
Telephone #	+447710547787
Notes to Referees	

Referee 2

Name	Eamonn Maher
Job Title / Occupation	Professor
Institution / Company / Organization	UNIVERSITY OF CAMBRIDGE
Type of Reference	**Academic**
Address	DEPARTMENT OF MEDICAL GENETICS CAMBRIDGE United Kingdom
Referee Email / Website	erm1000@medschl.cam.ac.uk
Telephone #	+44 (0)1223 746714
Notes to Referees	

Referee 3

Name	Ekei Ikpeme
Job Title / Occupation	Lecturer
Institution / Company / Organization	UNIVERSITY OF CALABAR
Type of Reference	**Academic**
Address	DEPARTMENT OF GENETICS AND BIOTECHNOLOGY CALABAR CROSS RIVER Nigeria 540213
Referee Email / Website	ekeivikpeme@unical.edu.ng
Telephone #	
Notes to Referees	

MKPOUTO PIUS

Murray Edwards College, University of Cambridge, United Kingdom.

Email: piusmkpouto@gmail.com, Mobile: +44(0)7731783074

I am committed to the development of effective and personalized healthcare solutions for the world's most pressing maladies. Google-certified Project Manager and Data analyst.

EDUCATION

2019 – 2020: The University of Cambridge, United Kingdom.
MPhil Genomic Medicine

- Conducted a 6-month independent computational research to characterize and compare the germline variants in young and older breast cancer patients in the UK National Health Service (NHS) who were enrolled in the pilot personalized breast cancer program (PBCP) and submitted a dissertation. My research involved variant calling and annotation, and the analysis of the result was done using R programming language.
- Carried out wet laboratory work on the construction of a DNA library, followed by quality checks, hybridization, enrichment, amplification, and barcoding of exome targets in preparation for sequencing using Illumina MiSeq at the Wellcome Genome Campus, Hinxton, Cambridge.
- Participated in computer-based practical workshops on variant assessment and analysis exploring genome browsers like Ensembl and Decipher as well as disease databases like Clinvar and Online Mendelian Inheritance in Man (OMIM). Used the above tools to assess the pathogenicity of a BRCA2 variant found in samples from a clinical case study of a young patient.
- Attended Grant-writing workshops and bioinformatic classes, including the use of R programming language for biostatistics offered by the University's bioinformatics center.
- Developed advanced computational and presentation skills for research and academic purposes.

2018 – 2019: The University of Manchester, Manchester, United Kingdom.
MSc Biotechnology and Enterprise

- Worked in a multi-ethnic team of five people to generate a viable business idea around the use of Electrolyte-gated Organic Field Effect Transistors (EGOFET) – based biosensors to detect tuberculosis biomarkers in urine samples.
- Executed group presentation on intellectual property rights, adapting my analytical and research skills to seek out prior art and establishing freedom to operate.
- Conducted a 6-month wet laboratory research project to express Mucin, a recombinant O-glycosylated protein, in mammalian cells of Chinese Hamster Ovary and Human Embryo Kidney origin. Mammalian cells were transfected with constructs containing tandem repeats of MUC5B (a large polymeric and mucus/gel-forming subtype of the protein) functionally fused to secretory carriers and expression levels were analysed by Western blot. The results were subsequently presented in a dissertation.
- Presented the progress and results of my research at 2 laboratory meetings in the Manchester Institute of Biotechnology, as well as to the faculty members of the School of Biological Sciences.

- Presented a poster of my research techniques at the 28th Annual Short Course on Experimental Models of Human Cancer, held from 15-24 August 2019 at The Jackson Laboratory in Bar Harbor, Maine, United States.
- Developed presentation, data analysis and laboratory skills (listed below).

2009 – 2014: The University of Calabar, Nigeria

BSc (Hons) Genetics and Biotechnology – First Class

- Achieved first class grade (top 1%) and was awarded as valedictorian of the graduating class.
- Carried out a lab-based project using animal models where I tested the effect of *Bougainvillea spectabilis* on sperm parameters of male albino rats and defended my thesis to a panel made up of an external supervisor and my lecturers.
- Developed communication and laboratory skills.

AWARDS AND ACHIEVEMENTS

Rotary Humanitarian Service Award – 25th June 2022:

- Awarded by Rotary Club of Tinapa, Nigeria, in recognition of selfless service and contributions to community development.

Scholarships:

- Gates Cambridge scholarship for MPhil at University of Cambridge, April 2019, awarded by the Bill and Melinda Gates Foundation through the Gates Cambridge Trust.
- National Institute of Health (NIH) and Howard Hughes Medical Institute scholarship to attend the 28th Annual Short Course on Experimental Models of Human Cancer, held 15th -24th August 2019 at The Jackson Laboratory in Bar Harbor, Maine, United States.
- Petroleum Technology Development Fund (PTDF) Nigeria scholarship for MSc at University of Manchester, June 2018, awarded by the Federal Government of Nigeria.

