

ERNEST ADANKWAH-PhD, MSc, BSc

Nationality: GHANAIAN

Date of Birth:12.01.86

Department of Medical Diagnostics, KNUST

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## SUMMARY OF CAREER EXPERIENCE

Dr. Ernest Adankwah is a research scientist and Lecturer at the Department of Medical Diagnostics, Faculty of Allied Health Sciences, KNUST-Kumasi, Ghana. He is a trained Biomedical Scientist with extensive experience in laboratory-based research and clinical practice. He has collaborated extensively with international and local researchers in several translational studies. His competence is in the use of both immunological (i.e., Multi-colour flow cytometry, ELISA, CBA, immunofluorescence, *in vitro* assays, cell cultures, immunohistochemistry & phosphorylation assays) and molecular (i.e., Real time PCR, Fluorescence in situ Hybridisation (FISH), western blot, Lenti-viral transduction systems & gene expression assays) tools in the discovery of novel biomarkers in infectious diseases and cancers. He is currently involved in a translational study to identify novel biomarkers and develop improved diagnostics for *Mycobacterium (M.) tuberculosis* infection detection in Ghana.

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## HIGHLIGHTS OF QUALIFICATION

2017- 2020 HEINRICH-HEINE-UNIVERSITÄT DÜSSELDORF, GERMANY, Ph.D (Dr.rer.nat)

Topic: Pathognomonic effects of tuberculosis on host immune response: impact on T-cells function and *M. tuberculosis* infection diagnosis. Supervisor: Prof. Dr. Marc Jacobsen. Methods: ELISA, CBA, In-vitro functional assay, Western blot, Quantitative PCR, Lenti-viral transduction systems, macrophage & phosphorylation assays, Gene expression assays & Multi-colour flow cytometry.

2012-2013 UNIVERSITY OF WESTMINSTER, UK, MSc Cellular Pathology

Topic: Assessing the possible role of autophagy-related proteins Beclin 1, Bcl-2 and p62 in potentially malignant colorectal adenomas and adenocarcinomas. Supervisor: Dr, Anthony Madgwick & Dr Tony Watford. Methods: DNA isolation, PCR, Antibody screening, cytological and histopathological screening, serology, flowcytometry, immunohistochemistry & immunofluorescence & FISH.

2005-2009 KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY (KNUST), GHANA. BSc Medical Laboratory Technology

Topic: Climate variability and its effect on of Malaria incidences and distribution in Ghana.

Supervisor: Prof. Dr. Samuel Tay. Methods: genotyping of malaria species, malaria microscopy, climate modelling for infectious disease, FACS analysis and cell counts.

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## WORK EXPERIENCE

2020 to date. Kumasi Centre for Collaborative research into Tropical medicine (KCCR), GHANA.

Position: Post Doc

Duties: Work on development of novel TB diagnostic biomarkers, coordination of field work activities, supervision of student project works.

2016 to date Department of Medical Diagnostics, KNUST-GHANA

Position: Lecturer

Duties: Offer lectures to students in the department of Medical Laboratory Technology on selected topics in Cytopathology, Histopathology & Immunopathology. Supervising students' projects works, laboratory rotation, trips and seminars.

2014-2016 Department of Medical Diagnostics, KNUST-GHANA

Position: Assistant Lecturer

Duties: Offer lectures to students in the department of Medical Laboratory Technology on selected topics in Cytopathology, Histopathology & Immunopathology. Supervising students' projects works, laboratory rotation, trips and seminars.

2010-2012 Kumasi Centre for Collaborative Research into Tropical Medicine (KCCR), GHANA

Position: Biomedical Scientist

Duties: Routine laboratory diagnosis in Virology (viral isolation and cell culture), Parasitology, Bacteriology and Immunology. Use of Polymerase Chain Reaction (Nested and RT-PCR), ELISA, Thermo cycler, Light cycler, Gel electrophoresis, Bactec, DNA and RNA extraction and working in the S3 laboratory.

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## SOFTWARE SKILLS

- Data Management: EpiInfo & Excel, Advanced
- Statistical Tools: SPSS, DISPLAYR, Grapher software, GraphPaD prism, Advanced.
- Immunological Tools: FlowJo for Flow cytometric data, Advanced.

