



Job Description

Job title	Postdoctoral Researcher	Location - base	NIAB Headquarters, Cambridge
Team	Pathology & Entomology	Job group	Specialist
Department	Plant Pathology	Post ref.	T419
Reports to	Project PI (Kostya Kanyuka)	Line manages	N/A

1. Team overview

The team comprises of approximately 25 staff, visiting researchers, and PhD students. Our research is focused on major diseases of wheat, bean and pea, and several broadleaved and vegetable crops and includes strategic and applied research on the biology, pathogenomics, detection/surveillance, and management of diseases, as well as genetics and mechanisms of disease resistance in crops. Our goal is to develop sustainable solutions for disease control in crops.

The postholder will join a recently commenced collaborative project, which is funded through a philanthropic donation. The project aims to enhance the fundamental understanding of intracellular nucleotide-binding site leucine-rich repeat immune receptors (NLRs) regulatory networks in common bean (*Phaseolus vulgaris*); to identify novel sources of resistance to bean rust (*Uromyces appendiculatus*) that can be exploited for crop improvement through breeding particularly targeting East African countries such as Uganda, Tanzania and Kenya; and to develop pathogenomics capability for conducting molecular monitoring and surveillance of bean rust races in this region. This will help to greatly enhance basic understanding of common bean - *U. appendiculatus* pathosystem and provide new capabilities to support researchers and extension service providers in East Africa, enabling them to implement more effective disease control strategies.

2. Role purpose

The postholder will contribute their expertise in molecular plant pathology to dissect the common bean – bean rust interactions including understanding the mechanisms of rust resistance and pathogen virulence through research on common bean genomics and genetics, rust genomics and effector biology. The postholder will be expected to carry out first-class research to characterise the NLR gene family in *Phaseolus vulgaris* and functional NLR gene networks, identify candidate NLRs conferring resistance to *Uromyces appendiculatus*, generate the first chromosome-scale assembly for *U. appendiculatus* and identify and begin characterisation of the bean rust pathogen effectors.

3. Financial authority/responsibility

Authority to raise Purchase Orders within defined limits (up to £500).

4. Key relationships

Internal Kostya Kanyuka & Tom Wood (line managers), Anne Webb (bioinformatician), Simon McAdam (legume pathologist), Amelia Hubbard (specialist on rust fungi/ cereals pathologist), other NIAB plants pathologists and geneticists.

External: Lida Derevnina (CSC), Pamela Paparu (NARO, Uganda), Clare Mukankusi (CIAT, Uganda), Willem Boshoff (University of the Free State, SA)

Date issued	24.07.2023	Page	1
Author	[KK]	Filename	Postdoc 24.07.2023

5. Key tasks/responsibilities

	Approx. % of time
Plan and carry out research, generate and analyse data	70%
Publish and disseminate project results	10%
Actively interact with all project partners, collaborators, and service providers	10%
Contribute to writing up follow-on research grant proposals	5%
Proactively plan own development opportunities	5%

6. Working conditions

- Flexible, agile working is required.
- Work is split between laboratory, growth rooms, and office (bench-and desk-based activities), which varies according to the project needs. Travelling by car or bike between our HQ (lab and office location) and Park Farm (plant growth facility) sites will be required.
- Containment Level 1 laboratory conditions. Regular use of laboratory equipment, including microscopy.
- Regular exposure to plant material and plant pathogens.
- Occasional travel to East Africa for meetings and short periods of research will be required.

Person Specification

Criteria	Essential	Desirable
Qualifications		
PhD in Molecular Plant Pathology or related plant science discipline or equivalent qualifications/experience	x	
Knowledge and skills		
Excellent verbal and written communication skills (including writing up research and review articles)	x	
Excellent interpersonal skills		x
IT skills: high level of competency in MS Word, Excel, SharePoint, PowerPoint, Photoshop or similar image processing software	x	
Proven excellent molecular biology skills (RNA, DNA)	x	
Good knowledge in plant-pathogen interactions and plant immunity	x	
Proficiency with statistical/data analysis techniques	x	
Basic bioinformatics skills	x	
Experience		
Experience working with pathogens of plants	x	
Experience working with rust fungi		x
Experience working with crop and model plants	x	
Experience working with <i>Phaseolus vulgaris</i>		x
Experience with molecular cloning methods	x	
Experience in plant molecular genetics/quantitative genetics	x	
Experience in pathogenomics and/or effector biology		x
Experience with agroinfiltration in <i>Nicotiana benthamiana</i>		x
Attributes		
Accuracy and attention to detail	x	
Evidence of commitment to own personal development and willing to learn new skills	x	
Creative approach to problem-solving	x	
Ability to supervise staff		x
Flexibility – able to work alone and as part of a small team		x
Proactive and self-motivated; confident about working without direct supervision	x	
Other		
Driving license or access to independent means of travelling, enabling regular travel between HQ and Park Farm sites	x	