Valedictorian Awards: University of Calabar, Nigeria

- Vice Chancellor's prize for the best student in the graduating class, with the best academic performance, March 2015
- Tony and Awele prize for the over-all best graduating student in the graduating class, from Tony Elumelu Foundation, March 2015
- University of Calabar Alumni Association (Calabar Chapter) prize for the best all-round graduating student in the graduating class, March 2015.
- Professor Zana Akpagu's prize for the overall best graduating student of the University of Calabar, March 2015
- Most outstanding student in the Faculty of science, University of Calabar, December 2014

RELEVANT WORK EXPERIENCE

November 2022 – Present: Cofounder and CEO Utogenx

- Leading a diagnostic startup focused on providing personalized genomic testing for disease risk.
- Conducting literature reviews and writing research protocols.
- Conducting next-generation sequencing and providing results to patients.
- Currently working with the tech-team on an AI-powered multifactorial risk detection system for more targeted risk prediction.
- Acquired over 600 users within first 2 months of launch.

September 2022 – Present: Biostatistics Lecturer at University of Cambridge (Contract)

- Teaching probability to integrated masters degree students in the department of systems biology.
- Conducting practical on probability including set theory, rules of probability, conditional probability, Baye's theorem, and probability distribution.
- Developed management, organization, communication, and people skills.

April 2021 – March 2022: Data Analysis Research Assistant at Wellcome Sanger Institute, Hinxton, Cambridge, UK

- Worked in the data Quality Control (QC) team to perform data analysis and quality control on samples received from next-generation sequencing pipelines.
- Used advanced excel and Power Query to visualize data and generate insights.
- Worked with advanced genomics software such as Wellcome Sanger's NPG (New Pipeline Group), Illumina's Sequence Analysis Viewer (SAV), and Fluidigm to analyse predominantly COVID-19 next generation sequence output as well as variable samples such as cancer and parasite research samples from external clients and faculty research within the institute. NPG is a sequencing informatics software built to develop, maintain, run tracking, analysis, qc, and support Illumina's sequencing and array technologies. SAV is an Illumina-powered software that supports visualization of important quality metrics generated from real-time analysis following Illumina sequencing.
- Created useful dashboards and presented information to team members, and managers
- Developed enhanced data analytics skills.

June 2016 – September 2018: Graduate Teaching and Research Assistant. Department of Genetics and Biotechnology, University of Calabar, Nigeria (study leave from 2018 – 2021)

- Taught genetics to first and second year students and conducting journal clubs.
- Conducted collaborative research with senior academics, particularly in the field of human genetics.
- Developed skills for research, data analysis, and communication of complex scientific information in a simplified format.

April 2015 – June 2016: Youth Corp Teaching Assistant. Department of Remedial Sciences, Kebbi State University of Science and Technology, Nigeria.

- Taught introductory biology to pre-university science students in preparation for their entrance exam into first year of university.
- Developed communication and interaction skills.

May 2014 – April 2015: Chemistry Teacher and Debate Coach. Christian Model Secondary School, Cross River State, Nigeria.

- Taught Organic Chemistry to senior secondary school students in preparation for the West African Senior School Certificate Exams (WASSCE).
- Coached students on debate and public speaking to improve their presentation skills.
- Developed significant experience in leading adolescents.

VOLUNTEER ROLES

November 2019 – June 2020: Graduate Student Representative, Faculty Board of Clinical Medicine and Council of the School, University of Cambridge

November 2019 – June 2020: Community officer, Gates Cambridge Scholars Council, University of Cambridge.

November 2019 – June 2020: Postgraduate Representative on the Students Race and Ethnicity Committee Murray Edwards College, University of Cambridge.

November 2018 – July 2019: Black and Minority Ethnicity (BME) Officer, University of Manchester Students Union, Manchester, UK.

November 2018 – July 2019: Diversity and Inclusion Ambassador, University of Manchester, Manchester, UK

November 2018 – July 2019: Postgraduate Taught Student Ambassador, University of Manchester, UK.

PUBLICATIONS

Pius, M., Adebisi, Y., Philip, I., and Nyong, K., (2023). Revisiting COVID-19 Response in Nigeria: An Overview. Available at SSRN: https://ssrn.com/abstract=4336392 or http://dx.doi.org/10.2139/ssrn.4336392

Adebisi Y, Pius M. (2022). Nigeria's scientific contributions to COVID-19: A bibliometric analysis. Ann Med Surg (Lond). 80:104316. doi: 10.1016/j.amsu.2022.104316. Epub 2022 Aug 6. PMID: 35958287; PMCID: PMC9356628.

Okereke, M., Olumoh-Abdul, H., Pius, M., David, K., Ekpenyong, A., and Okoya, F. (2022). Pharmacogenomics Research in Africa: A Promising but Underexplored Prospect. *Pharmacological Research,* 10631. doi: 10.1016/j.phrs.2022.106317.

