



# Foreword



This is the first newsletter for 2015, so let me start by wishing you all a prosperous year. We ended 2014 with the annual general meeting of the General Assembly and Scientific Advisory Board in Casablanca, Morocco, as well as a metagenomics workshop in Mauritius, both of which were successful. The new year is already abuzz with training activities, starting with the Genetic Association Course With Application to Analysis of Sequence and Genotype Data, which took place at the University of Botswana, organised by the CafGEN project. H3ABioNet provided travel fellowships for some members to attend. We have just completed the Advanced Systems Administration Workshop at the University of Pretoria from 2nd to 11th Feb, which trained new systems administrators in the basics and then provided follow up training for these participants and those from the previous technical workshop. Two upcoming workshops which are in the final stages of planning include: an Introduction to Biostatistics for Genome Wide Association testing (Tunis, March), and Medical population genetics and GWAS for complex diseases (Cape Town, April).

The H3ABioNet working groups had a break in meetings over the December holiday period, but are now back at work on developing and achieving their milestones for 2015. At the AGM we agreed to rotate working group Chairs and Co-Chairs and to appoint Co-Chairs from our pool of junior or upcoming academics to provide them an opportunity to develop their leadership and management skills. I would like to take the opportunity to thank all the outgoing Chairs and Co-Chairs for their excellent leadership of the working groups to date and welcome the new Chairs and Co-Chairs to their roles. We are gathering details on current H3ABioNet consortium members, and co-opting these members to the working groups to encourage participation in network activities. Please do not forget to complete the survey for H3ABioNet working groups available at:

<https://docs.google.com/forms/d/19LiP2oBv9Izvx7acQy8uOORf1y0mB0z0L8dos4uwfjM/viewform>.

I hope you enjoy reading about the working group activities, meeting and workshop reports, and announcements of past achievements and upcoming events provided in this newsletter.

Prof. Nicky Mulder.

- **Foreword**
- **Education and Training**
- **Infrastructure**
- **Research**
- **User Support**
- **H3ABioNet SAB Meeting 2014**
- **4<sup>th</sup> H3Africa Meeting, 2014**
- **NMIMR Intermediate Workshop on Bioinformatics 2014**
- **Announcements**
- **Upcoming H3ABioNet Working group meeting schedule**



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- **Education and Training**

The Education and Training working group had the opportunity to share the group's achievements and challenges over the past year with the rest of the consortium and the scientific advisory board members at the 3<sup>rd</sup> H3ABioNet consortium AGM in Morocco. It was a busy year for training, with 11 courses being run by, or, in collaboration with H3ABioNet. A significant amount of effort has also been put into establishing a framework and SOPs for dealing with applying for, hosting, coordinating and assessing courses and workshops.

In addition to discussing the training requirements within H3ABioNet and H3Africa, a number of salient points were raised regarding the current approach to training and workshops. A suggestion was made to explore the model of focused regional workshops, which may be a much more cost efficient and productive approach to training, as opposed to longer courses where students have to travel and spend weeks away from their home institutions. A shift in focus from short term to long term training and mentorship was also raised, with an emphasis on following up on trained interns and encouraging co-supervision of projects within the network by those who have been trained.

On the training front, the Computational Metagenomics Workshop was successfully run at the University of Mauritius in December 2014. Based on the feedback survey, the workshop was a resounding success - congratulations to the University of Mauritius. A follow up Advanced Systems Administrator Workshop was held in February this year at the Computational Biology Unit at the University of Pretoria. The workshop was aimed at providing further training for the system administrators on the various H3ABioNet and H3Africa projects. This was followed by an eBioKit training course. Both courses were well received and many thanks to all involved in the training.

The next set of upcoming workshops is focused around the central themes of genome wide association studies and statistics. The selection of these specific workshops has been based on the current training requests from both H3ABioNet and H3Africa projects. An Introduction to Biostatistics for Genome Wide Association Testing workshop will be held in March at the Institut Pasteur de Tunis in Tunisia, followed by a Medical Population Genetics and GWAS for Complex Disease Workshop in April at the African Institute for Mathematical Science in Cape Town.

