



IPMB Alumni meeting at
Makerere University, Kampala, Uganda
(July 14-18, 2019)

Venue:

FOOD SCIENCE AND TECHNOLOGY CONFERENCE HALL

Organising Committee

For IPMB:

Prof. Dr. ir Geert Angenon
Prof. Dr. Edilbert Van Driessche
Prof. Dr. Sonia Beeckmans
drs. Christopher Kariuki, MSc.

For Makerere University:

Dr. Steven Odongo
Prof. John David Kabasa
Prof. Samuel Majalija
Assoc. Prof. Frank N. Mwiine
Assoc. Prof. Julius B. Okuni
Dr. Edward Nyatia
Dr. Jesca L. Nakavuma
Dr. Emmanuel Okello
Dr. Samuel George Okech
Ms. Peggy Nakalema
Mr. Gerald Brooks
Ms. Jacinta Nakaye
Ms. Rose Kaudha
Ms. Bridget Nabukirwa
Mr. Isaac Ogwal

Welcome!!!

Dear participants,

It is a great pleasure for us to welcome you to the IPMB-alumni Meeting hosted by Dr. Steven Odongo from July 14-17, 2019 at Makerere University, Kampala, Uganda.

IPMB, the "Interuniversity Programme Molecular Biology", is already for 23 years jointly organized by the Vrije Universiteit Brussel, the Katholieke Universiteit Leuven and Universiteit Antwerpen and supported by VLIR-UOS as one of its International Course programmes (ICP). Until now, nearly 600 students from all over the world graduated from the programme, 13 of whom are from Uganda and 7 from Rwanda. Unfortunately, our Rwandan alumni could not participate. Previous IPMB-alumni meetings were organized in Can Tho University, Viet Nam (2016), Institute of Primate Research, Nairobi, Kenya (2017) and Sokoine University of Agriculture, Morogoro, Tanzania (2018).

We hope the coming days will be inspiring for you and give you the opportunity to meet previous classmates, other IPMB alumni from all over Uganda, Kenya and Tanzania, representatives and Professors of several Ugandan universities, representatives of the private sector and several Flemish IPMB Professors. This meeting is an excellent opportunity for exchanging news and views, for reporting on experiences and activities in research, education and administration, for networking, and hopefully for making plans for future national and international collaborations in the field of research, education and extension.

The programme we could compile is most exciting and is also an exquisite opportunity for the IPMB management to get to know new items that need to be included in our programme to make it even better fit the needs and expectations of future students as to realize the motto of VLIR-UOS: "Sharing minds, changing lives". Our alumni are best placed to identify the skills needed for graduates to optimally function and contribute to the development of their society and as such, their ideas and opinions will be taken into serious consideration for up-coming programme adjustments.

Except from a scientific programme, consisting of talks and posters, also cocktail parties, a fare-well diner and a visit to the botanical garden in Entebbe are organized to allow networking and to discuss and dream of the future in a relaxing atmosphere. We should indeed remember the wise words of Friedenreich Hundertwasser: "When we dream alone, it is only a dream, but when many dream together, it is the beginning of a new reality".

For several decades, VLIR-UOS supported many collaborative initiatives between Flemish academics and their colleagues in the South, and also this meeting is supported by VLIR-UOS through the "Global Minds" project at the Vrije Universiteit Brussel. We also gratefully acknowledge the support to this meeting by the Makerere University and the Belgian Embassy in Kampala.

It is our strong wish that this meeting will strengthen cooperation and friendship between the IPMB-alumni, their former Professors and all those who are convinced that training and research in molecular biology and biotechnology will contribute to the building of a better world where peace, welfare, wellbeing and harmony prevail.

We wish you all a most enjoyable and fruitful meeting!!

On behalf of the Organising Committees:

Dr. Steven Odongo
Makerere University

Prof. Geert Angenon
Director of IPMB, Vrije Universiteit Brussel

Organising Committees:

College of Veterinary Medicine, Animal Resources and Biosecurity at MAKERERE UNIVERSITY:

Dr. Steven Odongo,
Prof. John David Kabasa,
Prof. Samuel Majalija,
Assoc. Prof. Frank N. Mwiine
Assoc. Prof. Julius B. Okuni
Dr. Edward Nyatia
Dr. Jesca L. Nakavuma
Dr. Emmanuel Okello
Dr. Samuel George Okech
Ms. Peggy Nakalema
Mr. Gerald Brooks
Ms. Jacinta Nakaye
Ms. Rose Kaudha
Ms. Bridget Nabukirwa
Mr. Isaac Ogwal

IPMB at VRIJE UNIVERSITEIT BRUSSEL:

Prof. Dr. ir Geert Angenon,
Prof. Dr. Edilbert Van Driessche,
Prof. Dr. Sonia Beeckmans;
drs. Chris Kariuki, MSc.

