

Malachy Ifeanyi Okeke *PhD, M.Phil, B.Sc*

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PERSONAL INFORMATION

Date of Birth: December 8, 1966
Place of Birth: Adazi
Nationality: Nigerian
Sex: Male
Civil Status: Married to Florence Chinyere Okeke, two children (Michael, 12; Naomi, 8)
Home Address: Beringstredet 7, 9010 Tromsø, Norway

HIGHER EDUCATION AND TRAINING

January 2008 – December 2010 **Postdoc (Virology and Vaccines)**
GenOk-Center for Biosafety Tromsø Norway

March 2003 – December 2007 **PhD, Medical Biology (Molecular Virology)**
University of Tromsø, Norway

August 2000 – February 2003 **M.Phil, Medical Biology (Molecular Virology)**
University of Tromsø, Norway

Sept. 1988 – November 1992 **B.Sc, Microbiology (First Class Honors)**
University of Nigeria, Nsukka

THESIS TITLE FOR EARNED DEGREES

PhD, Medical Biology, 2007, University of Tromsø, Norway, *Recombination in vitro between transgenic and wild type orthopoxviruses: characterization of parental and progeny hybrid viruses*.

M.Phil, Medical Biology, 2003, University of Tromsø, Norway, *Characterization of Recombinant Viruses obtained from co-infection of BHK-21 cells with a live vaccinia virus vectored influenza vaccine and a naturally occurring cowpox virus*,

B.Sc, Microbiology, 1992, University of Nigeria Nsukka, Nigeria, *Cultural conditions affecting the production of Beta-hemolysin of Bacillus globisporus*.

EMPLOYMENT

August 2018 – Date	Assistant Professor, Biology **American University of Nigeria Yola, Nigeria**
March 2018 – July 2018	Senior Scientist, Molecular Inflammation Research Group **UiT The Arctic University of Norway**
July 2017 – Feb 2018	Research Associate Professor, Genome Editing Research Group **GenØk Centre for Biosafety Tromsø, Norway**
July 2015 – June 2017	Program Chair (HOD) and Research Associate Professor Department of Virology and Vaccines **GenØk Centre for Biosafety Tromsø, Norway**
January 2011 – June 2015	Program Chair (HOD) and Research Assistant Professor Department of Virology and Vaccines **GenØk-Center for Biosafety Tromsø Norway**
January 2008 – Dec 2010	Postdoctoral Scientist Department of Virology and Vaccines **GenØk Centre for Biosafety Tromsø, Norway**
March 2003 – Dec 2007	Research and Teaching Fellow (Instructor) **University of Tromsø, Norway**
June 1994 – July 2000	Graduate (Teaching) and Research Assistant **University of Nigeria, Nsukka**
May 1993 – April 1994	Graduate Assistant (Obligatory National Service) **Ahmadu Bello University Zaria, Nigeria**

CONSULTANCY, SCIENTIFIC ADVICE AND PEER WORK

Jan 2012 – Dec 2014	Consulted expert to Norwegian Competent Authority under Directive 2001/18/EC (Environmental Risk Assessment of Virus-Vectored Vaccines and Virus-Vectored Gene/Cell Therapies). **Norwegian Environmental Agency**
September 2014	Co-rapporteur on virus-vectored vaccines and virus-vectored Gene therapy product applications submitted to the European Medicines Agency (ERA part of the dossier) **European Medicines Agency (EMA)**
Jan – Dec 2015	External expert to VKM on virus vectored vaccines and gene therapy Products. **Vitenskapskomiteen for Mattrygghet (VKM)**
March 2014 – Present	Reviewer, *Pak. J. Phar. Sc*. (http://www.pjps.pk/)
May 2015- Present	Reviewer, *Computation* (http://www.mdpi.com/journal/computation)
Jan 2016 – Present	Reviewer, *Viruses* (http://www.mdpi.com/journal/viruses)

Nov 2017 – Present Reviewer, *Vaccine* (https://www.journals.elsevier.com/vaccine)
Oct 2019 – Present Reviewer, *Virology J.* (https://virologyj.biomedcentral.com/)

AREAS OF EXPERTISE

- General Virology, Medical Virology and Molecular Virology
- General Microbiology, Medical and Molecular Microbiology
- Functional Genomics and Genome Editing
- Molecular Epidemiology
- Virus Bioinformatics
- Virus Immunology
- Virus Vectors and Vaccines
- Biosafety and Biosecurity of Modern Biotechnology
- Medicinal and Natural Product drug discovery

KEY COMPETENCE

- BSL2 and BSL3 competence
- Mammalian cell culture
- Virus propagation, isolation, and purification
- PCR, RT-PCR, cloning, DNA sequencing, transfection, recombination assays
- Genome sequencing and genome analysis
- Genome editing (Crispr-Cas9)
- Southern blot, western blot, Elisa, immunohistochemistry, bioinformatics, proteomics
- Transmission electron microscopy, scanning electron microscopy, immune-EM
- Natural product (medicinal plants) discovery
- Environmental risk assessment of virus vectored vaccines and gene therapies
- Project management and coordination
- Experience in European Union and Norwegian Research Council grant application
- Undergraduate, Postgraduate and Postdoc supervision
- Organization of scientific conferences and workshops