Pius, M., Adebisi Y., Muhammed, Y., Oladipo O., Ejim, D., and Dauda, A. (2021). Personalized Medicine in the COVID-19 Vaccination Amid the Wake of Diseases Comorbidity Using Nigeria as a Case Example. *Epidemiology International Journal,* 5(4). doi: 10.23880/eij-16000211

Muhammed, Y., Pius, M., Sani, B., Timothy, B., Usman, J., Abdullahi, M. (2021). Breakthroughs in SARS-CoV-2-monoclonal antibodies development. *Novel Research in Microbiology Journal*, 5, 1063 – 1076. doi:10.21608/nrmj.2021.149375

Muhammed, Y., Nadabo, A., Pius, M., Sani, B., Usman, J., Garba, N., Mohammed, J., Olayanju, B., Bala, S., Abdullahi, M., Sambo, M. (2021). SARS-CoV-2 spike protein and RNA dependent RNA polymerase as targets for drug and vaccine development: A review. *Biosafety and Health*, 3. doi: 10.1016/j.bsheal.2021.07.003

E.V. Ikpeme, U.B. Ekaluo, O.U. Udensi, E.E. Ekerette and M. Pius, 2015. Phytochemistry and Reproductive Activities of Male Albino Rats Treated with Crude Leaf Extract of Great Bougainvillea (*Bougainvillea spectabilis*). *Asian Journal of Scientific Research, 8: 367-373.*

PROFESSIONAL AFFILIATIONS AND CERTIFICATIONS

1. Member of the American College of Medical Genetics and Genomics (ACMG)
2. MSP (Managing successful programmes) certification, offered by Axelos
3. Scrum Master Certification: Scrum Methodologies offered by LearnQuest
4. Google Professional Certificate in Project Management.
5. Google Professional Certificate in Data Analytics.
6. Genomic Data Science Certification - offered by John Hopkins University on Coursera. Topics include
   - Python for genomic data science, algorithms for DNA sequencing, command line tools for genomic data science, Bioconductor for genomic data science, statistics for genomic data science.
7. Pharmacogenomics in Practice - offered by Precision Medicine Academy. Topics include
   - Molecular basis of drug response, pharmacogenomic information in the drug label, clinical validity and utility of PGx tests, exploring PharmGKB, paying for Pharmacogenomics, PGx testing and how to select eligible patients and appropriate laboratories.
8. Case Studies in Personalized Medicine - offered by Vanderbilt University on Coursera. Topics include
   - Genetic variation, case studies, personalized medicine in a system of care,
9. Data Science in Stratified Healthcare and Personalized Medicine - offered by the University of Edinburgh on Coursera. Topics include
   - Sequence processing, image analysis, network modelling, probabilistic modeling, machine learning, natural language processing, process modelling, and graph data.
10. Precision Medicine - offered by the University of Edinburgh on Coursera. Topics include
    - Monogenic diseases, complex diseases, cancer, health and prevention, pharmacogenomics and drug development, and research.

SKILLS

Experimental Research: Pipetting, centrifugation, gene cloning, agarose gel electrophoresis, DNA extraction, SDS PAGE, Western blots, tissue and cell culture, and PCR.

IT and Computational Research:

- Biocomputational tool: Cosmic, Ensembl, Decipher, dbSNP, ClinVar and Pubmed for variant calling, annotation, and interpretation, next generation sequencing, next generation sequencing analysis software.

- Productivity Management and Data Analysis: Trello, Asana, Jira, Miro, and spreadsheets for project and product management. Microsoft PowerPoint, Advanced Excel, and Word, Canva, R and Python programming languages, Tableau, Power BI, and SQL

INTERESTS

Travelling, debate, public speaking, healthtech.

REFEREES

Available on Request

STATEMENT OF INTENT

Growing up in Nigeria as a teenager I used to believe that cancer was foreign to the black race and predominantly a "white people disease". This presumption was fueled by the traditional narrative about Africans having natural immunity to cancer, as well as lack of knowledge about complex diseases. There has, however, been an alarming increase in deaths from cancer-related causes in Nigeria in recent times. In most instances, death resulted from late diagnosis, poor management, and a lack of standard health facilities to allow for proper treatment. An investigation into the health system in Nigeria reveals that treatment for many illnesses and disease conditions still employ traditional medical treatment approaches of reactionary and assumptive diagnosis and therapy that seeks to treat illnesses only after they have occurred. However, for the management of time-sensitive and potentially terminal diseases like cancer, personalized medicine which uses knowledge of a patient's genome to predict disease risk and develop more bespoke treatment, is vital for quick life-saving intervention. This has fueled my interest in translational cancer research, especially understanding how we can use genetic information to predict risk of cancer occurrence and thus tailor treatment more efficiently.

In pursuant of the above, I have obtained a BSc in Genetics and Biotechnology from the University of Calabar, Nigeria, where I graduated with a First-class honour and was valedictorian of the 2015 graduating class. This degree gave me a solid background in introductory genetics, molecular biology, cell biology, principles of biotechnology, and biostatistics among other relevant courses, and helped me gain an understanding of the genetic basis of cancer and rare diseases, mechanisms underpinning the expression of cancer genes, and factors influencing predisposition. After graduation, I took a job as a graduate teaching and research assistant in the same department of Genetics and Biotechnology where I studied, and this further exposed me to research along the lines of human genetics. I subsequently undertook an MSc in Biotechnology and Enterprise at the University of Manchester, UK, and as part of that degree I conducted independent laboratory-based research into the possibility of expressing an O-glycosylated protein called Mucin, in cultured mammalian cells. This project which was conducted at the protein expression facility of the Manchester Institute of Biotechnology provided me the relevant laboratory and analytical skills which are transferrable to the study of cancer, especially as these recombinant mucins were intended for functional studies towards developing potential therapy for lung cancer.

