H3ABioNet Montly Newsletter Issue 1 ; May 2013

Welcome

Welcome to the inaugural H3ABioNet bulletin! These monthly bulletins are designed to summarise our activities for the month, provide a list of announcements and upcoming events and disseminate key information to all our partners. The working groups also have many overlaps in their activities, which will be highlighted here to encourage cross-talk between them. Each month a different node will be featured in the bulletin so that we slowly get to introduce everyone to other partners.

The network activities have gained momentum over the last few months after an initial lag period from the start of the grant in getting structures in place. The excitement and momentum began at the H3ABioNet kick-off meeting held in Cape Town in November 2012, which had a representative from all but 1 node. Some of the challenges we have faced since then include the hiring of staff, recruiting of people to working groups, and the often poor quality of conference calls for our working groups. Nevertheless, as is evident from the reports in this bulletin, the working groups have already achieved some excellent results, and are making good progress towards achieving their goals.

The education and training group has had many discussions on existing Masters programmes and used results of surveys to determine immediate training needs. They have organised 3 training workshops which will occur in May, June and July. The research working group is encouraging collaboration between partners and facilitating new projects. The infrastructure and user support working groups are developing SOPS for pipelines and looking into internet speeds, data storage requirements and data storage and processing options. A help desk system has been put in place along with documentation for users. Finally an accreditation board and process has been established to assess node abilities to analyse data.

The central node has been active in setting up the working groups and their meetings, with special thanks to Sumir Panji, our Network Manager! We have also developed the H3ABioNet website, mailing lists and marketing materials.

It has been a challenge for many members of H3ABioNet to get their nodes up and running, but everyone has made a meaningful contribution, enabling H3ABioNet to start to become greater than the sum of its parts. I thank you for your time and efforts and look forward to continuing a successful collaboration.

Prof. Nicky Mulder

- Education and Training

Education and Training

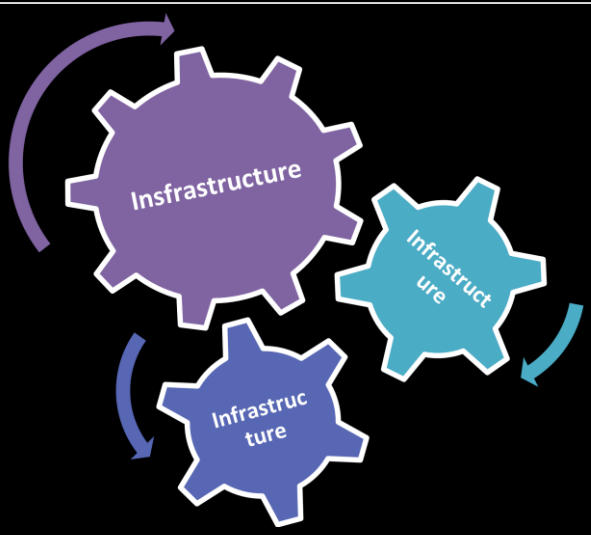
The Education and Training Working Group (E&TWG) was formulated at the H3ABioNet kick-off meeting in Cape Town 2012 with the broad mandate to engage in capacity development by rapidly developing sustainable bioinformatics education of African scientists to ensure interdisciplinary genetic, environmental and socioeconomic research into significant health issues in Africa and to assure the retention of bioinformatics skills on the continent. To fulfil its mandate, the E&T WG comprising 23 members (see pages 7 – 8 for more details) is seeking to create high quality training courses for all H3ABioNet Node members and H3Africa consortium members.

The E&T WG is currently involved in providing 3 high quality courses ranging from NIH Financial Grant Management (27th – 28th May, Cape Town), Systems Administration (3rd – 14th June, Pretoria) and an intermediate level course of Bioinformatics for Trainers (8th – 26th July, ICIPE, Nairobi). Additionally, there are plans to live stream the intermediate level bioinformatics course held at ICIPE to 2 classrooms; one in West Africa at the University of Ibadan, Nigeria and one in North Africa at the Institut Pasteur de Tunis, Tunisia. The live streaming will be made possible courtesy of the National Biotechnology Development Agency (NABDA) Node's specialised Vidyo teaching system which has been successfully installed and tested by hosting a semester long programme in Bioinformatics between NABDA's collaborators in New York and their students. Hence, in the first period of the E&T WG approximately 130 individuals ranging from financial administrators, systems administrators and bioinformaticians as part of H3ABioNet will receive some form of training to better equip them for the challenges H3ABioNet will face.