SELECTED PRIZES AND AWARDS

1. Research Fellow Grant for PhD student, University of Tromsø Medical School, Norway (May 01 2017 – Dec 31 2021), Joint Principal Investigator.
2. Postdoc Fellow Grant for a postdoc, GenØk-Center for Biosafety Tromsø Norway (August 2010-December 2013), Co-Principal Investigator
3. GenØk postdoctoral fellowship (January 2008-December2010), Principal Investigator
4. Norwegian Research Council and University of Tromsø Research Fellowship (March 2003-Deceember 2007).
5. Keystone Symposia student/post-doc scholarship for excellent poster in the conference-Bioterrorism and Emerging Infectious Diseases: Antimicrobials, Therapeutics and Immune- Modulators, January 6-11, 2004, Keystone Resort, Keystone, Colorado, USA.
6. Norwegian government scholarship award to undertake M. Phil in Virology (August 2000 - February 2003).

7. Prof. F.O. Olatunji Prize for the best participant in the course: Bioprocess/Enzyme Kinetics, NASENI/UNESCO training workshop on Biotechnology (December1994, Lagos, Nigeria).
8. Best graduating student, Department of Microbiology, University of Nigeria Nsukka. Class of 1992
9. Best graduating student, Faculty of Biological Sciences, University of Nigeria Nsukka. Class of 1992.
10. University of Nigeria, Nsukka Prize for the overall best graduating student for the 1991/92 academic session (Valedictorian for 1992 graduating class).

PUBLICATIONS

(A) ARTICLES IN PEER-REEVIEWED JOURNALS

1. Kolawole D, Raji H.M, **Okeke M.I**. (2021). Phylogenetic and Mutational Analysis of Lassa Virus Strains Isolated in Nigeria: Proposal for an In Silico Study. *JMIR Res Protocols* **2021**, 10(3):e23015. DOI: 10.2196/23015. PMID: 33769296

2. Alakunle, E.; Moens, U.; Nchinda, G.; **Okeke, M.I**. (2020). Monkeypox Virus in Nigeria: Infection Biology, Epidemiology, and Evolution. *Viruses* **2020**, *12*, 1257. https://doi.org/10.3390/v12111257. 2019 JCR IF: 3.816

3. Aiyewumi O, **Okeke MI**. (2020). The myth that Nigerians are immune to SARS-CoV-2 and that COVID-19 is a hoax are putting lives at risk. *J Glob Health*. 2020;10(2):020375. doi:10.7189/jogh.10.020375. 2019 JCR IF: 4.151

4. Quambo H.F, Ngu L.N, Lissom A, Ngoh A.A, Okoli A.S, Atabonkeng P.E, Takoua D, Garcia R, Gutierrez A, Chukwuma, G.O, Ngouaadjeu E, **Okeke M.I** and 8 other authors. 2019. Persistent Asymptomatic Plasmodium Falciparum driven anaemia in a Treatment Re-infection Pediatric Cohort in a Rural Health District of Cameroon. *Journal of Blood & Lymph*, 9 (3):248

5. Ngu, L., Nji, N., Ambada, Ngoh, A. A., Simo, J.L., **Okeke, M.I**. et. al. (2019). Inflammatory Chemokine Profiles of Four Female Cameroonian HIV Elite Controllers. *Journal of Immunology Research and Therapy*, 4(1): 179-186.

6. Lissom, A., Quambo, F. H., Megnekou, R., **Okeke, M.I**., Ngu, L. N. et al. (2019). Comparative Analysis of Igg Responses to Recombinant Qβ Phage Displayed MSP3 and UB05 in Dual HIV-Malaria Infected Adults Living in areas differing in Malaria Transmission Intensities. *J Exp Clin Immunol* 4(1), 1-10.

7. Waffo. AP et. al (+ 27 co-authors including **Okeke M.I**.). 2018. Surface Engineering of the RNA Coliphage Q? to Display Plasmodium Falciparum Derived Asexual Blood Stage Antigens UB05 and Merozoite Surface Protein 3. *Clinical Microbiology Open Access*, 7(4); 314, doi:10.4172/2327-5073.1000314. IF: 1.65

8. Okoli, A., **Okeke, M.I**., Tryland, M and Moens, U. (2018). CRISPR/Cas9 – Advancing Orthopoxvirus Genome Editing for Vaccine and Vector Development. *Viruses.* January 22, 2018. 10(1), E50; doi: 10.3390/v10010050. 2019 JCR IF: 3.816

9. **Okeke, M.1**., Okoli, A.S., Diaz, D., Offor, C., Oludotun, T.G., Tryland, M., Bøhn, T., and Moens, U. (2017). Hazard Characterization of Modified Vaccinia Virus Ankara Vector: What are the Knowledge Gaps? *Viruses*. 29 October 2017. *9*(11), E318; doi:10.3390/v9110318. 2019 JCR IF: 3.816