My desire to acquire expertise in precision medicine prompted me to undertake a second masters degree in Genomic Medicine at the University of Cambridge where I conducted dry lab research in breast cancer risk prediction using data from germline samples collected from women enrolled in a pilot personalized breast cancer program in the UK. The end goal of this research was to curate a polygenic risk score, but this was truncated due to the onset of the pandemic.

I hope to consolidate this knowledge by undertaking this PhD in Genomic Science and Technology where I plan to conduct research on breast cancer risk prediction especially as relates to triple negative breast cancer. In anticipation of doing a lot of computational work as part of my PhD research, I have prepared myself through previous experience and self-directed learning and thus have acquired relevant research and computational skills that will be directly transferable to my PhD work. My expertise includes proficiency in the use of R programming language, Python, and advanced Excel for data analysis. My MPhil research at the University of Cambridge was focused on characterizing different subtypes of breast

cancer in younger versus older women and the analysis of data was done in R. I became proficient in exploring genomic and cancer databases and this gave me good background for this PhD. During the pandemic, I worked as a research assistant at the Wellcome Genome Institute where I was part of a team carrying out data quality control on samples from next generation sequencing. I have also undertaken independent learning of genomics-related courses as shown on my CV, and in January 2024 I will begin a short visiting research program at the University of Westminster where I have been accepted to the laboratory of Dr Manual Corpas and will be researching the use of polygenic risk scores for breast cancer prediction in Nigerian women.

My long-term goal is to contribute to changing the way the medical system in my country approaches cancer management through collaborations that will improve the practice of personalized medicine in the hospitals and clinics. Post PhD, I wish to explore the idea of personalized screening of African populations as part of breast cancer surveillance, either through an entrepreneurial venture or government-supported health initiative, and I am convinced that the research environment at the University of British Columbia will empower me to make these meaningful contributions. I am particularly attracted to the flexible curriculum offered by the Genomic Science and Technology program at UBC, as well as the unique opportunity to conduct rotations and hopefully find a lab of best fit for me. I also believe that UBC's prestige in being ahead if its peers in cancer research as well as the great linkages it has with several Canadian genomics initiatives will give me the much-needed professional exposure, beyond just my academic pursuits and I look forward to being admitted.

Thank you.

iTranscript ID : UCL|ISW|1928154126

University of Calabar

P.M.B. 1115, Calabar C.R.S., Nigeria

Transcript Of Student Academic Records

FULL NAME : PIUS , MKPOUTO UDO

STUDENT NO : 2009/41125

NATIONALITY: NIGERIA

STATE : AKWA-IBOM

LGA : NSIT-UBIUM

PRESENT PERM. ADDRESS: 18 Utibe Street, Calabar, Cross River State

SEX: FEMALE

DATE OF BIRTH: 05-04-1991

YEAR OF ENTRY : 2009/2010

FACULTY: SCIENCES

DEPARTMENT: GENETICS AND BIOTECHNOLOGY

FIRST YEAR

2009/2010

1st Semester

Course	No.	Title	Credit Hours	Grade	Grade Points
CHM	1011	General Chemistry I	3	B	12
BIO	1011	General Biology I	3	B	12
PHY	1101	General Physics I	3	C	9
GSS	1101	Use of English I	2	B	8
MTH	1111	Algebra and Trigonometry	3	B	12
GSS	1131	History and Philosophy of Science	2	A	10

2nd Semester

BIO	1012	General Biology II	3	A	15
CHM	1022	General Chemistry II	3	A	15
GSS	1102	Use of English II	2	A	10
PHY	1102	General Physics II	3	A	15
GSS	1112	Citizenship Education	2	A	10
GSS	1122	Philosophy and Logic	2	A	10
MTH	1352	Calculus and Coordinate Geometry	3	A	15

SECOND YEAR

2010/2011

A true copy of the record on file in this office

16 DEC 2016

Mr. Okon Kennedy
For: Registrar

Destination: UNIVERSITY OF GLASGLOW, 1TI West George Street Glasgow G2 1QX, Glasgow - City, Scotland, United Kingdom

iTranscript ID : UCL|ISW|1928154126

Course	No.	Title	Credit Hours	Grade	Grade Points
1st Semester					
MCB	2011	General Microbiology I	2	A	10
GBT	2011	Genetics I	3	A	15
ZEB	2011	Lower Invertebrates	2	A	10
BOT	2021	Seedless Plants	2	B	8
GBT	2021	Introductory Ecology	2	A	10
GBT	2031	General Physiology	2	A	10
GBT	2041	Biological Techniques	2	A	10
GSS	2111	Introduction to Computer	2	A	10
2nd Semester					
MTH	1092	Statistics for Biological Science	3	A	15
MCB	2022	General Microbiology II	3	D	6
GBT	2022	Introductory Biotechnology	2	A	10
GBT	2052	Introductory Developmental Cell Biology	3	A	15
GSS	2112	Computer Application	2	A	10
CHM	2322	Organic Chemistry II	3	A	15