Finally, as discussed at the AGM, all working groups have been started afresh and new Chairs and Co-Chairs selected. We would like to thank the outgoing Chair, Dr. Nash Oyekanmi for his contribution to the E&T working group over the last 2 years and look forward to an exciting and productive year ahead.



- **Infrastructure**

The H3ABioNet Infrastructure Working Group (ISWG) is responsible for helping build infrastructure and skills for both H3ABioNet and H3Africa as a whole. The annual 2014 H3ABioNet and SAB October meeting in Casablanca, Morocco was very useful in setting priorities for the ISWG as well as getting new names for participation in the ISWG. New Chairs and Co-Chairs for the ISWG have been selected and we would like to thank the outgoing Chair, Dr. Alia Benkahla for all her efforts in chairing the ISWG and taking it forward since its inception.

The Data Management Task Force of the ISWG is responsible with CBIO Central team for building infrastructure and procedures for the transfer and archiving of data from the H3Africa projects and the submission of the H3Africa data to the European Genome-phenome Archive (EGA) for long term storage and controlled access of the data. Good progress has been made on the infrastructure side and a contract has been signed with the UCT ICTS, which will provide solutions for the physical hosting of the archival system. Unfortunately delays in the appointment of a data architect have delayed work on developing the submission tools and computer scripts to check and format the submitted data and facilitate the submission of the correctly formatted and annotated data to the EGA according to their submission requirements and we will need to reconsider how we do things. Members of the CBIO team are currently visiting EGA to help build links with them and to agree on how the data will be transferred.

Data transfer and connectivity across Africa is crucial and the roll out of our Netmap and Globus Online projects is a priority for the year. A monitoring infrastructure has been built to help reporting and also to assist tracking problems. The Netmap and Globus Online installation is an important milestones for the nodes, and the ISWG will help nodes with the process of getting these installed.

Since the annual 2014 H3ABioNet and SAB October meeting, the ISWG members have been busy with several projects and also organising the training curriculum and sourcing trainers for the second Systems Administrators' Workshop as a follow up workshop to the first Systems Administrator's Workshop held in 2013



- **Research**

The Research Working Group provided a progress report on its activities to the H3ABioNet General Assembly (GA) and Scientific Advisory Body (SAB) during the 2014 October annual meeting in Casablanca, Morocco.

A couple of points were highlighted on which included the better monitoring of collaborative projects that have been initiated between various H3ABioNet nodes and the adoption of a wiki style system for nominated members from the collaborative projects to update. It was also mooted that students within H3ABioNet should join the RSWG as opposed to the E&T WG which focuses on curriculum, workshop planning and other educational activities for which a student still learning about bioinformatics would not be able to contribute to. The RSWG would be a better forum for the students as they can present their current research and raise any difficulties they might encounter and also for the RSWG to help monitor the progress of the students' research projects.

As with all the H3ABioNet working groups, new Chairs and Co-Chairs have been selected and would like to thank the outgoing RSWG Chair and Co-Chair, Prof. Ezekiel Adebisi and Dr. Julie Makani respectively for all their efforts in guiding the RSWG through its formative period and for the smooth transition.

The RSWG has had its first meeting of the year with the Chair, Co-Chair and the Network Manager reviewing, updating and adding new milestones for the working group for the year and is currently pending approval by the RSWG members. A seminar task force (only 3-4 members of RSWG) will be formed to deal with setting up the seminars series and create and keep track of a schedule of seminar presenters. Some members did suggest the idea of forming different groups according to their area of interest.

The importance of sharing information and posting about H3ABioNet on social media (LinkedIn, Twitter and Facebook) was also discussed as this would be a great opportunity for students to be more engaged in the network and to be connected with other members. It would keep them up to date with the latest news and ideas and also maximize the learning opportunities via technology enhanced communications channels and a task force (to be comprised mainly of students) will be created to focus on this. This would provide license to any interested students to have a Facebook or LinkedIn page open on their computers in their laboratories as they will be "officially" working!