10. **Okeke M.I.**, Okoli A.S., Eze E.N., Ekwueme G.C., Okosa, E.U and Iroegbu C.U (2015). Antibacterial activity of *Citrus limonium* fruit juice extract. *Pak J Pharm Sci*, 28(5), 1567-1571. PMID: 26408878. 2019 JCR IF: 0.596

11. **Okeke, M. I**., Okoli, A. S., Nilssen, O., Moens, U., Tryland, M., Bøhn, T., and Traavik, T. (2014). Molecular characterization and phylogenetics of Fennoscandian cowpox virus isolates based on the *p4c* and *atip* genes. *Virology Journal*. 2014 Jun 27;11(1):119. doi: 10.1186/1743-422X-11-119. 2019 JCR IF: 2.579

12. Iroegbu, C. U., **Okeke, M. I**., and Ike, A. C. (2014). Relationship between antibody titers from V_4-in-cassava vaccination and protection against velogenic virus challenge in laboratory chickens. *African Journal of Microbiology Research* 8(6), 539-544. doi: 10.5897/AJMR2013.6436. RG IF: 0.41

13. **Okeke, M.I.,** Hansen, H., and Traavik T. (2012). A naturally occurring cowpox virus with an ectromelia virus A-type inclusion protein gene displays atypical A-type inclusions. *Infection, Genetics and Evolution* 12, 160-168. 2019 JCR IF: 2.773

14. Tryland, M., **Okeke, M.I**., Af Segerstad, C.H., Morner, T., Traavik, T. and Ryser-Degiorgis, M-P. (2011). Orthopoxvirus DNA in Eurasian Lynx, Sweden. *Emerg Infect Dis* 17, 626-632. 2019 JCR IF: 6.507

15. **Okeke, M.I**., Adekoya, A.O., Moens, U., Tryland, M., Traavik, T. and Nilssen Ø. (2009). Comparative sequence analysis of A-type inclusion (ATI) and P4c proteins of orthopoxviruses that produce typical and atypical ATI phenotypes. *Virus Genes* 39, 200-209. 2019 JCR IF: 1.776

16. Hansen, H., **Okeke, M.I**., Nilssen, Ø. and Traavik, T. (2009). Comparison and phylogenetic analysis of cowpox viruses isolated from cats and humans in Fennoscandia. *Arch Virol* 154, 1293-1302. 2019 JCR IF: 2.176

17. **Okeke, M.1**., Nilssen, Ø., Moens, U., Tryland, M. and Traavik, T. (2009). In vitro host range, multiplication and virion forms of recombinant viruses obtained from co-infection in vitro with a vaccinia-vectored influenza vaccine and a naturally occuring cowpox virus isolate. *Virology Journal*. 2009 May 12;6:55. doi: 10.1186/1743-422X-6-55. 2019 JCR IF: 2.579

18. **Okeke M. I**. (2007). Recombination in vitro between transgenic and wild type orthopoxviruses; characterization of parental and progeny hybrid viruses. Ph.D Thesis. University of Tromsø, Norway. ISBN:978-82-7589-188-2.

19. **Okeke M. I.**, Nilssen Ø, and Traavik T. (2006). Modified vaccinia virus Ankara (MVA) multiplies in rat IEC-6 cells and limited production of mature virions occurs in other mammalian cell lines. *J Gen Virol* 87, 21-27. 2019 JCR IF: 3.376

20. Hansen H, **Okeke M. I**, Nilssen Ø, and Traavik. T. 2004. Recombinant viruses obtained from co-infection *in vitro* with a live vaccinia-vectored influenza vaccine and a naturally occurring cowpox virus display different plaque phenotypes and loss of the transgene. *Vaccine* 23, 499-506. 2019 JCR IF: 3.143

21. Weli S. C, **Okeke M. I,** Tryland M, Nilssen Ø and T. Traavik. 2004. Characterization of Avipoxviruses from wild birds in Norway. *Canadian Journal of Veterinary Research* 68(2), 140-145. 2018 JCR IF: 0.96

22. Okoli A. S, **Okeke M. I,** Iroegbu C.U and Ebo P. U. 2002. Antibacterial activity of *Harungana madagascariensis* leaf extract. *Phytotherapy Research* 16(2), 174-179. 2019 JCR IF: 4.087

23. **Okeke M. I**, Iroegbu C.U, Eze E.N, Okoli A. S and Esimone C.O. 2001. Evaluation of extracts of the root of *Landolphia owerrience* for antibacterial activity. *Journal of Ethnopharmacology* 78, 119-127. 2019 JCR IF: 3.690

24. **Okeke M.I.,** Iroegbu C.U., Jideofor C.O., Okoli A.S. and Esimone C.O. 2001. Antimicrobial activity of ethanol extracts of two indigenous nigerian spices. *Journal of Herbs, Spices, and Medicinal plants* 8(4), 39-46. SJR IF: 0.63

25. **Okeke M.I.,** Iroegbu C.U. and Nwadinobi G.C. 2000. Cultural conditions affecting the production of Beta-haemolysin of *Bacillus globisporus*. *Global Journal of Pure and Applied Sciences* 6(2), 215-219.

