Doctoral Scholar in Genomics and Zoonoses – SENZOR

A doctoral research position is available at the African Centre of Excellence for Genomics of Infectious Diseases (ACEGID), Redeemer's University, Ede, Nigeria. The doctoral candidate will join the ACEGID led by Prof Christian Happi in the Department of Biological Sciences, option Genomics, and the African Centre of Excellence for Genomics of Infection Diseases (ACEGID). The successful candidate will conduct research as part of the Volkswagen Stiftung-funded project. The project which is titled "**A social-ecological network approach to understanding zoonotic outbreak risk** (SENZOR)" tries to understand the risk of zoonotic outbreaks. For that we intend to create a more comprehensive understanding of local scale infection dynamics over three years in Nigeria and The Gambia.

Hiring organization
ACEGID

Employment Type
Full-time

Date posted
July 21, 2023

Valid through
18.08.2023

SENZOR in Nigeria

In Nigeria, the project is led by Dr. Anise Happi and is part of ACEGID. Research will be conducted in two states: Ondo State (in Southwest) and Ebonyi State (in Southeast) in Nigeria.

Description

The successful doctoral candidate will lead the collection of samples from animals and the analysis of animal and human samples collected by other collaborative scientists on the project. In collaboration with biological researchers as well as Social Science Researcher or postdoc team data on human-environment interactions and risk factors of disease will be analysed and reported.

The ideal candidate for this position should be a veterinarian with a Master's in any biological sciences, have a strong working knowledge of rodent capture and sampling, non-rodent animal sampling, wild animal sampling, knowledge in molecular biology, with field experience and data analysis. Preference will be given to candidates with experience in bioinformatics. Competitive candidates will also have research experience working in interdisciplinary (e.g., One Health) teams. Candidates are required to demonstrate success in good communication skills, and writing high-quality reports and publications.

The doctoral candidate will work under the primary supervision of Anise Happi, Deputy Director Zoonotic Research and Surveillance, ACEGID. The doctoral candidate will be expected to lead field research in rural Nigeria, where they will work collaboratively with local communities, local government agencies, and interdisciplinary One Health teams to collect data and communicate findings. The candidate should be willing to reside and do fieldwork in rural settings for multiple weeks.

Instructions

Please direct questions regarding this PhD opportunity to Anise Happi (happia@run.edu.ng)

To apply for this position, submit

- A cover letter describing your research and how it relates to this position,
- Your CV, and
- The names and contact information of three people who can be contacted for letters of reference. Review of applications will begin immediately and will continue until the position is filled.

Responsibilities:

The main activities will be:

- Prepare the project workplan and deliverables
- Prepare protocols for the field activities and lab analysis
- Prepare consumables and reagent check lists, and regulatory documents
- Plan and execute lab analyses of samples collected.
- Conduct long-term animal sampling in rural areas
- Organize and document meetings with local stakeholders and communities
- Keep a fieldnotes record after each field visit, meeting, important interaction,
- Store samples adequately and ship them to ACEGID for Lab analyses
- Maintain accurate records of data and materials
- Manage and respond to project related email
- Analyse data collected (field and lab)
- Attend Project meetings
- Summarize project results
- Discuss results with a transdisciplinary team to align cross-disciplinary data
- Prepare reports, articles, and presentations.

Overview

SENZOR is a multidisciplinary project in which various small bodied wild animals, domestic animals, and humans are sampled in a systematic, structured regime in two landscape types is carried out. This is given that to understand the risk of zoonotic outbreaks, we need to create a more comprehensive understanding of local scale infection dynamics. Here, we will sample animals and humans in two landscape types (highly agricultural and semi-natural) over three years in Nigeria and The Gambia. For a select group of high-risk viral pathogens we will build contact networks for all local actors involved in transmission and will employ participatory modelling and ethnographic methods to gain a deeper insight into how humans interact with this network.

Finally, we will use a socio-ecological systems modelling approach to predict risks both across the landscapes and in plausible future scenarios to inform outbreak preparedness and management strategies.

This will be done in a dynamic way and in consensus with a group of representatives from the selected involved communities and stakeholders. A better understanding how pathogen contact networks vary overtime and space will help us better prepare for, predict and prevent future outbreaks and pandemics.

The majority of high consequence human diseases are animal-borne, transmitted either directly from vertebrates (zoonotic) or by animal vectors (Jonas 2008). The recent COVID-19 pandemic, with its likely origin as a zoonotic pathogen previously circulating in wild animal hosts, demonstrates the importance of understanding animal-human interactions as a precursor to spillover. Although the causes of zoonotic outbreaks mostly have their roots in how human behavioural patterns interface with biodiversity and the environment (Daszak 2020), the limited

understanding of the precise nature of these interactions and how they vary over time and space severely restricts the ability of public health systems to predict and prevent future outbreaks, with potentially extreme global economic and health consequences (Daszak 2020).

Here we seek to undertake a broader approach to include in our investigations other drivers for human interaction with animals in specific landscapes and that respond to environmental, political, economic, historical, and cultural regimes (Brown 2014, Wolf 2015). The multispecies anthropological tradition challenges the division between people and animals (Descola 2013, Haraway 2003). These authors advocate the study of continuities and discontinuities between people and their natural environments, including the variety of actors such as animals and pathogens (Aronsson 2020) that together create "a community of existents" (Descola 2013).

It is clear that human presence and behaviours can disproportionately affect these networks, by providing additional host members (e.g., ourselves, livestock and other domestic animals, invasive species) or by our impacts on the distributions and abundances of wild species (e.g., through land-use change such as deforestation for agriculture and hunting). Broad sets of human behaviours can clearly create opportunities for zoonotic disease transmission by promoting repeated routes of contacts with wild or domestic species.

Objectives

1. To understand, qualify and quantify the frequency of contacts between different actors intervening in multi-species networks, and ii) examine how these vary with differing levels of agricultural intensity, for instance due to differences in human behaviour or the impacts on local species diversity and abundance.
2. To quantify which species of domestic and wild animals use in the landscape and in what ways, across an agricultural gradient, and to sample individuals for molecular analysis to characterise the pathogens they carry.
3. To Identify and characterise known and emerging zoonotic RNA viruses in humans, and wild and domestic animal species sampled in WP2
4. To co-develop and test alternative landscape development programmes with local stakeholders to inform measures that protect both food security and the health and well-being of local people and better understand how, for example, future land development might impact pathogen sharing and therefore potential for spillover.

To Apply

Please send a cover letter, resume, and copies of relevant credentials to hr.acegid@run.edu.ng on or before Friday, August 18, 2023. Kindly indicate the job title in the subject of your email.