

# Cyril Buhler, Ph.D

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## Senior consultant laboratory systems and diagnostic of infectious diseases

### EXPERTISES AND COMPETENCIES

- Deep understanding of laboratory systems issues linked to public health interventions in resource limited settings in sub-Saharan Africa and Asia.
- Scientific and technical expertise to assist countries and organisations in the design and implementation of projects and programs to strengthen laboratory and disease surveillance capabilities
- Technical advice in grant portfolio development and implementation for a bilateral funding agency: development of request for proposals, proposal evaluation and grant progression reviews
- Evaluation of disease surveillance systems, laboratory diagnostic capabilities, Laboratory Quality Management Systems, Biosafety and Biosecurity standards at institution and national levels
- Technical expertise in the selection and specification of advanced laboratory equipment and reagents for procurement plans of infectious diseases diagnostics
- Project management and research studies on vector borne disease for various stakeholders including international NGOs, public research institutes and biotech companies.
- Ability to work collaboratively with teams in a multidisciplinary environment, including One Health projects and programs in low and middle-income countries
- Strong analytical and problem-solving skills with a track record of scientific publications in peer-reviewed journals. Ability to produce concept notes to support evidence-based decisions making
- Excellent communication, interpersonal and teamwork skills
- Excellent written and oral English and French language skills

### PROFESSIONAL EXPERIENCES

#### Scientific and technical consultancies – Self-employed

##### **Laboratory technical advisor – Mott MacDonald, The Fleming Fund, London UK**

Oct 2016 – present

The Fleming Fund is a UK Government programme that seeks to strengthen antimicrobial resistance (AMR) surveillance systems in Africa and Asia to gather and share AMR data.

Main roles and responsibilities:

- Led the development of needs assessment tools for the AMR national system and laboratory surveillance sites in human and animal health facilities
- Led the development of a procurement catalogue for equipment and reagents for bacteriology laboratories adapted to AMR surveillance.
- Provided technical input in Monitoring and Evaluation at the central level (selection of KPIs) and for individual Fleming Fund country and Regional Grants (technical specialist on annual review panels)
- Member of country evaluation teams in Ghana, Nepal, Bhutan and Nigeria to develop request for proposals in collaboration with AMR inter-ministerial coordination committees
- Developed a resource handbook of guidance documents on antimicrobial resistance (AMR), antimicrobial stewardship (AMS) and infection prevention and control (IPC) resources in a One Health context with a specific focus on LMICs
- Produced technical memos to assist the decision making process by the Managing Agent

##### **Subject Matter Expert – Quality in Laboratory – The Open University, Milton Keynes UK**

Sept 2020 – Dec 2020

- Co-author of the module on “Quality in laboratory” as part of the curriculum on AMR for the Fleming Fund

**Laboratory advisor for a comparative study on diagnostic methods for Cutaneous Leishmaniasis in Afghanistan – FINDdx, Geneva CH and HealthNet-TPO, Amsterdam, NL**

Feb 2016 – June 2016:

- Conducted pre-trial laboratory and clinical capacity assessment for the comparison of diagnostic methods of Cutaneous Leishmaniasis (CL) in Kabul, Afghanistan.
- Advised and supported laboratory staff at the National Malaria & Leishmaniasis Control Program in Kabul on the implementation of a LAMP assay and a Rapid Diagnostic Test for CL detection
- Developed the terms of reference and scope of work for the laboratory staff
- Adapted guidelines and SOPs for DNA sample extraction, LAMP assay and RDT.
- Supervised shipment of the human samples from Afghanistan to Europe under Category B (UN 3373) regulation
- Provided QA on laboratory results and participated in the drafting of a manuscript for publication in the journal *EBioMedicine*

**Technical Consultant on improving capacity for safe and secure detection of select febrile diseases in Afghanistan – HPRO, Kabul, Afghanistan (Study sponsors: LSHTM, Dstl UK DoD)**

Sept 2014 – April 2015

- Developed the clinical study to evaluate the prevalence of Q fever and Rickettsial diseases among patient attending OPD with undifferentiated febrile illness
- Organized the procurement of laboratory reagents and supplies
- Supervised molecular diagnostic testing (ELISA) and performed data analysis
- Provided interim and final reports to stakeholders

**Scientific and Technical consultant on an insecticide resistance study in 5 high-risk malaria provinces in Afghanistan – HealthNet-TPO, Amsterdam, NL**

Feb 2014 – Mar 2015

- Provided technical support on insecticide resistance monitoring and methodologies
- Developed the study proposal and provide recommendations for project implementation to the laboratory staff in Kabul
- Identified and secured a collaboration for molecular genotyping of resistance mechanisms with researchers from the Liverpool School of Tropical Medicine
- Performed data analysis and actively participated in the final reporting and publication in *Malaria Journal*

## Project Manager

**Epidemiology study of the causes of non-malaria febrile illness in Afghanistan – HPRO, Kabul, Afghanistan (Study sponsors: LSHTM)**