(B) TECHINICAL REPORTS

26. Grønsberg, I.M., Bøhn, T., Nordgård, L., Husby, J. and **Okeke, M. I**. (2017). Assessment of the technical dossier submitted under EFSA/GMO/DE/2017/142. Application filed by Syngenta Crop Protection for maize MZIR098. http://genok.no/wp-content/uploads/2017/10/GenOk__H_142.pdf. GenØk – Center for Biosafety Tromsø, Norway

27. vanHove, L., **Okeke, M. I**., and Gronsberg, I. M. (2017). Assessment of the technical dossier submitted under EFSA/GMO/NL/2016/136 Application filed by Dow AgroSciences LLC for DAS-81910-7 cotton. http://genok.no/wp-content/uploads/2013/04/GenOk__H_136.pdf. GenØk – Center for Biosafety Tromsø, Norway.

28. **Okeke, M. I**. (2017). Genetically attenuated malaria vaccines and the need for safety assessment. http://genok.com/arkiv/6701/. GenØk – Center for Biosafety Tromsø, Norway.

29. **Okeke, M. I**. (2016). Climate changes and emerging wildlife borne viruses in Norway – a follow up report on major knowledge gaps and research needs. http://genok.no/wp-content/uploads/2016/10/Climate_Changes_and_Emerging_Wildlife_followup_report_draft_1_malachy1.pdf. GenØk – Center for Biosafety Tromsø, Norway

30. Nordgård, L., Bøhn, T., Gillud, F., Grønsberg, I.M., Iversen, M., Myhr, A.R., **Okeke, M.I**., Okoli, A.S., Venter, H. and Wikmark, O.G. (2015). Uncertainty and

Knowledge Gaps related to Environmental Risk Assessment of GMOs. GenØk Biosafety Reports 03/15 D.O.I. 10.13140/R.G.2.1.1947.7447.

31. **Okeke, M. I**. and Okoli, A. S. (2014). Co-rapporteurs environmental risk assessment of Imlygic (Tamilogene laherparepvec) (EMA/H/C/H0002771). European Medicine Agency, Brussels, Belgium. 2014.

32. **Okeke, M. I**. (2014). Safety and Environmental Risk Assessment of Vectormune ND: comment on dossier part 3e, safety documentation part 3b and part 3 of the Rapporteurs assessment report (EMEA/V/C/003829/0000). European Medicine Agency, Brussels, Belgium. 2014.

33. **Okeke, M. I**. (2014). Environmental Risk Assessment of Zalmoxis – allogenic T cells genetically modified to express *HSV-TK* and *ΔLNGFR* genes: comment on the dossier part 3e, rapporteurs and co-rapporteur assessment reports (EMEA/H/C/002801). European Medicine Agency, Brussels, Belgium. 2014.

34. **Okeke, M.I**. (2014). Safety and Environmental Risk Assessment of INNOVAX-ILT (HVT/ILT-138): comment on the Dossier part 3E and Part 3 of the Rapporteur's assessment report (EMEA/V/C/003869/0000). European Medicine Agency, Brussels, Belgium. 2014.

35. **Okeke, M. I**. (2013). Environmental Risk Assessment of Bovela® vaccine (Modified Live Bovine Viral Diarrhea Virus 1 – strain KE-9/Modified Live Bovine Viral Diarrhea Virus 2 – Strain NY-93): comment on Dossier part 3E and Part 3 of Rapporteur's assessment report (EMEA/V/C/003703/0000). European Medicine Agency, Brussels, Belgium. 2013.

36. **Okeke, M. I**. (2013). Environmental Risk Assessment (ERA) of classical swine fever E2 Recombinant BVDV (CP7-E2ALF): comment on part 3 of Rapporteur's assessment report (EMEA/V/C002757). European Medicine Agency, Brussels, Belgium. 2013.

37. **Okeke, M. 1**. (2012). ERA of Feline Interleukin-2 recombinant canarypox virus (vCP1338 virus): Comments on Rapporteur`s assessment report/Merial Safety Dossier (EMEA/V/C/002562). European Medicine Agency, Brussels, Belgium. 2012.

(C) KEYNOTE, INVITED LECTURES, CONFERENCE PAPERS AND PROCEEDINGS

38. Aiyewumi, O., **Okeke M.I.** (2021). Forecasting the Nigerian COVID-19 Epidemic: An Application of ARIMA Time Series Model. International Conference on Bioengineering, Biomedical Signal, and Image Processing (BIOMESIP) Conference and Covid-19 Workshop. Grand Canarias, Spain, July 19-21, 2021. Paper 1D: ≠126 (Oral Presentation).

39. Olajuyin, A. M., Olajuyin, A. K., Wang, Z., Xu, Z., Raji, H.M, **Okeke, M.I**., Zhang, X. (2021). Protein expression shift and potential diagnostic marker through

proteomic profiling of A549 lung cancer cells (Abstract). In: Proceedings of the American Association for Cancer Research Annual Meeting 2021; 2021 Apr 10-15 and May 17-21. Philadelphia (PA): AACR; *Cancer Research* 81, (13 Supplement). 322-322.

