

Dear Participants,

It is a great pleasure to welcome you to this workshop organised by the Institute of Primate Research (IPR) and the Interuniversity Programme Molecular Biology (IPMB) that is jointly organised by the Vrije Universiteit Brussel, KU Leuven and the Universiteit Antwerpen.

This is the second time that IPR is hosting a workshop organised together with IPMB. In 2017, Dr. Atunga Nyachieo and his colleagues hosted the first IPMB Alumni Meeting. This meeting aimed to bring Kenyan IPMB alumni together and allow them to reconnect to some of their former professors to discuss latest advances in molecular biology, get to know each other's recent work and make plans for future new collaborations or strengthen existing ones. This first alumni meeting kicked off a series of similar ones in Tanzania then Uganda, and on each occasion an IPMB Alumni Chapter was established to reinforce contacts and collaborations between IPMB alumni themselves and with laboratories at different Flemish universities.

The workshop that you are now attending addresses a different audience consisting of policymakers, and professionals active in teaching and/or research in molecular biology and biotechnology in Kenyan universities, higher education institutions, public and private sector.

During the COVID pandemic, the strength and potential of molecular biology/biotechnology has become obvious. Thanks to the basic research that had been going on for decades, it was possible to develop, within a few months, a vaccine against a novel virus that was threatening the world. Thanks to this vaccine, the number of deaths caused by the SARS-CoV-2 has been limited to some 15 million victims worldwide, as currently estimated by WHO.

Biotechnology affects not only the well-being of mankind by improving human and animal health but can also make far-reaching contributions to the realisation of all 17 Sustainable Development Goals as defined in 2015 by the United Nations General Assembly.

To take full advantage from biotechnology, there is an urgent need to train young scientists, stimulate research and development, as well as make policymakers and the society at large, aware of the many possibilities biotechnology has to offer in creating a better world for all.

This workshop has two main aims. The first one is to bring policymakers and scientists together, to discuss the financial, infrastructural and legal needs to optimise the contribution of biotechnology in developing solutions to the many problems facing the society. A second aim is to train a number of selected professionals from Kenyan universities and research institutions who are then expected to disseminate their acquired knowledge and skills in their institutes and beyond.

Additionally, alumni of the IPMB programme and members of the Kenyan IPMB Alumni Chapter have been invited to meet policymakers and the trainees of this workshop to share experiences and extend their professional network.

This workshop is the first in a series to be organised in the near future in Tanzania, Uganda and Ethiopia to create awareness about the many opportunities biotechnology offers to solving societal problems and to train young scientists who will reach out to their scientific circles as well as to the communities at large.

For several decades, VLIR-UOS has supported many collaborative initiatives between Flemish and Kenyan universities/research institutions and their academics. Similarly, this workshop is made possible by the contribution of VLIR-UOS through the Global Minds project at the Vrije Universiteit Brussel. We also gratefully acknowledge the support of our hosts, the Institute of Primate Research and wish you all a very enjoyable and fruitful time.

On behalf of the Organising Committee,

Dr. Atunga Nyachieo
The Institute of Primate Research

Prof. Geert Angenon
Vrije Universiteit Brussel



Workshop/practical training in biotechnology for Kenyan policymakers, lecturers & professionals

May 30-June 11, 2022

Institute of Primate Research

End of Karen Road, Karen 00502, Nairobi, Kenya



Organising committee:

at IPR:

Dr. Atunga Nyachieo
Ms. Lucylina Mbogori
Ms. Tabitha Akunga

at VUB:

Prof. Geert Angenon
Prof. Edilbert Van Driessche
Prof. Sonia Beekmans
Drs. Christopher Kariuki