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## PROFESSIONAL DEVELOPMENT EXPERIENCE

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December 2020	Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR) Workshop. Title: Research communication WRITE-SHOP for early-career scientists. Cape Coast, Ghana
May 2020	Interdisciplinary Graduate and Research Academy Düsseldorf (iGRAD) Workshop. Title: Optimising Strategies for Publishing Research in English. Düsseldorf, Germany
April 2020	Interdisciplinary Graduate and Research Academy Düsseldorf (iGRAD) Workshop. Title: Leadership Skills. Düsseldorf, Germany
February 2020	3 <sup>rd</sup> Symposium, MOI III Graduate School, Kardinal Schulte Haus, Bergisch Glabach, Germany. Title: Pathognomonic effects of human tuberculosis on host immune response in M. tuberculosis infection outcomes: Oral presentation
June 2019	2 <sup>nd</sup> Human and Translational Immunology Conference, Kos Island, Greece. Title: Two-Hit in-vitro T-cell stimulation Detects Mycobacterium tuberculosis Infection in Quantiferon Negative Tuberculosis Patients and Healthy Contacts from Ghana
March 2019	2 <sup>nd</sup> Symposium, MOI III Graduate School, Hotel Mutterhaus, Düsseldorf, Germany. Title: Two-Hit in-vitro T-cell stimulation Detects Mycobacterium tuberculosis Infection in Quantiferon Negative Tuberculosis Patients and Healthy Contacts from Ghana. Oral presentation
January 2019	Interdisciplinary Graduate and Research Academy Düsseldorf (iGRAD) Workshop. Title: Get into Teaching. Düsseldorf, Germany
May 2018	Interdisciplinary Graduate and Research Academy Düsseldorf (iGRAD) Workshop. Title: Project Management. Düsseldorf, Germany
February 2018	1 <sup>st</sup> Symposium, MOI III Graduate School, Kardinal Schulte Haus, Bergisch Glabach, Germany. Title: Constitutive STAT3 phosphorylation and high SOCS3 expression impair T-cell function in tuberculosis patients. Oral and Poster Presentation
September 2017	Interdisciplinary Graduate and Research Academy Düsseldorf (iGRAD) Workshop. Title: Presenting Science. Düsseldorf, Germany
August 2017	Interdisciplinary Graduate and Research Academy Düsseldorf (iGRAD) Workshop. Title: Good Scientific Practice. Düsseldorf, Germany

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April 2016	2 <sup>nd</sup> Ghana Science Association Conference. Title: Nucleolar Organiser Region associated protein and their association with various grades of breast tumours. Poster presentation
August 2015	6 <sup>th</sup> Annual Scientific Conference-KNUST. Title: Assessing the possible role of autophagy-related proteins Beclin 1, Bcl-2 and p62 in potentially malignant colorectal adenomas and adenocarcinomas. Oral presentation.
August 2015	2 <sup>nd</sup> Annual Medical Laboratory Technology Scientific Workshop-KNUST. Title: Post analytical errors in Cytopathology. Oral presentation

## ADMINISTRATIVE AND ORGANISATIONAL EXPERIENCE

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2020-Date	Examination officer, Department of Medical Diagnostics
2020-Date	Deputy Examination officer, Faculty of Allied Health Sciences, KNUST
2015-2016	Chief Invigilator, Faculty of Allied Health Sciences, KNUST, Ghana
2015-2016	Examination officer, Department of Medical Diagnostics, KNUST, Ghana
2014-2016	Examiner for Diploma programs in Nursing, Midwifery and Community Health Nursing, KNUST, Ghana

## AWARDS & HONOURS

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2017-2020	Full PhD Scholarship Award, Molecule of Infection (MOI III), Henrich Heine Universität, Düsseldorf, Germany.
2012-2013	Postgraduate Scholarship award, University of Westminster, UK (Full Fee Waiver)
2012-2013	Postgraduate Scholarship award, KNUST, Ghana (Living Expenses)
2011	Best Student Proposal (GBC convention, Kumasi-Ghana)

## PROFESSIONAL AFFILIATIONS

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Member, Ghana Association of Biomedical Laboratory Scientists (GABMLS)

Member, University Teachers' Association of Ghana (UTAG)

Member, Germany Society of Immunology (DGFI)

Member, Cellular Pathology Discussion Group-UoW, UK

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## RESEARCH INTERESTS

- Host immune response to molecular targets of *M. tuberculosis*
- Immune pathology of Non tuberculous Mycobacterial diseases
- Immune Biomarker for diagnostic and predictive testing in infectious diseases and cancers
- T-cell biology
- Immunohistochemistry in cancer research
- Proteomics and Metabolomics