## User Support

- **User Support**

The focus of the H3ABioNet User Support working group (USWG) prior to the October 2014 H3ABioNet and Scientific Advisory body (SAB) meeting was mainly the H3ABioNet helpdesk and the number of queries received and answered. The types of queries were also looked at which range from simple ones to broad ranging ambiguous queries, which are more time consuming.

The SAB were interested in determining if certain queries could not be answered due to the lack of expertise available, what would occur. It was agreed that external sources which do have the expertise required would be found and submitter directed to those resources. At the same time the H3ABioNet helpdesk should contain a list of areas for which the expertise is present and areas where the expertise is not available. The subject categories for submitting questions will also need to be re-evaluated to make them more specific and less ambiguous. A committee for managing the H3ABioNet helpdesk will also be formed.

The new Chair (Jonathan Kayondo) and Co-Chair (Pandam Salifu) have assumed leadership roles of the USWG beginning end of last month and would like to thank the outgoing Chair Dr. Judit Kumuthini for all her hard work in steering the USWG to complete its deliverables to date.

Drafts of the working group's milestones and Terms of Reference for 2015 have been compiled by the Chair, Co-Chair and Network Manager and are awaiting adoption from the whole group once node recruitments /appointments of volunteers to the working group is finalized. Like the RSWG, the USWG will like to encourage students to join this working group and will work on communication and outreach themes in order to raise the visibility of H3ABioNet and the helpdesk in the various Node Institutions and within Africa. To this effect, the USWG will seek for a member from each Node to be nominated who will be responsible for ensuring that H3ABioNet materials, announcements etc are disseminated within their Institutions.

Dr. Pandam Salifu.      Dr. Jonathan Kayondo.



## 3<sup>rd</sup> H3ABioNet SAB Meeting, Casablanca 2014

The 3<sup>rd</sup> Annual H3ABioNet and SAB meeting took place in Casablanca, Morocco between the 13<sup>th</sup> to the 15<sup>th</sup> of October 2014 and was organized by the H3ABioNet Moroccan Nodes with particular thanks to Dr. Fouzia Radouani and Prof. Hassan Ghazal for ensuring the smooth logistics of the meeting.

The 3 day meeting was divided into 3 parts with the first day devoted to the H3ABioNet consortium business. The annual progress reports of the H3ABioNet Nodes and the H3ABioNet working group reports were provided to the General Assembly (GA). A review of what was successful and unsuccessful in the reporting period was discussed. A Galaxy workshop covering NGS workflows was organised for students attending the meeting as the Institute Pasteur of Morocco and given by Dr. Kais Ghedira and Yassine Souilmi concurrently on the first day of the meeting. The GA was also briefed on the upcoming year's financial procedures and deadlines. Milestones for each Node and working group were presented and extensively discussed.

The second day of the H3ABioNet SAB meeting was attended by three of six H3ABioNet SAB members, Professor Jessica Kissinger, Professor Francis Ouellette and Professor David Roos. A consolidated presentation compiled from all the Nodes report backs from the previous day was presented by various H3ABioNet Node PIs. The overall H3ABioNet progress report and project status was provided to the SAB by Prof. Nicola Mulder. Reports from the H3ABioNet working groups and specific research projects such as NetCapDB, the H3Africa Trainee / Trainer database modelled on the NetCapDB schema were also presented to the SAB and enthusiastically received with many useful comments provided by them.

The morning of the 15<sup>th</sup> of October was devoted to various research project presentations. Progress on the collaborative student GWAS project on the analysis of uterine fibroid susceptibility amongst African populations initiated during the H3ABioNet CUBRe postgraduate bioinformatics workshop in Ota, Nigeria was presented on their behalf by Rehab Ahmed from Sudan. Prof. Hazelhurst provided a demonstration of a GWAS data visualization tool developed in his lab that enables the easy construction of Manhattan, structure and PCA plots and has a nice, clean interface. The Globus online project and status of its deployment and some preliminary results of transfer tests and speeds between Nodes was presented by Mohamed Alibi. Prof. Nicola Mulder provided an update to the SAB on the progress of the development of an African MSc. Bioinformatics Curriculum, an initiative that arose from the H3ABioNet curriculum development workshop held in at the University of Botswana in conjunction with the H3Africa CafGEN members in March 2014. Professor Faisal Fadlilmola ended the African themed day with a presentation on a proposal for an African Bioinformatics Institute which was well received. The afternoon was taken up by working group meetings which the SAB members contributed to extensively. The meeting minutes and presentations can be accessed from the internal H3BioNet website pages in the meetings category under the Members tab.