IPMB: looking backward, looking forward

In 1983, prof. Raymond Hamers and his colleagues of the Institute of Molecular Biology of VUB launched the programme "Tropical Molecular Biology" (TMB) that aimed at training students from developing countries in fundamental molecular biology. From the academic year 1996-1997 on, this programme was reshaped into the "Interuniversity Programme Molecular Biology" (IPMB) that is jointly organized by VUB (Department Bio-engineering Sciences, Faculty of Sciences and Bio-engineering Sciences), KU Leuven (Faculty of Bioscience Engineering) and UA (Faculty of Medicine). Thanks to the interuniversity organization, a teaching staff could be composed consisting of experts in all disciplines the programme covers. Also, the new structure allowed the development of three Profiles, i.e. Human health, Animal Science and Plant Science. IPMB was till the academic year 2017 one of the "International Course Programmes" (ICP) of VLIR-UOS. Because of this status, every year some 13 full scholarships could be awarded to outstanding BSc students from the South, at least 50% of whom had to reside in one of the sub-saharan countries that were included in the country list of the Directorate General for International Cooperation (DGIC), Belgium.

"Development through education" is not just a slogan, but rather the only way to economic independence. As such, the transfer of know-how, not merely of techniques, guarantees that new scientific developments and their applications can be implemented in such a way that the gap between the North and the South is not increasing, but rather contributes to a global increase in human welfare. According to the programme-specific intended learning outcomes (ILOs) graduates should:

- ILO-1 posses a broad and advanced knowledge of biological processes at the molecular level and of the functioning of living organisms;
- ILO-2 have developed advanced knowledge on, and insight into the applicability of molecular biology to improve human health, animal production or plant production;
- ILO-3 be able to use ICT in data mining, data processing and scientific communication;
- ILO-4 master the practical skills to plan and perform research in molecular biology;
- ILO-5 be able to operate as a member of a multidisciplinary team;
- ILO-6 be able to contribute, through molecular biological research, to solving problems developing countries are facing;
- ILO-7 have developed a critical mind allowing him/her to consider and reflect on known and new theories within the speciality;
- ILO-8 be able to appraise scientific and social aspects of applied molecular biology;
- ILO-9 be able to present personal research, thoughts, ideas, and opinions, both written and orally, to peers and to a general public;
- ILO-10 have acquired the knowledge to contribute to set up nationwide and international cooperations (South-South, South-North);
- ILO-11 be able to disseminate the acquired knowledge in his/her country and region through activities in education and research;
- ILO-12 be aware of ethics in research and publication.

A total number of about 600 students graduated, from whom some 85 from Kenya, Tanzania, Uganda and Rwanda. Most of the IPMB-graduates returned home, either immediately after their studies or after they obtained a PhD from Belgian, other European, USA or Canadian universities, or from institutions in their home or a neighboring country. They apply their knowledge and skills gained in IPMB at home to contribute to the further development of their country and are involved in teaching, research and management in universities and research institutes. Some of them are active as advisors for policy makers on issues related to science in general and molecular biology/biotechnology in particular.

In 2005, we organized at the Vrije Universiteit Brussel a first "IPMB-alumni Meeting" that was attended by 20 alumni and by students of the first and second year IPMB, several IPMB Professors and staff members of the VLIR-UOS administration. All those present enjoyed the meeting and reunion very much, and after the meeting some alumni from Kenya and Tanzania came to see me and launched the idea of organising this type of meetings on a regular basis and to create local "IPMB-alumni Chapters". Being young, enthusiastic and full of energy, I immediately agreed with the idea, but as usual asked the question: "where will the money come from", taking into consideration that money does not grow on trees.

It was only in 2015 that an INCO project was awarded by VLIR-UOS that allowed the organization of a first "IPMB-alumni Meeting" at Can Tho University in Vietnam.

Thanks to "Global Mind" projects of VUB, we could organize in 2017 a meeting and accompanying workshop hosted by Dr. Atunga Nyachieo at the "International Primate Research Institute" in Nairobi, and last year, Prof. Gerald Misinzo welcomed us at the "Sokoine University of Agriculture" in Morogoro.

This year, Dr. Steven Odongo and his colleagues continue the tradition at the Makerere University with participants from Uganda, Rwanda, Kenya, Tanzania and Belgium.