Feb 2014 – Mar 2014

- Participated in the development of the clinical study proposal for the differential diagnosis of febrile illness in 100 patients in a district hospital in Kabul
- Led the procurement of laboratory reagents and supplies
- Implemented and supervised commercial or in-house Real-Time PCR assay for the detection of virus (15) in biological samples
- Analysed laboratory data and draft interim and final reports to the sponsor of the study

**Epidemiological study on the causes brucellosis and Q fever in the Herat province Afghanistan – HPRO, Kabul, Afghanistan**

Jan 2013 – Mar 2013

- Provided scientific and technical assistance in the selection of immunoassays (ELISA) for the diagnostic of both diseases in 1000 human collected samples
- Implemented SOPs and guidelines for the sampling, transportation and processing of blood samples

**Training in advance clinical diagnostic of infectious disease**

*HPRO, Kabul, Afghanistan – Henry Jackson Foundation, USA*

Sept 2012 – Mars 2013

- Project coordinator of the training: responsible for the development of the curriculum and organised the planning for 20 invited speakers and lecturers
- Provided lectures on immunology and molecular biology including hands-on training on molecular diagnostic methodologies (ELISA and real-time PCR)
- Organised a student conference (2 days) on endemic infectious diseases in Afghanistan

## **Development of innovative cancer drugs based on therapeutic nucleic acids**

*DNA Therapeutics SA, Evry, France*

Sept 2009 – July 2012:

- Team leader with responsibility of the R&D laboratory (2 research technicians, 1 PhD student)
- Designed and led research projects on the development of therapeutic nucleic acids for the treatment of solid tumors (formulation and targeting); cancer predispositions and response-to-treatment biomarkers
- Developed and Implemented the laboratory Quality Management System including Quality control assays for the quantification of nucleic acid from biological samples, bioactivity and integrity of the molecules
- Organised collaborations with industrial partners and research institutes

## **Scientific and technical laboratory support – Malaria Research and Training Center, Bamako, Mali**

July 2008 – Jan 2009

- Organised the work of the laboratory on Leishmaniasis composed of 3 laboratory technicians
- Implemented a PCR-based method for the detection of *Leishmania major* from field-collected sandflies
- Managed laboratory activities including training in Molecular Biology and Good Laboratory Practice
- Organised oversees shipments of biological samples for the US National Institute Of Allergy and Infectious Disease

## **Post Doctoral Researcher**

### **Development of single molecule next generation sequencing approaches**

*Postdoctoral scientist, Wellcome Trust Centre for Human Genetics, Oxford, UK*

May 2009 – July 2009

- Performed overexpression and purification of DNA and RNA polymerases
- Performed DNA sequencing assays using single molecule

### **Development of innovative cancer therapies based on small DNA molecules**

*Postdoctoral scientist, Institut Curie, Orsay, France*

Nov 2007 – March 2008

- Identified biomarkers using genomic and proteomic approaches.
- Performed gel shift assay and immune-detection of protein-DNA complex

### **Analysis of DNA double strand break during meiosis in the yeast *S. cerevisiae* using ChIP-chip assay and whole genome DNA microarrays**

*Visiting Fellow, National Cancer Institute, Bethesda, MD US*

Sept 2002 – June 2007:

- Implemented high throughput DNA microarray analysis and quality control using real time PCR
- Developed of bioinformatic tools for DNA microarray data processing using MATLAB and File maker
- Drafted scientific publication in peer-reviewed journal and book chapter on molecular biology methodologies (qPCR and high throughput DNA microarrays)

## **EDUCATION AND QUALIFICATIONS**

2002 PhD. Molecular and cellular biology University Paris VI Pierre et Marie Curie – France

1997 MSc. Molecular and cellular biology University Paris VI Pierre et Marie Curie – France

1996 BSc. Genetics and molecular biology – University Paris XI – Orsay, France

1995 BSc. Biochemistry and microbiology– University Paris XI – Orsay, France

## **Additional trainings and workshops**

- Quality auditor for ISO 15189 biomedical laboratory using ISO 19011–*French Normalization Association (AFNOR) – La Plaine Saint-Denis, France 2020;*
- Biosafety and Biosecurity in biomedical laboratories – *Société Française de Microbiologie (SFM), Paris France, 2018;*
- Workshop on the WHO tricycle project: Integrated Global Survey on ESBL-producing *E. coli* using a "One Health" approach. *Utrecht University of Veterinary Science and World Health Organization, 2017;*
- Workshop on the FAO Assessment Tool for Laboratory and AMR Surveillance System (ATLASS) *Food And Agriculture Organization of the United Nations HQ, Rome, Italy, 2017;*
- ISO15189:2012 - Quality approach and accreditation for biomedical laboratory – *French Normalization Association (AFNOR) – La Plaine Saint-Denis, France 2015;*

- 5th Advanced Course on Diagnostics (ACDx) - *the Fondation Mérieux and the London School of Hygiene & Tropical Medicine – Les Pensières Annecy* – France 2014

### Languages

- French: mother tongue
- English: proficient user (C2)

### Memberships and affiliations

- Sfm – Société Française de Microbiologie (2017-present)
- BSF – Biologie sans Frontière (2021- present)
- SEDRIC – The Surveillance and Epidemiology of Drug-Resistant Infections Consortium (2021- present)

### Additional information available at:

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