Dr. Sumir Panji.

- **H3ABioNet SAB Meeting 2014**



## 3<sup>rd</sup> H3ABioNet SAB Meeting, Casablanca 2014

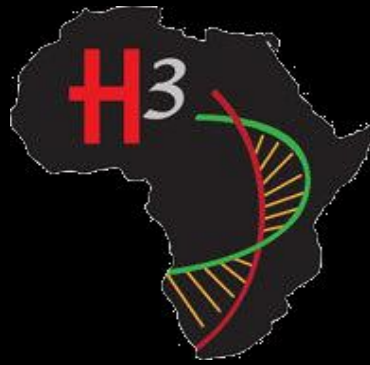
- H3ABioNet SAB Meeting 2014



Dr. Victor Jongeneel and Professor Nicola Mulder presenting the Wits bioinformatics team of Shaun Aron and Prof. Scott Hazelhurst with a certificate of achievement for being the first H3ABioNet Node to successfully complete the GWAS Node accreditation exercise at the 3<sup>rd</sup> Annual H3ABioNet and SAB meeting.



Group picture of the H3ABioNet members attending the 3<sup>rd</sup> Annual H3ABioNet and SAB meeting.



## 5<sup>th</sup> H3Africa Meeting, Dar es Salaam, Tanzania, 2014

Dear H3Africa Consortium Members,

I was asked by the H3Africa Study Coordinators for a brief perspective on the 5<sup>th</sup> H3Africa Consortium Meeting in Dar es Salaam, Tanzania. First off I would like to thank the Consortium Members for pitching up and fully engaging. There were a number of highlights I'd like to mention. Closest to my heart are the H3Africa Fellow's Club. We have managed to recruit a diverse group of Fellows who are the future of science on the Continent, these individuals range from social scientists to bioinformaticians and Africa is their passion. They attended a Grant writing workshop, this was beneficial not only to the participants but also the facilitators as common interests were realized and collaborations initiated. During the H3Africa Education & Coordinated Training working group session we heard about the impending bioethics training, a suitcase laboratory, the trainee/trainer DB and future manuscripts. The highlight for the H3Africa Outreach & Communications working group was that the H3Africa Fellows would be recognized as H3Africa Advocates, achieving their advocacy through their day to day encounters at their respective Universities and their community engagement efforts. The H3Africa Biorepository PI group put on an interactive session demonstrating barcoding and Biospecimen couriering protocols, which members found very useful. The H3Africa Study Coordinators had a marathon session and I think they deserve an award for their dedication and sharing of experiences out at the various clinical sites and laboratories. We were also privileged to hear from Professor Christian Happi and his group about their vital frontline role in the fight against Ebola. Professor Ambroise Wonkam and Dr. Julie Makani organized a stellar line up of stake holders for the Sickle Cell Disease (SCD) Workshop and we will see how the SCD Network unfolds. Last but not least I'd like to thank the NIH and WT for their commitment to H3Africa. I look forward to our 8-11 May 2015 meeting in Livingstone, Zambia.

Asante,

Dr. Michelle Skelton, H3Africa Coordinating Center.



Group picture of H3Africa Consortium members attending the 5<sup>th</sup> H3Africa Consortium meeting between 7<sup>th</sup> to 10<sup>th</sup> November 2014, Dar es Salaam, Tanzania.