40. **Okeke, M.I**. (2021), Environmental Risk Assessment and Safety of Covid-19 vaccines in Nigeria. *Nigerian Environmental Society Lagos Island Chapter (NESLIC) Knowledge Sharing Series*. April 30 2021, Lagos, Nigeria. (**Invited Lecture**).

41. D. Diaz Canova., U. Moens and **M. I. Okeke** (2019). Whole genome sequencing of recombinant viruses obtained from superinfection of Vero cells with Modified Vaccinia Virus Ankara vectored influenza vaccine and cowpox virus. The 3rd Annual Infection Biology and Antimicrobial (IBA) meeting. Bergen Norway, 4 – 5 November 2019. [Poster presentation].

42. Nchinda, G., Lissom, A., Ouambo, H., **Okeke, M.I**., Tchouangueu, T.F. et al (2019). PO 8590 Comparative analysis of IGG responses to recombinant qβ phage displayed MSP3 and UBO5 in dual HIV/malaria-co-infected adults. *BMJ Global Health* 4 (suppl 3), a59.2-a59.

43. D. Diaz Canova, T. G. Oludotun, A. S. Okoli, Ø. Nilssen, U. Moens, M. Tryland, T. Bøhn, T. Traavik, B. Entler and **M. I. Okeke** (2016). Recombination between Modified vaccinia virus Ankara-vectored influenza vaccine and a feline cowpox virus during co-infection and superinfection of vero cells. 15th Medical Biodefence Conference. Munich, 26-29 April 2016, MP3. [Poster presentation].

44. **M. I. Okeke.** (2014). Environmental risk assessment (ERA) of genetically modified (GM) medicine: process, research and challenges. Pharmaceuticals in the environment - Nordic Mobility Program Meeting, 9th October 2014, Oslo Norway. [Invited Lecture].

45. A.S. Okoli, **M. I. Okeke**, C. Tummler, U. Moens, Ø. Nilssen, M. Tryland, J. A. Bruun, T. Bøhn and T.Traavik. (2013). Host cell response to a recombinant modified vaccinia virus Ankara-based vaccine. 11th ASM Biodefense and Emerging Diseases Research Meeting. Washington, DC, USA. February 25th-27th [Highlighted Oral Presentation]

46. A.S. Okoli, **M. I. Okeke**, C. Tummler, U. Moens, Ø. Nilssen, M. Tryland, J. A. Bruun, T. Bøhn and T.Traavik. (2013). Host cell response to a recombinant modified vaccinia virus Ankara-based vaccine. 11th ASM Biodefense and Emerging Diseases Research Meeting. Washington, DC, USA. February 25th-27th [Highlighted Oral Presentation]; [ASM & Battelle Post-Doc Grant Award Recipient].

47. **M. I. Okeke.** (2012). Biosafety research relevant to risk assessment of poxvirus vector vaccines: An example with Modified vaccinia virus Ankara (MVA). International Conference on Modern Biotechnologies: Sustainable Innovation and Regulatory Needs. Penang, Malaysia, 7-10 November 2012. [Keynote lecture].

48. A.S. Okoli**, M.I. Okeke**, U. Moens, Ø. Nilssen, M. Tryland, J.A. Bruun, T. Bøhn and T. Traavik. (2012). SILAC-based quantitative proteomics provides insight into the infectome of modified virus Ankara (MVA) and its transgenic variant (hanpMVA) in BHK-21 infected cells. 7th Norwegian National Proteomic Meeting. Tromsø, Norway. March 19th-20th [Oral Presentation].

49. A.S. Okoli**, M.I. Okeke**, U. Moens, Ø. Nilssen, M. Tryland, J.A. Bruun, T. Bøhn and T. Traavik. (2011). Quantitative Proteomic Evaluation of nrMVA- and hanpMVA-infected BHK-21 cells. 2nd Nordic Proteomic Symposium. Copenhagen, Denmark. November 27th-29th P1 [Poster Presentation].

50. **M.I. Okeke**. (2011). Genetically engineered virus vaccines (GMVs): context and biology. International Biosafety Course on "Insects, vaccines and stress-tolerant plants".Science Park, Tromsø, Norway. 15-20 August [Invited Lecture].

51. **M.I. Okeke**. (2011). Poxvirus vectored vaccines for wild life and domestic animals: distribution, risks and omitted research. International Biosafety Course on "Insects, vaccines and stress-tolerant plants".Science Park, Tromsø, Norway. 15-20 August [Invited Lecture].

52. **M.I. Okeke**, Ø. Nilssen, U. Moens, M. Tryland, A.S. Okoli, T. Traavik (2010). The evolutionary analysis of cowpox virus isolates and other orthopoxviruses based on the *p4c* and *atip* genes. 10th session of the congress for Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases. Amsterdam, The Netherlands. November 3-5. O49 [Oral Presentation].