In the long term, the E&T WG will provide two types of internship opportunities: one for successful H3ABioNet members to take up an internship within a leading Bioinformatics laboratory that is partnered to H3ABioNet and the second type for H3Africa scientists to pursue a Bioinformatics internship pertinent to that H3Africa project within an H3ABioNet Node. The E&T WG's long term aim is to investigate current Bioinformatics degree courses offered by African Universities and create a standardized, comprehensive MSc and PhD Bioinformatics training curriculum for African graduate students. This will ensure the quality of Bioinformatics education within Africa is consistent and that African Bioinformatics graduates will flourish in their chosen career paths enabling easy exchange and collaboration amongst African Bioinformatics and Research centers.

Dr. Nash Oyekanmi.

- Infrastructure



The Infrastructure Working Group (ISWG) aims to determine what current software operating systems and hardware resources are available at all H3ABioNet affiliated sites to develop a strategy to optimize the use of those resources in anticipation of H3Africa data.

The ISWG with other H3ABioNet working groups is responsible for developing Standard Operating Protocols (SOPs) for data management and storage for H3Africa affiliated projects. The ISWG will develop guidelines for metadata capture and storage, determine the feasibility of centralized data storage for H3Africa, ways of incorporating and enhancing data security while enabling ease of access to data for H3Africa consortium members. Various computing platforms such as cloud based systems, computer grids and high performance computing are currently under review for suitability in assisting H3Africa project needs by the ISWG. One of the inaugural projects the ISWG embarked on was to test various communication platforms for suitability in hosting fortnightly meetings with Adobe Connect deemed to be the best platform for communication.

The ISWG is spearheading the co-ordinated installation and testing of the Iperf package between all H3ABioNet Nodes to map internet connectivity and identify any potential transmission bottlenecks between the Nodes. Mapping internet connectivity between sites is important for determining the baseline network connectivity and any latency between Nodes, transferring of large datasets, remote / interactive / teaching working and submission of data to public repositories, a vital mandate of H3ABioNet. So far, Iperf is running in seven H3ABioNet Nodes with plans to expand and include all Nodes.

The ISWG has been involved in creating a set of commonly run Bioinformatics protocols and estimating minimum computational hardware specifications, time periods and bottlenecks to run those workflows to better communicate the hardware needs to Biologists entering the NGS and GWAS arena. Accordingly, the ISWG has provided recommended set of specifications for its members and has contacted all H3ABioNet Nodes that requested for a server and determined their computational requirements and provided expert advice on computational specifications to purchase while negotiating a bulk purchase discount with suitable vendors.

Dr. Alia Benkahla. Prof. Scott Hazelhurst.

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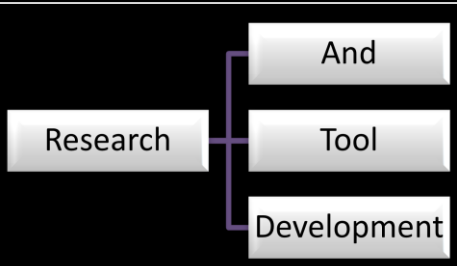
- Research and Tool Development



The H3ABioNet Research and Tool Development Working Group's (RTDWG) mandate is to conduct research into the use and development of Bioinformatics applications for H3ABioNet and H3Africa affiliated projects.

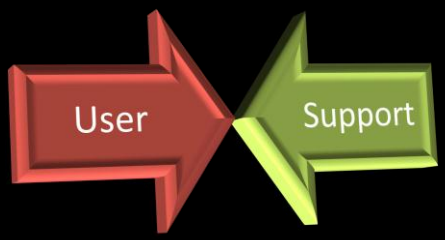
The RTDWG will co-ordinate with H3ABioNet member Nodes to determine what each Node's level of expertise are, what expertise each Node would like to acquire and how best to facilitate the acquisition of the required expertise. In most cases, the RTDWG will source expertise from other Nodes within H3ABioNet and when not possible, make recommendations on how best to obtain the required expertise. The RTDWG is to examine what are the unique challenges that face the H3Africa projects and look at previous successful international projects for guidance in tackling these challenges. The RTDWG will look at ways of organizing expertise around existing H3ABioNet Nodes and H3Africa projects and decide if teams should be constituted based on expertise, location or technologies. The RTDWG will assist H3ABioNet Nodes in their on-going research projects where feasible, and make recommendations for the start of new research projects between Nodes where viable.