In the meantime, "IPMB-alumni Chapters" have been established in Kenya and Tanzania and this year a Ugandan Chapter with extensions to Rwanda will be baptized.

As such, our initial dream of creating an "East African" IPMB family is being realized.

The boards of the Chapters are very ambitious and recently applied, together with the IPMB management, for a JOINT project from VLIR-UOS in order to develop activities that aim at creating awareness, sensitize policy makers and build capacity of university lecturers and researchers and key personnel in Ministries responsible for health, agriculture, livestock and wildlife, in modern molecular diagnostic tools for disease detection and biotechnological innovations. As such, the activities will contribute towards achieving sustainable development goals which seek to eradicate poverty, promote food security, improve human health and achieve global partnerships. In the context of such a project, it is the aim to organize hands-on workshops on molecular biology in the three countries.

In September later this year, the IPMB programme as the participants of this meeting (and the many others who cannot be here) witnessed, will come to an end and will be replaced by a new one of which Professor Geert Angenon is the Director.

For detailed information on the new IPMB programme, please consult:

<https://www.vub.ac.be/en/study/molecular-biology/#about>

Prof. Dr. Edilbert Van Driessche
Former Scientific-Administrative Coordinator of IPMB



Programme of the IPMB Alumni Meeting

Venue:

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(July 14-18, 2019)

TALKS:

	Sunday, July 14, 2019
	<i>ARRIVALS, Familiarization Cocktail in the Evening (start 19:00) at the Grand Global Hotel</i>
	Monday, July 15, 2019
8:00-9:00	Registration outside Conference Room
	<i>Opening Remarks (9:00-10:50)</i>
9.00-9.10	Dr. Steven Odongo, Host of the meeting and IPMB Alumnus
9: 10-9:25	Dr. Edward Nyatia, CHAIR Department of Biotechnical and Diagnostic Sciences, College of Veterinary Medicine, Animal Resources and Biosecurity (COVAB), Makerere University
9:25-9:40	Assoc. Prof. Julius Okuni, CHAIR Department of Biomolecular Resources and Biolaboratory Sciences, COVAB, Makerere University
9:40-9:55	Assoc. Prof. Frank N. Mwiine, DEAN School of Biosecurity, Biotechnical and Laboratory Sciences, COVAB, Makerere University
9:55-10:10	Prof. John David Kabasa, PRINCIPAL College of Veterinary Medicine, Animal Resources and Biosecurity, Makerere University
10:10-10:25	Prof. David Okello Owiny, DEPUTY DIRECTOR, Directorate of Research and Graduate Training, Makerere University
	<i>Group Photo (10:25-10:50)</i>
	<i>Coffee/Tea break (10:50-11:20)</i>
	<i>The IPMB programme</i>
11:20-11:40	Prof. Edilbert Van Driessche, Former scientific-administrative coordinator of IPMB <i>IPMB: from 1983 till today</i>
11:40-12:00	Prof. Geert Angenon, IPMB Director <i>IPMB: the way forward</i>

	Lunch (12:00-13:30)
Session 1:	Molecular Biology Tools in Medicine (13:30-15:10)
13:30-13:50	Dr. Steven Odongo <i>Prospects for Biotechnology in Sub-Saharan Africa: Uganda as a case study</i>
13:50-14:10	Prof. Gerald Misinzo <i>Developing One Health Capacity in Africa: The SACIDS Foundation for One Health</i>
14:10-14:30	Dr. Atunga Nyachieo <i>Feasibility of novel phages as alternatives for combating antibiotic resistant bacteria in East Africa</i>
14:30-14:50	Dr. Wilber Sabiiti <i>Applying molecular approach to improve diagnosis and treatment of tuberculosis</i>
14:50-15:10	Prof. Jan Paeshuyse <i>Host-pathogen interactions: Leveling the inter-individual diversity of the immune system in livestock by add-on therapeutics</i>
	Coffee/Tea break (15:10-15:40)
Session 2:	Nanobodies and their Applications (15:40-17:00)
15:40-16:00	Prof. Serge Muyldermans <i>Recombinant camel antibodies to diagnose and remediate disease and infections in human, animals and plants</i>
16:00-16:20	MSc. Christopher Kariuki <i>Deciphering the structure and function of select membrane associated proteins in blood stage protozoan parasites</i>
16:20-16:40	MSc. Neema Kulaya <i>Reshaping Nanobodies for affinity purification on protein A</i>
16:40-17:00	MSc. Brian Mujuni <i>Nanobodies and nanoparticles based diagnosis and targeted therapy for cervical cancer</i>
Session 3:	Guided Tour of Posters I (17:00-18:00)
	Cocktail Party Makerere University Guest House (18:30-21:30)