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## HOBBIES

Cartoon animation, Modern photography and Music

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## PUBLICATIONS

1. Adankwah E, Nausch N, Minadzi D, Abass MK, Franken KL, Ottenhoff TH, Mayatepek E, Phillips RO, Jacobsen M. Interleukin-6 and Mycobacterium tuberculosis dormancy antigens improve diagnosis of tuberculosis. JOURNAL OF INFECTION. 2020.
2. Adankwah E, Güler A, Mayatepek E, Phillips RO, Nausch N, Jacobsen M. CD27 expression of T-cells discriminates IGRA-negative TB patients from healthy contacts in Ghana. MICROBES AND INFECTION. 2020.20(1):65-68
3. Adankwah E, Lundtoft C, Güler A, Franken KLMC, Ottenhoff THM, Mayatepek E, Owusu-Dabo E, Phillips RO, Nausch N, Jacobsen M. Two-Hit in vitro T-Cell Stimulation Detects Mycobacterium tuberculosis Infection in QuantiFERON Negative Tuberculosis Patients and Healthy Contacts From Ghana. FRONTIERS IN IMMUNOLOGY. 2019 Jul 3;10:1518
4. Güler A, Lopez Venegas M, Adankwah E, Mayatepek E, Nausch N, Jacobsen M. Suppressor of Cytokine Signaling 3 is crucial for Interleukin-7 receptor re-expression after T-cell activation and Interleukin-7 dependent proliferation. EUROPEAN JOURNAL OF IMMUNOLOGY. 2019 50(2): 234-244
5. Harling K, Adankwah E, Güler A, Afum-Adjei Awuah A, Adu-Amoah L, Mayatepek E, Owusu-Dabo E, Nausch N, Jacobsen M. Constitutive STAT3 phosphorylation and IL-6/IL-10 co-expression characterize impaired T-cell functions in tuberculosis patients. CELLULAR & MOLECULAR IMMUNOLOGY. 2018 Mar;16(3):275-287
6. Lundtoft C, Afum-Adjei Awuah A, Rimpler J, Harling K, Nausch N, Kohns M, Adankwah E, Lang F, Olbrich L, Mayatepek E, Owusu-Dabo E, Jacobsen M. Aberrant plasma IL-7 and soluble IL-7 receptor levels indicate impaired T-cell response to IL-7 in human tuberculosis. PLOS PATHOGENS. 2017 Jun 5;13(6).

7. Binger T, Annan A, Drexler F, Müller M, Kallies R, Adankwah E, et al . A novel rhabdovirus isolated from the straw-colored fruit bat *Eidolon helvum*, with signs of antibodies in swine and humans AMERICAN SOCIETY OF MICROBIOLOGY JOURNAL OF VIROLOGY 2015.89:9
8. Corman V, Grundhoff A, Baechlein C, Fischer N, Gmyl A, Wollny R, Adankwah E, et al. Highly divergent hepaciviruses from African cattle. AMERICAN SOCIETY OF MICROBIOLOGY JOURNAL OF VIROLOGY 2015 89:9
9. Danquah K.O, Adjei E, Quayson S, Adankwah E, Gyamfi D, Ossei P.P.S, Dzikunu G, Mensah P. and Lepkor C. Mucin expression patterns in histological grades of colonic cancers in Ghanaian population. PAN AFRICAN MEDICAL JOURNAL, 2017. 28(1).
10. Gyamfi D, Wiafe YA, Danquah KO, Adankwah E, Amissah GA, Odame A. Urinary iodine concentration and thyroid volume of pregnant women attending antenatal care in two selected hospitals in Ashanti Region, Ghana: a comparative cross-sectional study. BMC PREGNANCY AND CHILDBIRTH. 2018 1;18(1):166.
11. Darkwah WK, Aidoo G, Ao Y, Danquah KO, Adjei E, Adankwah E, Kadri A. Assessment of proliferative index in different grades of breast cancers using AgNOR (Agyrophilic Nuclear Organizer Region) expression. BENI-SUEF UNIVERSITY JOURNAL OF BASIC AND APPLIED SCIENCES. 2018 7(4):587-92.
12. Adankwah E, Danquah KO, Gyamfi D, Sampene Ossei PP, Asiamah E. Nuclear Localisation of Autophagic p62 and Associated Cytoplasmic Beclin-1 and Bcl-2 Expressions in Adenomas and Adenocarcinomas of the Colorectal Regions. J CARCINOGENESIS MUTAGENESIS. 2018;9(314):2.
13. Duduyemi BM, Andoh D, Adankwah E, Nyarko H, Agyemang D. The use of special stains in the detection of vascular invasion in cases of colon cancer in resource-limited settings in Africa. ANNALS OF TROPICAL PATHOLOGY. 2020 Jan 1;11(1):2

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## REFERENCES

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