THIRD YEAR

2011/2012

1st Semester

GBT	3011	Genetics II	3	A	15
GBT	3021	Field Course I	2	A	10
GBT	3031	Principles of Biotechnology I	3	A	15
GBT	3041	General Ecology	3	A	15
GBT	3051	Molecular Biology I	3	A	15
BCM	3081	General Biochemistry I	3	A	15
GSS	3101	Entrepreneurial Development I	2	A	10
GBT	3991	Aquatic Pollution/Pest Control/Public Health	3	A	15

2nd Semester

BOT	2032	Seed Plants	2	A	10
GBT	3002	Industrial Attachment	3	A	15
GBT	3032	General Cytology	3	A	15
MCB	3032	Immunology and Immunochemistry	3	A	15
GBT	3052	Molecular Biology II	3	A	15
BCM	3082	General Biochemistry II	3	A	15
GBT	3082	Evolution	3	A	15
GSS	3102	Entrepreneurial Development II	2	A	10

FOURTH YEAR

Destination: UNIVERSITY OF GLASGLOW. 111 West George Street Glasgow G2 1QX, Glasgow - City, Scotland, United Kingdom

iTranscript ID : UCL|ISW|1928154126

Course	No.	Title	Credit Hours	Grade	Grade Points
2012/2013					
1st Semester					
GBT	4000	Project in Animal Genetics and Biotechnology	6	A	30
GBT	4001	Seminar	2	A	10
GBT	4011	Population Genetics	3	A	15
GBT	4021	Cytogenetics	3	B	12
GBT	4041	Biostatistics	3	A	15
GBT	4061	Animal Breeding	3	A	15
GBT	4131	Field Course II	2	A	10
2nd Semester					
GBT	4022	Biometrical Genetics	3	A	15
GBT	4032	Principles of Biotechnology II	3	A	15
GBT	4042	Agricultural Biotechnology	3	A	15
GBT	4052	Human Genetics	3	A	15
GBT	4082	Animal Tissue Culture	3	A	15
GBT	4092	Developmental Biology	2	A	10

FINAL CUMMULATIVE G.P.A: 4.79

Curriculum	GENETICS AND BIOTECHNOLOGY (Genetics and Biotechnology)
Degree	B.Sc
Class Of Degree	FIRST CLASS
Date Of Graduation	April 30, 2014

SCHOOL CERTIFICATE	
SUBJECT	GRADE
N.E.C.O. 2007	
Chemistry	C5
W.A.S.S.C.E 2007	
Economics	C5
Geography	B2
English Language	C5
Mathematics	C5
Agricultural Science	C6
Biology	B3
Physics	B3

CLASSIFICATION DEGREE		GRADING SYSTEM		
4.50 - 5.00	First Class	A	Excellent	5.00
3.50 - 4.49	Second Class Upper	B	Very Good	4.00
2.40 - 3.49	Second Class Lower	C	Good	3.00
1.50 - 2.39	Third CLass	D	Fair	2.00
1.00 - 1.49	Pass	E	Pass	1.00
0.00 - 0.99	Fail	F	Fail	0.00

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This is a true copy of the record in file in the office

16 DEC 2016

Destination: UNIVERSITY OF GLASGLOW, 111 West George Street Glasgow G2 1QX, Glasgow - City, Scotland, United Kingdom

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UNIVERSITY OF CAMBRIDGE

I hereby certify that
MKPOUTO UDO PIUS
of MURRAY EDWARDS COLLEGE
in the University of Cambridge
was at a full congregation holden in
the Senate-House on
22 JULY 2023
admitted to the degree of
MASTER OF PHILOSOPHY

Witness my hand this
twenty second day of July, two thousand and twenty-three

Administrative Officer

Registrary of the University

MANCHESTER 1824
The University of Manchester

Academic Transcript

Personal Details

Student ID:	10186503
Surname:	Pius
Forename(s):	Mkpouto Udo
Date of Birth:	05 April 1991
Level:	Postgraduate Taught

Academic Programme History

Faculty:	Faculty of Biology, Medicine and Health
School:	School of Biological Sciences
Programme:	MSc Biotechnology and Enterprise
Mode of Attendance:	Full Time
Registered on Programme:	17 September 2018
End Date:	15 September 2019

Degree Awarded

Degree:	Master of Science
Subject:	Biotechnology and Enterprise
Classification:	Merit
Date of Award:	06 November 2019