53. **M.I. Okeke**, Ø. Nilssen and T. Traavik. (2008). Biological properties of recombinant viruses obtained from co-infection in vitro with Modified vaccinia virus Ankara (MVA) vectored influenza vaccine and wild type cowpox virus. Norwegian Society for Microbiology and Virology Spring Conference 2008. University of Agder, Kristiansand, Norway. May 30-31. [Oral Presentation].

54. **M.I. Okeke,** O. Adekoya, T. Traavik and Ø. Nilssen. (2007). Comparative sequence and structure analysis of A-type inclusion (ATI) and p4c proteins of orthopoxviruses that produce typical and atypical ATI phenotypes. Third European Congress of Virology. CCN Congress Center Nurnberg, Germany. September 1-5. SAS012 [Poster Presentation].

55. **M.I.Okeke**., Nilssen, Ø. and Traavik, T. 2005. Poxvirus vectored vaccines: Benefits and Risks. Genøk/UNEP International Biosafety Course on holistic foundations for assessment and regulation of genetic engineering and genetically modified organisms. Science Park and University of Tromsø, Norway, 22 August-2 September 2005. [Invited Lecture]

56. **M.I. Okeke.**, Nilssen, Ø., Traavik T**.** 2004. Morphogenesis and multiplication of modified vaccinia virus Ankara (MVA)-vectored influenza vaccine in mammalian cells: evidence of productive infection of rat intestinal epithelial IEC-6 cells. The Williamsburg Bioprocessing Foundation 11th Annual Meeting on Viral Vectors and Vaccines. Williamsburg Virginia, USA. 8-11 November 2004. Poster nr. 5.

57. **M.I. Okeke,** H. Hansen, Ø. Nilssen and T. Traavik. (2004). Characterization of recombinant viruses obtained from co-infection of BHK-21 cells with a live vaccinia virus vectored influenza vaccine and a naturally occurring cowpox virus. Keystone symposia- Bioterrorism and Emerging Infectious Diseases: Antimicrobials, Therapeutics and Immune-Modulators. Keystone Resort, Keystone, Colorado, USA, 6-11 January. 310 [Oral Presentation, Keystone doctoral/post-doc grant award].

58. **M.I. Okeke.** 2000. Antimicrobial activity of indigenous nigerian medicinal plants. A seminar paper presented at the Institute of Clinical and Molecular Virology, University of Erlangen, Germany, September 29, 2000.

59. **M.I. Okeke.,** Iroegbu C.U., Okoli A.S. et al. 1999. Antibacterial activity of extracts of *Citrus limonum*, *Cleitopholis patens, Landolphia owerrience* and *Securidaca longpendunculata.* XXVIth Annual Regional Conference of West African Society for Pharmacology, Nsukka, Nigeria, October 20-23 1999. Abstract number: MIC 13. [Oral Presentation]

60. Nworu C.S., Esimone C.O., Okide G.B., **M.I Okeke**. and Iroegbu C.U. 1999. The use of Checkerboard Assay, Decimal Assay for Additivity and Overlay Inoculum methods in evaluating interaction between Ciprofloxacin and Ampicillin against *Staphylococcus aureus* ATCC 12600 and *Escherichia coli* ATCC 11775 invitro. XXVIth Annual Regional Conference of West African Society for Pharmacology, Nsukka, Nigeria, October 20-23, 1999. Abstract number:MIC 12.

61. Esimone C.O., Okolo C.O., Ezeugwu C.U., Adikwu M.C., **M.I. Okeke** and Uzuegbu D.B. 1999. Comparative evaluation of antimicrobial properties of tea extracts. XXVIth Annual Regional Conference of West African Society for Pharmacology, Nsukka, Nigeria, October 20-23, 1999. Abstract number: MIC 14.

62. **M.I**. **Okeke** and Amadi E.S. 1998. A survey of knowledge, attitude, beliefs, and practices about AIDS among healthcare workers in Enugu State, Nigeria. 12th Worlds Aids Conference, Geneva, Switzerland, June 28-July 03, 1998. Poster number: 14132.

63. **M.I. Okeke.** 1998. Advances in antiretroviral drugs against HIV and AIDS. WORLD AIDS FOUDATION FRANCE/APCO INC. HIV/AIDS Training Workshop for healthcare workers in Imo State, Owerri, Nigeria, 02-08 febuary, 1998. [Invited Lecture]

64. **M.I**. **Okeke**. 1997. Evaluation of a training workshop on HIV/AIDS for healthcare workers in Enugu and Anambra states of Nigeria. Xth International Conference on AIDS/STD in Africa, Abidjan, Cote de ivoire, 07-11 December 1997. Abstract number: B. 246. [Oral Presentation]

65. **M.I. Okeke**. 1996. The Molecular Biology of Human Immunodeficiency Virus (HIV): Implication for drug development and therapeutic strategies. World Aids Foundation (WAF), France/Aids Prevention and Control Organization (APCO), Nigeria Training Workshop on HIV/AIDS: Diagnostics, Treatment and Care. Modotel Hotel LTD, Enugu, Nigeria. August 18 -31, 1996. [Invited Lecture].