- 5<sup>th</sup> H3Africa Meeting, 2014





- **NMIMR Intermediate Workshop on Bioinformatics 2014**



In line with one of the objectives of the H3ABioNet Consortium to build a critical mass of scientists resident in Africa and literate in Bioinformatics, the NMIMR Node held a second workshop on Bioinformatics from the 7<sup>th</sup> July to 11<sup>th</sup> July 2014 at the Conference Centre of NMIMR, Accra, Ghana. The Intermediate Workshop on Bioinformatics was a sequel to the Introductory Workshop held in March 2014. The theme for the workshops remained *“Developing Computational Bioscience Capacity to Augment Biomedical Research”*. Again, participants were drawn from a very diverse background including Biologists and Biochemists, Medical Doctors, Forensic Scientists and Biostatisticians. This workshop was fully funded by H3ABioNet Consortium, for which we express gratitude to the PI, Prof Nicola Mulder.

No. of applicants: Over 85

No. of actual participants: 43

The Intermediate Workshop sought to strengthen and expand on some relevant tools in Bioinformatics and Computational Biology. It also served as a refresher for trainees of the previous workshop who were mostly targeted for this one, enabling a better integration of Bioinformatics into their on-going research and teaching. Other participating considerations were that new applicants must have had basic knowledge of Bioinformatics, the Linux OS and some knowledge of molecular biology. Staff and graduate students who are interested in Bioinformatics had to be available for the whole period of the workshop.

This workshop, has also hopefully prepared participants to enrol in the advanced workshop, after which, we hope about 25 scientists would have benefitted from all the courses offered in the three workshops.

The modules for the Intermediate Workshop, like the previous ones, were based on freely available software suites, biocomputing platforms and data from public databases. Each module consisted of lectures, demonstrations and hands-on tutorials. The Workshop covered topics in Computing for Biomedical Scientists II, R Programming for Biologists, Introduction to MySQL and Python Programming for Biologists. The facilitators were Dr. James Brandful (PI), Dr. Anita Ghansah (co-PI), Dr. Samuel Kwofie (Bioinformatician), Mr. Wisdom Akurugu (MSc Bioinformatics) and Miss. Benedicta Mensah (MSc Bioinformatics).

This workshop benefitted from the experience of Miss Benedicta A. Mensah as a facilitator. Miss Mensah has a background in biostatistics and knowledge of statistical packages R, SAS and SPSS. The NMIMR Node sponsored her to attend the H3ABioNet CUBRe Postgraduate Bioinformatics Workshop in Ota, Nigeria. It is heartening to know that we have, and building on a core of indigenous scientists capable of running workshops in Bioinformatics.



- **NMIMR Intermediate Workshop on Bioinformatics 2014**



Benedicta Mensah and Dr. Anita Ghansah facilitating training with the workshop participants with practical aspects of the workshop.



Benedicta Mensah demonstrating the finer points of R to workshop participants.



- **NMIMR Intermediate Workshop on Bioinformatics 2014**



Group picture of the participants of the NMIMR 2014 Intermediate bioinformatics workshop.



The NMIMR Intermediate workshop trainers and facilitators from the left Mr. Wisdom Akurugu, Dr Sam Kwofie, Miss Benedicta Mensah, Dr. Brandful and Dr. Anita Ghansah.



Director of NMIMR, Prof K. Koram handing Miss Javada Appenteng who belongs to the H3Africa Kidney Disease Research Network and is a previous participant of the NMIMR Introductory bioinformatics workshop, her certificate of participation.