	Tuesday, July 16, 2019
Session 4a:	Bacterial Diseases and Resistance I (9:00-10:40)
9:00-9:20	Prof. Henri De Greve <i>Preventing post-weaning diarrhea by oral passive immunisation of piglets</i>
9:20-9:40	Dr. Emmanuel Okello <i>Promoting antimicrobial stewardship in the livestock industry: leadership and advances in California</i>
9:40-10:00	Dr. Alice Gertrude Litta-Mulondo <i>Prevalence of multi-drug enterococci in the distal gut of healthy subjects and assessment of transferability of multiple-resistance determinants to other species and genera</i>
10:00-10:20	MSc. Stuart Niwagaba <i>Antimicrobial activity of <i>Jatropha curcas</i> linn leaf extract on antibiotic resistant <i>Staphylococcus aureus</i> and <i>Pseudomonas aeruginosa</i> strains</i>
10:20-10:40	MSc. Noel Gahamanyi <i>The disease burden and antimicrobial resistance profiles of thermophilic <i>Campylobacter</i> species in under-five children from developing countries: A systematic review</i>

	<i>Coffee/Tea break (10:40-11:10)</i>
Session 4b:	<i>Bacterial Diseases and Resistance II (11:10-11:50)</i>
11:10-11:30	MSc. Andrew Oyet <i>Microbial colonization of formalin treated cadavers at Gulu University Anatomy Teaching Laboratory</i>
11:30-11:50	MSc. Carolyne Atugonza <i>Effect of Co-trimoxazole prophylaxis on the gut microbiome and carriage of antimicrobial resistance in HIV infected patients in Uganda on daily cotrimoxazole prophylaxis</i>
Session 5:	<i>Protozoan Parasites (11:50-12:30)</i>
11:50-12:10	Dr. Vito Baraka <i>Effectiveness and safety of IPTc using either dihydroartemisinin-piperazine or artesunate-amodiaquine in reducing malaria in school-aged children in Tanzania</i>
12:10-12:30	MSc. Daniel Basangwa <i>Validation of PCR detection of Plasmodium falciparum DNA extracted from plasma samples collected from varied malaria endemic areas in Uganda</i>
	<i>Lunch and posters (12:30-14:00)</i>
Session 6:	<i>Viral Diseases (14:00-16:00)</i>
14:00-14:20	Prof. Gerald Misinzo <i>Factors for spread of African swine fever in resource-limited settings</i>
14:20-14:40	MSc. Jean Nepomuscene Hakizimana <i>Genomic analysis of African swine fever virus from the 2018 outbreak in Burundi</i>
14:40-15:00	MSc. Peter Naniima <i>Crystal structure of the Kaposi's sarcoma-associated herpesvirus (KSHV) portal-associated pentameric ORF-19 assembly</i>
15:00-15:20	MSc. Mary Naluguzi <i>Early Diagnosis of HIV Infection in Infants — One Caribbean and Six Sub-Saharan African Countries, 2011–2015</i>
15:20-15:40	MSc. Happy Mkali <i>PREDICT: Strengthening global health security through a one-health approach to emerging infectious diseases</i>
15:40-16:00	MSc. Edson Kinimi <i>Paradigm shift in peste des petits ruminants diagnostic landscape: Perspectives on Global Control and Eradication</i>
	<i>Coffee/Tea break (16:00-16:30)</i>
Session 7:	<i>Cancer (16:30-17:10)</i>
16:30-16:50	Dr. Paul Linus Rweyemamu <i>Genetic screening for hereditary breast cancer in females and their first-degree relatives in Tanzania</i>
16:50-17:10	MSc. Moses Okee <i>Exposing the molecular and immunological mechanisms underlying GAS6 ligand independent activation of the tyrosine kinase receptor - AXL in breast cancer metastasis</i>
Session 8:	<i>Novel and Applied Plant Biotechnology (17:10-18:10)</i>
17:10-17:30	Prof. Geert Angenon <i>Genome editing for crop improvement</i>

17:30-17:50	Dr. Sylvester Anami <i>Physiological markers for water deficit stress in sorghum diversity panel lines</i>
17:50-18:10	MSc. Naason Tuyiringire <i>Metabolomics approaches to elucidate the mechanisms of action of antimycobacterial medicinal plants</i>
	Closing Dinner (19:00-22:00)