66. **M.I. Okeke**. 1996. Advances in antiretroviral drugs against HIV/AIDS. World Aids Foundation (WAF), France/Aids Prevention and Control Organization (APCO), Nigeria Training Workshop on HIV/AIDS: Diagnostics, Treatment and Care. Ikenga Hotels LTD, Awka, Nigeria. December 08 -21, 1996. [Invited Lecture].

(D) SELECTED POPULAR SCIENCE ESSAYS IN NATIONAL MEDIA

67. **Okeke, M.I**. 2021. News. Post COVID-19 Era is an Illusion: The Epidemic May be Controlled but the Virus is Here to Stay. *Premium Times Nigeria*. September 10, 2021. https://www.premiumtimesng.com/news/more-news/484213-why-covid-19-cannot-be-eliminated-virologist.html

68. **Okeke, M.I**. 2020. Feature: Are Africans immune to Coronavirus. *Premium Times Nigeria*. April 10 2020. https://www.premiumtimesng.com/features-and-interviews/387067-feature-are-africans-immune-to-coronavirus-dr-malachy-ifeanyi-okeke.html

69. **Okeke, M.I**. 2020. Opinion: Absence of geo-mapping, disease modelling and therapeutics development derail Nigerian response to covid-19. *Premium Times Nigeria*. May 11, 2020. https://opinion.premiumtimesng.com/2020/05/11/absence-of-geo-mapping-disease-modelling-and-therapeutics-development-derail-nigerian-response-to-covid-19-by-prof-malachy-ifeanyi-okeke/

GLOBAL PUBLICATION METRICS

Google Scholar profile: H-index =13, i10 index=14, Citation=850, Source; https://scholar.google.com/citations?user=CSMnpncAAAAJ&hl=en

ResearchGate profile: H-index =11, RG Score = 21.57, Total Research Interest = 447.8, Reads =10115, Recommendations =33, Citations =682, Source: https://www.researchgate.net/profile/Malachy-Okeke

Scopus profile: H-index =10, Citation =437, Source; https://www.scopus.com/authid/detail.uri?authorId=6602299500

TEACHING EXPERIENCE

List of courses taught, course code, course credits and time line

Institution	Course Name	Course Code	Level/Units	Time line
Amadu Bello University Zaria	Microbiology and Parasitology	AG 201	Undergraduate/3	1993-1994
University of Nigeria Nsukka (UNN)	Introductory Microbiology	MCB 201	Undergraduate/3	1994 - 2000
UNN	General Microbiology 1	MCB 202	Undergraduate/3	1994 – 2000

UNN	Microbial Genetics and Molecular Biology	MCB 312	Undergraduate/4	1995 – 2000
UNN	Virology	MCB 431	Undergraduate/4	1995 -2000
University of Tromsø Norway (UiT)	Virology	BIO-362	M.Sc, PhD/3	2003 - 2008
UiT	Immunology	BIO-363	M.Sc, PhD/3	2003 – 2008
UiT	Mammalian Cell Culture	BIO-362S	Undergraduate, M.Sc and Ph.D/2	2003 – 2008
GenØk – Center for Biosafety Tromsø Norway	Genetic Engineering	GENØK-801	M.Sc, PhD	2008 -2018
GENØK Norway	Biosafety and Biosecurity of Genetically Modified Viruses	GENØK-802	M.Sc, PhD	2008 - 2018
American University of Nigeria (AUN) Yola	Molecular Genetics	BIO 230	Undergraduate/4	2018 - Date
AUN	Microbiology and Immunology	BIO 240	Undergraduate/4	2018 - Date
AUN	Environmental Toxicology	NES 342	Undergraduate/3	2018 - Date
AUN	Introduction to Biology 1	BIO 120	Undergraduate/4	2018 -Date
AUN	Essentials of Nutrition	BIO 103	Undergraduate/3	2018 - Date

ONGOING PROJECT

- Monkeypox virus in Nigeria: Distribution, genomics and recombination.
- SARS-CoV-2 evolution, modelling, drug discovery and public health interventions
- Lassa fever virus evolution and bioinformatics
- Molecular epidemiology of antibiotic resistance genes in Northern Nigeria
- Genome sequencing and analysis of Orthpoxviruses isolated from Fennoscandia
- Characterization of the genetic basis of Modified vaccinia virus Ankara (MVA) host range restriction in human and other mammalian cells.
- Crispr-Cas9 editing of poxvirus genomes
- Bacteriophage therapy for human and animal diseases
- Biosafety, Biosecurity and Bioethics of Modern Biotechnology

RESEARCH INTEREST

- Development and optimization of poxvirus vectors for vaccines, immunotherapy and oncotherapy
- Functional genomics and genome editing (Crispr-Cas9) as approaches to discover antiviral and anti-cancer agents
- Genome sequencing and analysis of naturally circulating viruses and other microorganisms
- Off-target effects of modern biotechnologies including Crispr-Cas9
- Antimicrobial activity of medicinal plants and other natural product
- Infectious Disease Modelling and Computer Aided Design of drugs and vaccines
- Molecular epidemiology and forecasting of outbreaks of emerging and re-emerging of known and unknown viruses
- Gene flow of antibiotic resistance genes in the environment
- Isolation and characterization of bacteriophages and phage therapy

UNDEGGRAGUATE, POSTGRADUATE AND POSTDOC SUPERVISION

Undergraduate: Supervised over 20 students. (Served as Main and Co-supervisor). Currently main supervisor to 6 students and co-supervisor to 4 students.