- **Announcements**

## Announcements

- Congratulations to the NABDA H3ABioNet Node for their publication in metagenomics articles titled “Evaluative Profiling of Arsenic Sensing and Regulatory Systems in the Human Microbiome Project Genomes”, PMID: 25452698
- Congratulations to the NABDA H3ABioNet NABDA Node and Segun Fatumo for their publication in human population genetics in Nature Communications titled “Genetic characterization of Greek population isolates reveals strong genetic drift at missense and trait-associated variants”, PMID: 25373335
- The H3ABioNet RUBi node has released its JMS is a workflow management system and interface for the Torque resource manager on GitHub. It provides users with a user-friendly interface for creating complex workflows with multiple stages. It integrates this workflow functionality with Torque, a tool that is used to control and manage batch jobs on distributed computing clusters. The JMS can be used by researchers to build and run complex computational pipelines and provides functionality to include these pipelines in external interfaces: <https://github.com/RUBi-ZA/JMS>
- The H3ABioNet Introduction to Biostatistics, Population Genetics and Genome Wide association workshop hosted by the Pasteur Institute of Tunisia H3ABioNet Node will take place between 16<sup>th</sup> to 26<sup>th</sup> of March 2015 in Tunis, Tunisia.
- The “Medical population genetics and GWAS for complex diseases” symposium and workshops organized by the H3ABioNet CBIO and CPGR Nodes will take place between the 19<sup>th</sup> to the 24<sup>th</sup> of April 2015 at the African Institute of Mathematics in Cape Town, South Africa.
- The sixth H3Africa Consortium meeting will take place between the 9<sup>th</sup> and the 11<sup>th</sup> of May 2015 in Livingstone, Zambia.
- The “From Genomes to Functions: Analyzing the Glossina genome cluster” workshop as part of the International Glossina Genome Initiative (IGGI) organized by Yale School of Public Health, the H3ABioNet ICIPE and SANBI Nodes as well as BRI-KALRO, Beca-ILRI and CEBIB-UoN will take place between 15<sup>th</sup> March to 21<sup>st</sup> March 2015 in Muguga, Kenya.
- The Wellcome Trust will be giving a “Genomic Epidemiology in Africa” workshop between the 21<sup>st</sup> to the 26<sup>th</sup> of June 2015 Africa Centre for Health and Population Studies, University of KwaZulu-Natal, Durban, South Africa.



- **Upcoming H3ABioNet Working group meeting schedule**

## H3ABioNet Working Group Meeting Schedule until June 2015

Summary of H3ABioNet upcoming working group meetings:

Working Group	Time	Date	Month (2015)
E&TWG	UTC = 11am	3	March
E&TWG	UTC = 11am	17	March
E&TWG	UTC = 11am	31	March
E&TWG	UTC = 11am	14	April
E&TWG	UTC = 11am	28	April
E&TWG	UTC = 11am	12	May
E&TWG	UTC = 11am	26	May
E&TWG	UTC = 11am	9	June
E&TWG	UTC = 11am	23	June
USWG	UTC = 9am	27	Feb
USWG	UTC = 9am	3	April (Easter)
USWG	UTC = 9am	1	May (Bank Holiday)
USWG	UTC = 9am	22	May
USWG	UTC = 1pm	5	June
RSWG	UTC =11am	13	March
RSWG	UTC =11am	17	April
RSWG	UTC =11am	15	May
RSWG	UTC =11am	12	June
ISWG	UTC = 1pm	6	March
ISWG	UTC = 1pm	20	March
ISWG	UTC = 1pm	10	April
ISWG	UTC = 1pm	8	May
ISWG	UTC = 1pm	19	June
NATF	UTC = 1pm	27	March
NATF	UTC = 1pm	24	April
NATF	UTC = 1pm	29	May
NATF	UTC = 1pm	26	June

Acronyms used for the various H3ABioNet working groups:

E&T WG	Education and training working group
RSWG	Research working group
ISWG	Infrastructure working group
USWG	User support working group
NAWG	Node accreditation working group

Time zone conversion table to UTC for all of H3ABioNet working group meetings:

UTC Time Offset	Time Zone Name	Regions / Countries in the Timezone offset
-5 hours (-6 hours)	CDT	Chicago, USA (2nd November, 2014)
-4 hours (-5 hours)	EDT	Boston, USA (2nd November, 2014)
0 hours	GMT	Burkina Faso, Ghana, Mali, Morocco, Senegal
+1 hour	WAT	Cameroon, Chad, Gabon, Namibia, Nigeria, Niger, Tunisia
+2 hours	CAT	Botswana, Egypt, Malawi, South Africa, Sudan, Zambia
+3 hours	EAT	Ethiopia, Kenya, Tanzania, Uganda