	Wednesday, July 17, 2019
Session 9:	Novel and Applied Biotechnology (9:00-10:40)
9:00-9:20	Prof. Sonia Beeckmans <i>When lectins meet carbohydrates...</i>
9:20-9:40	MSc. Kevin Muwonge <i>Impact of supertertiary structure on the acetyltransferase activity of CBP</i>
9:40-10:00	MSc. Pauline Wanjiku Kibui <i>Challenges hindering quality service delivery in Assisted Reproductive Technologies in East Africa</i>
10:00-10:20	MSc. Rayori Douglas Mosoti <i>Emerging technologies in education in developing countries:potential of 3D printing in education</i>
10:20-10:40	MSc. Magreth Erick Macha <i>Functional properties of short chain fatty acid receptors</i>
	Coffee/Tea break (10:40-11:10)
Session 10:	Alumni Chapters (11:10-11:40)
11:10-11:25	MSc. Pauline Kibui <i>Kenya-IPMB Alumni Association Progress</i>
11:25-11:40	MSc. Neema Kulaya <i>Tanzania-IPMB Alumni Association Progress</i>
	Establishment of the Ugandese alumni network and future alumni activities (11:40-12:10)
	Official closure of the Meeting (12:10-12:50)
12:10-12:25	Prof. Samuel Majalija, DEPUTY PRINCIPAL College of Veterinary Medicine, Animal Resources and Biosecurity
12:25-12:40	Prof. Umar Kakumba, DEPUTY VICE CHANCELLOR (ACADEMIC AFFAIRS), Makerere University
12:40-12:50	Prof. Geert Angenon & Dr. Steven Odongo, Final remarks
	Lunch (13:00-14:00)
Session 11:	Guided Tour of Posters II (14:00-15:00)
	Visit to selected labs of Makerere University (15:00-17:00)
	Cocktail with Culture Dancing Ndere Troup (19:00-21:00)

Thursday, July 18, 2019

Social event (optional): visit to Botanical garden in Entebbe

POSTERS:

1. Prof. Jan Paeshuyse
Biohacking for the South: toward self-sufficiency in molecular biology reagents in developing countries
2. Dr. Sylvester Elikana Anami
Assessment of sorghum cultivars for tolerance to striga (striga hermonthica) infestation in Busia county, Kenya
3. Dr. Sylvester Elikana Anami
Towards introduction of Breadfruit for more nutritious diets and food availability in Kenya
4. MSc. Christine Njiru
CRISPR/Cas9 targeted mutagenesis of raffinose synthase gene in roots of Phaseolus vulgaris
5. MSc. Rayori Douglas Mosoti
Perceptions towards genetically modified organisms and their products among Kisii university students
6. MSc. Rayori Douglas Mosoti
Preliminary Phytochemical analysis and nutrient content of Cucumis metuliferus
7. MSc. Catherine Wangui Mbuthia
Functional binding patterns of Enterotoxigenic Escherichia coli F41 fimbrial adhesin
8. MSc. Christine Muhonja Kamidi
Multiple evolutionary origins of Trypanosoma evansi in Kenya
9. MSc. Faith Njeri Njeru
Characterization of lipase specific foldase (LipH) from Pseudomonas aeruginosa and its interaction with lipase A and lipase C
10. MSc. Edson Kinimi
Development of nanobody-based immunoassays for peste des petits ruminants virus
11. MSc. Clementina Kivumbi
Validation of an Immunoperoxidase monolayer assay (IPMA) for detection of African swine fever virus (ASFV) in field samples
12. MSc. Gaspary Mwanyika
In Silico analysis and expression strategy of Ig-like envelope domain III protein of dengue virus type 2 in Escherichia coli: a potential diagnostic reagent?
13. MSc. Edward Samwel Mayila
Development of an antibody based LFD for simultaneous detection of PPR and CCPP
14. MSc. Mary Naluguza
Progress with Scale-Up of HIV Viral Load Monitoring — Seven Sub-Saharan African Countries, January 2015– June 2016
15. MSc. Justine Nakiwala
Neutrophil activation and enhanced release of granule products in HIV-TB immune reconstitution inflammatory syndrome
16. MSc. Lucy Wanjiru Kariuki
Genotypic characterization of Rift Valley Fever Virus (RVFV) isolates from Kenya
17. MSc. Wilfred Michael Lyimu
Ligand binding, functional characterization and microscopic visualization of angiotensin II type 1 receptor fusion constructs