Masters Students and postgraduate fellows (main supervisor)

1. **Oludotun Taiwo Grace**: Isolation and characterization of recombinant viruses obtained from co-infection and super-infection in vitro with a vaccinia virus vectored influenza vaccine and a naturally occuring feline cowpox virus isolate**.** IMC University of Applied Sciences Krems, Austria, Medical and Pharmaceutical Biotechnology; M.Sc 2014.
2. **Collins Offor Offor**: Isolation and characterization of Modified vaccinia virus Ankara (MVA) that productively infect human cells**.** IMC University of Applied Sciences, Krems, Austria, Medical and Pharmaceutical Biotechnology; M.Sc 2015.
3. **Canova Diana Diaz**. Recombination between Modified vaccinia virus Ankara-vectored influenza vaccine and a feline cowpox virus during co-infection and superinfection of vero cells.2015/2016, FK Fellow GenØk.

PhD Students (Joint Main Supervisor with Prof Ugo Moens)

- **Diana Canova Diaz**. Hazard Characterization of Modified Vaccinia Virus Ankara Vector: Improving Vaccine Vector Safety through Empirical Investigation of Knowledge Gaps. May 01 2017 – Dec 31 2021. The PHD position is financed by UiT Norway (500000 USD grant) UiT-The Arctic University of Norway, Tromsø Norway

Postdoc (Co-supervisor with Prof Terje Traavik)

- **Dr. Arinze Stanley Okoli.** Functional genomics of Modified vaccinia virus infection of human and animal cells. August 2010-December 2013. Postdoc position was financed by a grant from Norwegian Directorate of Environment (600000 USD), GenØk-Center for Biosafety Tromsø Norway

MEMBERSHIP OF NATIONAL and INTERNATIONAL ADVISORY COMMITTEE

- School of Atts and Sciences (SAS) elected representative to the Senate of American University of Nigeria. 2020 -Date
- Chair, Committee on Laboratory Staff Welfare and Conditions of Service, American University of Nigeria. 2021-Date
- Member, American University of Nigeria Faculty Recruitment Committee. 2020-Date
- Member, Admission Committee, School of Arts and Sciences, American University of Nigeria Yola, 02/2019 - Date
- Member, Senate committee on Grievance, American University of Nigeria Yola, 10/2019 - Date
- PhD admission selection Committee, UiT The Arctic University of Norway, Member, 05/2016 – 04/2017.
- Norwegian Environmental Agency Oslo Norway Committee on Genetically Modified Organisms under Directive 2001/I8/EC, Consulted Scientific Expert, 01/2012 – 12/2014.
- European Medicine Agency (EMA) Committee for Human and Animal Vaccines consisting or containing Genetically Modified Organisms under Directive 2001/18/EC, Co-rapporteur, 07/2014.
- Norwegian Directorate for Food Safety (VKM) Oslo Norway, External Expert, 01/2015 - 12/2015.

MEMBERSHIP OF PROFESSIONAL ASSOCIATION

- International Society for Global Health (ISoGH), Full Member, 2020 -Date
- European Society for Virology. Full Member, 2007 – Date
- Norwegian Society for Microbiology and Biochemistry. Full Member, 2004 - Date

GRANT APPLICATION EXPERIENCE

- EDCTP Senior Fellowship plus Application 2020, Principal Investigator
- Principal Author (Project Manager), Norwegian Research Council (NFR) FREMEDBIO grant applications 2012, 2014, 2015.
- Principal Author (Project Manager), IS-DAAD grant applications, 2015 and 2016.
- Principal author (Project Manager), Norwegian Research Council (NFR) GLOBVAC grant application 2012.

- Co-author, MSCA-IF EU grant application 2016 and 2017 (Prof.Ugo Moens as the Principal author).

- Co-author, Nøkkelfordelte Stipendiatstillinger IMB_UiT application 2016 (Prof Ugo Moens as the Principal Author).

PROFESSIONAL REFERENCES

1. Professor Ugo Moens
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   Molecular Inflammation Research Group (MIRG)
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   Faculty of Medicine
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   N-9037 Tromsø
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2. Professor Øivind Nilssen
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   Department of Medical Genetics
   Institute of Clinical Medicine
   Faculty of Medicine
   UiT –The Arctic University of Norway
   N-9037 Tromsø
   Norway
   Email: oivind.nilssen@uit.no

3. Professor Geoffrey L. Smith, FRS
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   Cambridge CB2 1QP
   United Kingdom
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4. Professor Christian U. Iroegbu
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