Postgraduate Taught Record

18/19 Year

Module Code	Module Title	Credits	Grade/Result
BIOL 60771	Advanced Biotechnology I: expression systems for biopharmaceutical & industrial proteins	15	64
BIOL 67672	Disease Modelling and Genome Engineering	15	76
BIOL 73050	PGT Advisor Meeting (MSc)-3	0	
BIOL 60770	Research Skills (Lab-based Research Project)	90	60
BIOL 73230	PGT Advisor Meeting (MSc)-2	0	
BIOL 60780	Intellectual Property in the Life Sciences	15	71
BIOL 73130	PGT Advisor Mtg (MSc)-1	0	
BIOL 62000	Introductory Courses	0	
BIOL 60760	Commercialisation in the Life Sciences	45	71

END OF TRANSCRIPT

Date Produced: 30 November 2019

The University of Manchester

By virtue of the powers granted to it by the Charter and Statutes and the authority of the Senate the University has this day awarded the degree of

MASTER OF SCIENCE

in the Faculty of Biology, Medicine and Health

Biotechnology and Enterprise

to

Mkpouto Udo Pius

who has satisfied the Examiners in the Final Examination for the Degree, with Merit.

06 November 2019

Registrar, Secretary and Chief Operating Officer

University of Calabar
Calabar

Reg.No.:09/41125

KNOWLEDGE FOR SERVICE

This is to certify that

Pius, Udo Mkpouto

having completed the programme of studies approved by the University has been awarded the degree of

Bachelor of Science (Hons.) Genetics and Biotechnology

First Class

in the Faculty of

Science

Witness our hands this 30th day of April

in the year

Two Thousand and Fourteen

REGISTRAR

VICE-CHANCELLOR

Official Transcript

UNIVERSITY OF CAMBRIDGE

University Offices

INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

Surname	Pius
Forenames	Mkpouto Udo
Date of Birth	05 April 1991
Unique student number	304313828
HESA unique student identifier	1911143138280

DEGREES AWARDED

No degree awarded.

INFORMATION IDENTIFYING THE QUALIFICATION(S)

Name and status of awarding institution	University of Cambridge
College	Murray Edwards College
Name of Qualification	Master of Philosophy
Level of Qualification	Postgraduate (Full-Time)
Main field(s) of study for the qualification	Genomic Medicine
Official Length of Programme	10 Months
Course Start Date	Michaelmas Term 2019 (01 October 2019)
Language of Instruction and Examination	English

ACADEMIC RECORD

(*) denotes no marks recorded for this unit

Approved for the degree of Master of Philosophy on 22 September 2020

EASTER TERM 2020
Examination in Genomic Medicine for the Degree of Master of Philosophy
Result : Pass
Overall Mark : No recorded result

The examination included the following components:	Result
CM1 : Introduction to human genetics and genomics	69 / 100
CM2 : Omics techniques and their application to genomic medicine	70 / 100
CM3 : Genomics of common and rare inherited diseases	69 / 100
CM4 : Molecular pathology of cancer and application in cancer diagnosis, screening, and treatment	60 / 100
CM5 : Application of genomics in infectious disease	70 / 100
CM6 : Pharmacogenetics and stratified healthcare	73 / 100
COVID : COVID-19: in the academic year 2019-20, and during the COVID-19 crisis, this candidate undertook alternative assessments. Information about the impact on assessments and the action taken by the University is available here: https://www.camdata.admin.cam.ac.uk/covid-19-and-transcripts	*
DIS : Genomic Medicine Dissertation	63 / 100
OM2 : Counselling skills for genomics	*
OM3 : Research and statistical skills	61 / 100
OM5 : Epigenetics and epigenomics	72 / 100

Grade Boundaries:	Result
Distinction 75%	
Pass 60%	
The degree committee have discretion to award a distinction, pass or fail outside the standard mark scheme as shown above.	

CERTIFICATION OF THE DOCUMENT

Signature

Date: 20-April-2022
Title of Office: Registrary

FURTHER INFORMATION

For further information please refer to the programme specification at
http://www.admin.cam.ac.uk/univ/camdata/archive.html
Where available, this will contain information on:

- Access Requirements
- Professional Status
- Programme Requirements
- Grading Schemes and Degree Classification
- Access to further study

INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

Programme specifications as found on : http://www.admin.cam.ac.uk/univ/camdata/archive.html for all courses include an indication of the level of the course in the context of the *Framework for Higher Education Qualification in England, Wales and Northern Ireland* , published by the Quality Assurance Agency (QAA).Full descriptors of the levels of the *Framework* can be viewed on the QAA website : *http://www.qaa.ac.uk/quality-code*

UNIVERSITY OF CALABAR

DR. (MRS.) EKEI VICTOR IKPEME

Associate Professor, Animal Genetics

Department of Genetics and Biotechnology
Faculty of Biological Sciences
University of Calabar, Calabar, Nigeria
Phone: 2348037245930
Email: ekeivikpeme@gmail.com; ekeivikpeme@unical.edu.ng

Our Ref: .....
Your Ref:.....

Date: 27 October, 2023

REFERENCE LETTER FOR MKPOUTO PIUS

Dear Sir/Madam

I am pleased to be providing a reference for Mkpouto Pius who was a student under my supervision while studying for her BSc in Genetics and Biotechnology at the University of Calabar.