Program of the Workshop

Date (May/June, 2022)	Session	Activity	Responsible	Participants	
Day 0 (Sunday, 29/05)					
Day 1 (Monday 30/05)	Whole day	Welcome address-Local organizer (5 min)	Dr. Atunga Nyachieo		
		Welcome address-Director, Institute of Primate Research (10 min)	Dr. Peter Gichuhi Mwethera		
		Opening remarks- The future of biotechnology (10 min)	Dr. Edward Anino, Rongo University		
		Opening remarks-Research & training (10 min)	Prof. Eucharika Kenya, University of Embu		
		Training and research in Molecular Biology/Biotechnology to contribute to achieving the SDGs – Lecture (45 min)	Prof. Edilbert Van Driessche		
		Coffee/Tea Break (30 mins)			
		Research and teaching at the VUB- Department of Bio-engineering Sciences in a European context – Lecture (45 min)	Prof. Geert Angenon		
		Status and future of molecular biology and Biotech training and research in Kenya – Lecture (45 min)	Prof. Anakalo Shitandi (Registrar, Research & Extension, Kisii University)		
		LUNCH (1,5 h)			
Biotechnology legislation and state of affairs (Europe and Kenya) – Round table discussion (1 h)	Prof. Dorrington Ogoi (CEO, National Biosafety Authority) and Prof. Geert Angenon				
Linking biotechnology research in universities to industry: the camelid antibody story (2 h)	Prof. Serge Muyltermans				
Evening	Welcome cocktail, Karen Inn Suites Hotel	Ms. Lucylina Mbogori			
End of first session of workshop (for policy makers, lecturers and professionals)					
Day 2 (Tuesday 31/05)	Morning	Welcome to the workshop, presentation of the updated IPMB Programme, scholarship opportunities	Prof. Geert Angenon/ drs C.Kariuki	Workshop participants (Professionals)	
		Laboratory safety/Biosafety	Dr. Atunga Nyachieo		
	Mid-Morning	Genome editing by CRISPR-CAS	Prof. Geert Angenon		
Afternoon	From DNA to recombinant proteins	Prof. Serge Muyltermans			
Day 3 (Wednesday 1/06)	Free day (Kenyan Independence Day)				
Day 4 (Thursday 2/06)	Morning	From DNA to recombinant proteins	Prof. Serge Muyltermans		
	Mid-Morning	Introduction to "Theory of Change" methodology in project development	Prof. Edilbert Van Driessche		
	Afternoon	Analytical techniques: protein purification and characterization	Prof. Sonia Beeckmans		
Day 5 (Friday 3/06)	Morning	Analytical techniques: protein purification and characterization	Prof. Sonia Beeckmans/Edilbert Van Driessche		
	Mid-Morning	Data Processing	drs. C. Kariuki		
	Afternoon	Data Processing	drs. C. Kariuki		

Day 6 (Saturday 4/06)	Morning	How to use Bioinformatic tools in your projects?	Prof. Sonia Beeckmans	Workshop participants (Professionals)	
	Mid-Morning	How to use Bioinformatic tools in your projects?	Prof. Sonia Beeckmans		
	Afternoon	- Laboratory methods & skills (theory) - Plasmid extraction (practical)	drs. C. Kariuki and Dr. Joseph Kamau		
Day 7 (Sunday 5/06)	Free day				
Day 8 (Monday 6/06)	Morning	- Harvesting of vector from bacteria - Obtaining a DNA insert via PCR	drs. C. Kariuki Dr. Joseph Kamau, Ms. Mary Chege, Ms. Irene Karegi, Ms. Ivy Mutai		
	Mid-morning	- Clean-up of PCR amplicons - Restriction digestion of pure vector and cleaned amplicons			
	Afternoon	- Agarose gel electrophoresis as quality control - Ligation of digested fragments - Inoculation of naïve bacterial pre-culture for competent cell preparation			
Day 9 (Tuesday 7/06)	Morning	Competent cell preparation			
	Afternoon	- Heat shock transformation of bacterial cells with recombinant vectors - Inoculation of recombinant bacterial pre-culture			
Day 10 (Wednesday 8/06)	Morning	Sub-inoculation of bacterial culture for competent cell preparation			
	Mid-morning	Induction of bacterial cell expression			
	Afternoon	- Harvesting of cell culture - Protein extraction			
Day 11 (Thursday 9/06)	Morning	IMAC of extracted proteins			
	Mid-morning	SDS PAGE and Western blot			
	Afternoon	- Immunodetection of Western blot - Coating ELISA plate			
Day 12 (Friday 10/06)	Morning	ELISA			
	Afternoon	Seminar: Interpretation of data from the experiment			
Day 13 (Saturday 11/06)	Workshop ends with a Certificate Award Ceremony				
Day 13 (Saturday 11/06)	Departure				

Session hours:

Morning: 8:30 till 11h
Mid-morning: 11:30 till 13h
Afternoon: 14 till 16:30