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**Prof. dr. Stephen Mbigba Ghogomu, Promoter**

Department of Biochemistry and Molecular Biology  
University of Buea, Cameroon



PhD in Gerontology  
2021-2022

INVITATION to the Public defence of

## Cabirou Mouchili SHINTOUO

To obtain the academic degree of

**'DOCTOR OF GERONTOLOGY'**

### **Age-related spectrum of onchocerciasis, assessment of control programmes and the development of diagnostic and protective tools**

The public defence will take place on

**Tuesday, 19 July 2022 at 5 p.m.**

In Auditorium **Piet Brouwer**

Faculty of Medicine and Pharmacy, Laarbeeklaan 103, 1090 Brussel

**and can be followed online**, accessible through the following link:

[https://gf.vub.ac.be/redirects/PhD\\_defense\\_Shintouo\\_Cabirou.php](https://gf.vub.ac.be/redirects/PhD_defense_Shintouo_Cabirou.php)

## Summary of the dissertation

Onchocerciasis like ageing, dampens the host immune system leading to serious socioeconomic and public health problems. Therefore, the current public health goal of onchocerciasis is elimination, and parasitological reports suggest that there is improvement to disrupt the transmission of the parasite in the West Region of Cameroon. As recommended by WHO, entomological assessment of transmission of the parasite was performed in this Region and the results revealed that transmission of the parasite was ongoing in some communities.

Although multifactorial, the reasons for the restricted results observed in Cameroon's West Region, as well as other places of Africa, is due to a large extent to the lack of accurate, non-invasive, and easy-to-use diagnostic techniques. To sought for other alternative diagnostics, OvMANE1 chimeric antigen was designed in this thesis and verified as a more efficient diagnostic biomarker. In a test to detect onchocerciasis patients harbouring microfilaria in skin biopsies, the responsiveness of total IgG against OvMANE1 chimeric antigen was set in parallel with that of the only serological test approved by WHO, IgG4 against Ov-16 antigen. The sequential use of both tests improved the sensitivity of diagnosing onchocerciasis seropositive persons, but additional characterization of the OvMANE1 test using serum samples from individuals infected with related parasites is essential to determine its specificity.

On the other hand, because vaccines can increase the strength of the onchocerciasis elimination tool arsenal, we used computational tools to design Ov-DKR-2 multiepitope antigen. The chimeric protein triggers immunological responses that are linked to protection against *O. volvulus* infection, proposing that it might be a potential vaccine candidate against onchocerciasis.

## Curriculum Vitae

Cabirou Mouchili Shintouo was born on the 8th of May 1994 in Ndop (Cameroon). He earned a Bachelor of Science degree in Biochemistry in 2014 and a Master of Science degree in Molecular Biotechnology in 2017 from the University of Buea, Cameroon. He was awarded 3 scholarships to present his master's project at international conferences in Kenya, Italy, and the UK.

Hereafter, Cabirou started a PhD project at the department of Gerontology in Vrije Universiteit Brussel under the supervision of Prof. Rose Njemini and Prof. Stephen Mbigba Ghogomu. He obtained grants from VLIR-UOS, African Research Network for Neglected Tropical Diseases and Les Amis des Instituts Pasteur a Bruxelles.

Cabirou presented his results at international conferences and was a trainer at a workshop in Rwanda in 2019. He authored 10 scientific publications in international, peer-reviewed journals, of which 6 as first author. He is a member of many professional networks including the African Research Network for Neglected Tropical Disease, Royal Society of Tropical Medicine and Hygiene, International Veterinary Vaccinology Network, Gnatwork, Vaccine development for complex intracellular neglected pathogens and Cameroon Bioscience Society.