Mkpouto is by far one of the most outstanding students I have ever taught in my years as a university lecturer. I first came across her in her first year of studies at which time I was serving as the examination officer for 1st and 2nd year students. Her name came up on the list as the best student in the class, the only student making a first-class grade, and I have since then watched her outdo that performance every semester until graduation. Mkpouto was not just the student that topped the charts at the end of every semester, she was also one of the most engaging students during lectures, always asking very insightful questions that showed that she had covered the material ahead of the class. This helped inspire her classmates into a new way of learning, eventually resulting in her cohort being one of the most brilliant the department has graduated. I am also aware that she went above and beyond to share her knowledge with her classmates, simplifying complex lecture material from her pre-reading into bite-sized formats and sharing with colleagues in tutorial sessions organized in the evenings and on weekends. In her final year, she taught Biostatistics to her classmates in self-organized tutorial sessions.

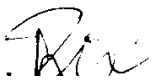
Mkpouto was in the top 1% of her academic peers all through her time in university. As at the time of her graduation, she was not only the best graduating student in the department, making history as the first student to graduate with a first class since the department came into the existence for the 20 years to the date of her graduation, she also went ahead to become the best graduating student in the entire university in 2015 academic session with a record high CGPA which has been acclaimed to be the highest the university had recorded until her time.

As her BSc research supervisor, I can speak to Mkpouto's research aptitude. In her final year of study, Mkpouto's research interest became matched with my area of expertise, and she was assigned to work with me. She excelled brilliantly while conducting research using mouse models under my supervision. She was great at coordinating her workload and worked well with other members of my research group, producing quality research output that was published in a research journal post-graduation. Mkpouto is also very outstanding at scientific communication and is a naturally confident presenter. She presented very confidently at the BSc research proposal and dissertation defense sessions, handling questions posed by external examiners and faculty members very well, a quality that I am sure will serve her well during her PhD. It is worthy of note that before getting a scholarship and proceeding abroad for further studies, Mkpouto stayed on with the university as a research assistant teaching introductory genetics to 1st year students and working with my research group supporting ongoing research where she made immense contributions.

In my time at the University of Calabar I have seen some potential rising stars and, in my opinion, Mkpouto ranks very high up the list. As her mentor, I was privy to the financial struggles she had due to very severe family hardship and even upon graduation the department had to intervene with the university administration to provide her more time to pay up years of tuition fee arrears, enabling her to have her graduation ceremony with the rest of her cohort and enjoy the distinguished awards she so dedicatedly worked hard for. These challenges obviously did not deter her from excelling with flying colours and being at the very top of her class. I am extremely assured that her scientific curiosity, resilience, dedication, and drive are some of her best assets outside of her natural intelligence and these will be a great addition to any laboratory and institution she finds herself.

I am very proud to recommend her to you and I boldly support her application for a PhD at your institution. Please do not hesitate to reach out to me if any further details are required.

Thank you



Ekei V. Ikpeme, PhD

School of Cancer and Pharmaceutical Sciences
Institute of
Pharmaceutical Science

Dr Godwin A. Aleku
Lecturer in Chemical Biology
and Drug Discovery

Room FWB 5.66
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KING'S College LONDON

7 November 2023.

The Programme Director,
Ph.D. in Genome Science and Technology,
University of British Columbia.

Re: Mkpouto Pius' Application to UBC's Ph.D. in Genome Science and Technology

Concerning Mkpouto's application to UBC's Ph.D. in Genome Science and Technology, I would strongly recommend her for selection into the PhD programme as I believe she is an outstanding candidate and a promising future leader.

Mkpouto worked as an MSc project student in our laboratory at the Manchester Institute of Biotechnology, University of Manchester in Sep 2018, 2019. During this time, I was a postdoctoral researcher at the institute. I provided scientific support and career mentorship during her time in the lab. The mentorship relationship continued when coincidently we both moved to the University of Cambridge which gave me a further opportunity to know her much more closely.
During Mkpouto's time in the lab, she showed exceptional dedication to her work, demonstrated ability for critical and original thinking, and worked well with minimal supervision. She was very inquisitive and was eager to learn new techniques in the lab. Mkpouto was confident, she interacted confidently across disciplines. For example, Mkpouto training though being within the life sciences group, she would often speak with Chemists and computational scientists to have a better grasp and interpretation of her experimental data.

From the several conversations with Mkpouto, she has maintained a passion in scientific innovations and how these innovations can be translated to the benefit of the society. Mkpouto envisions her career in research and development, especially in translating scientific ideas to address neglected health issues. She has rightfully identified that an excellent PhD training is essential to getting to where she would like to be and hence is very passionate about doing a PhD in UBC.

One of her key strengths is leadership and community engagement. I have admired Mkpouto's continuing dedication to very important societal issues, especially in areas of community development, girl-child empowerment, advocacy and representation. For example, while at the University of Manchester, she was Diversity and Inclusion Ambassador. In Nigeria, Mkpouto was involved in several other initiatives including serving as the chairperson for Pan African Universities Debating Council, and she was also the executive director of the 'She is in charge' initiative, a programme which seeks to empower and enlighten girls in rural settings in Nigeria. At Cambridge, Mpkouto's joined the Cambridge Debating Society and represented the society in several debating events. She is a confident and articulate speaker- I invited her to speak at two events to large cohorts of international students, we had excellent feedback on her contributions at these events from participants. It is clear to me that Mkpouto is a promising future leader, and the right environment such as UBC where she would meet like-minded scholars and academics will prepare her for future leadership.

On Mkpouto's academic standing, she was the best graduating student from her undergraduate study and was excellent in her Manchester MSc programme. She has recently completed an Mphil programme in Genomic Medicine at Cambridge. All these trainings have prepared her adequately for the UBC's Ph.D. in

Genome Science and Technology, and I am confident that Mkpouto has the resilience required of UBC PhD scholars. I have no doubt that she will be successful in her doctorate programme. I therefore recommend Mkpouto unreservedly for the UBC PhD programme in Genome Science and Technology. A UBC PhD education would be a major step in her pursuit of becoming an excellent scientist and an outstanding leader.

Yours sincerely,

Dr. Godwin A. Aleku

UNIVERSITY OF CAMBRIDGE
Department of Medical Genetics

Emeritus Professor Eamonn Maher
Department of Medical Genetics

Faculty of Graduate and Postdoctoral Studies
University of British Columbia

06 November 2023

To whom it may concern,

Reference for Mkpouto Pius

To whom it may concern,

I am writing to support an application from Mkpouto Pius for the PhD in Genome Science and Technology.

Mkpouto Pius has been a registered student at the University of Cambridge, Murray Edwards College, on the MPhil in Genomic Medicine postgraduate course. Mkpouto was admitted to the MPhil in Genomic Medicine course at the University of Cambridge in the face of severe competition for a place on the course. This course prepares students for a PhD or graduate entry Medicine through a broad exposure to genomic science and the application of genomics in medicine. Students undertake a research project (equivalent to a third of the total marks) that gives them first-hand experience of research and of writing up a 12,000 research dissertation. Mkpouto has done very well on the course. Mkpouto completed and passed the all following course components:

MDMGM2 RESULT-001	Examination in Genomic Medicine for the Degree of Master of Philosophy (Result)	Pass		
MDMGM2 CM1-105	Introduction to human genetics and genomics (Coursework)		69	100
MDMGM2 CM2-115	Omics techniques and their application to genomic medicine (Coursework)		70	100
MDMGM2 CM3-125	Genomics of common and rare inherited diseases (Coursework)		69	100
MDMGM2 CM4-135	Molecular pathology of cancer and application in cancer diagnosis, screening, and treatment (Coursework)		60	100

MDMGM2 CM5-145	Application of genomics in infectious disease (Coursework)		70	100
MDMGM2 CM6-155	Pharmacogenetics and stratified healthcare (Coursework)		73	100
MDMGM2 OM3-210	Research and statistical skills (Coursework)		61	100
MDMGM2 OM5-225	Epigenetics and epigenomics (Coursework)		72	100
MDMGM2 DIS-300	Genomic Medicine Dissertation (Dissertation)		63	100

Mkpouto worked very hard on the MPhil in Genomic Medicine and has done particularly well in the Pharmacogentics and stratified healthcare module. She passed the course despite being considerably unwell in the lent term of 2020.

Mkpouto has gained wet laboratory experience and conducted independent research to characterise and compare the germline variants in young and older breast cancer patients in the personalised breast cancer program (PBCP). She also participated in work on variant assessment and analysis. Mkpouto has demonstrated strong research analysis and has developed knowledge of a wide variety of research tools. Mkpouto has also established her own start-up healthcare business.

Mkpouto's previous experience includes an MSc in Biotechnology and Enterprise and a BSc (Hons) in Genetics and Biotechnology. Mkpouto has been a very proactive and dedicated student, participating in a wide variety of University activities. Her roles include; Graduate Student Representative, Community Officer and Postgraduate Representative on the Students Race and Ethnicity Committee.

Mkpouto opted to take a challenging statistics module and she demonstrated good use of the R programming environment to perform the statistics in her dissertation. This accomplishment of an independent project for a part of her taught degree demonstrates Mkpouto's clear competencies in planning and delivering a research project. Mkpouto has a wide variety of research experience, and the new skills she has developed through this taught programme in bioinformatics and biostatistics give her a wide and desirable skill set that will enable her to tackle diverse rotations within a PhD programme without the requirement for upskilling. Mkpouto has demonstrated an excellent ability to communicate science, both in her written work, and in small group discussions.

I am pleased to support Mkpouto's application for the PhD in Genome Science and Technology.

Yours sincerely,

Eamonn R Maher BSc MD MA FRCP FMedSci
Emeritus Professor of Medical Genetics and Genomic Medicine and Honorary Consultant in Clinical Genetics
NIHR Clinical Research Network National Speciality Lead for Genetics

Department of Medical Genetics

University of Cambridge, School of Clinical Medicine
Box 238, Lv 6 Addenbrooke's Treatment Centre
Cambridge Biomedical Campus, Cambridge CB2 0QQ
http://www.medschl.cam.ac.uk