The RTDWG is responsible for developing a framework of collaboration between H3ABioNet Nodes to work on projects, provide expertise and facilitate collaborations amongst H3ABioNet Nodes. To this extent, the RTDWG has devised a set of documents that enable on-going projects and potential projects to be written up in a collaborative framework between participating H3ABioNet Nodes with currently seven collaborative projects of various scope and scale underway with many more expected in the future. Examples of such collaborations include the re-modelling of a Sickle Cell Disease Database between Muhimbili University of Health and Allied Sciences and Institut Pasteur de Tunis. Diagnostics, therapies and preventions research work in the areas of vaginal microbiomes, diabetes/metabolic syndrome and obesity between Covenant University Bioinformatics Research (CUBRE) and the Institute of Human Virology, Abuja. The development, deployment and maintainance of a standard biorepository for biospecimens at the Nigeria Institute of Medical Research (NIMR), Apapa, Lagos by CUBRE. Investigation into cloud, grid and high performance computing technologies currently accessible in Africa and their feasibility as led by the ISWG between members from the University of Cape Town, University of Mauritius, South African National Bioinformatics Institute and Institut Pasteur de Tunis.

The immediate goal of the RTDWG will be to create a repository of potential projects that provides a brief abstract for the project, the types of skills these projects would require and match them to potential H3ABioNet Nodes based on interest and available expertise.

Prof. Ezekiel Adebiyi. **Dr. Julie Makani.**

- User Support



The H3ABioNet User support working group (USWG) is responsible for the overseeing of the establishment of a Bioinformatics User Support help desk that brings together existing expertise within H3ABioNet to provide Bioinformatics support answer user queries for H3ABioNet and H3Africa personnel registered with the website (www.h3abionet.org).

The USWG has created a framework for how the H3ABioNet user support helpdesk should function and what measures should be put in place when dealing with user support queries. The framework includes how experts are co-opted to the helpdesk, how users can make support requests, how user requests are categorized and assigned to experts, the expected turnaround time for dealing with a request and if no resolution can be found, implement measures to H3ABioNet external experts.

The USWG is responsible for creating and updating a registry of qualified personnel with expertise in the numerous facets of Bioinformatics and are willing to participate in providing user support via the H3ABioNet helpdesk. Currently, a nucleus of 20 qualified individuals have been identified and co-opted to participate as the H3ABioNet helpdesk experts with the expectation of approaching more individuals in categories whereby there is a shortage of available expertise to ensure that rapid turn around times and consistent, high quality scientific advice is being provided.

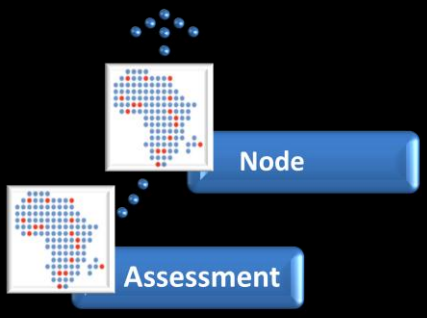
The current H3ABioNet helpdesk system is in place with comprehensive documentation for users on how to create a helpdesk "ticket" for which all communication regarding a specific query is centered. The actual H3ABioNet help desk system has been stress tested by the USWG members in order to iron out any potential bugs or misunderstandings and detailed specification documentation has been created for the H3ABioNet helpdesk in order to continue its development over a period of years.

The actual announcement of the availability of the H3ABioNet helpdesk will be made to the H3Africa consortium by Nicola Mulder and Judit Kimuthini during the annual H3Africa consortium meeting in Accra, Ghana in the middle of May 2013.

Additionally, the USWG in collaboration with the ISWG and RTDWG is responsible for devising and implementing standard operating protocols for data analysis, workflows, pipelines and data submissions to public repositories. The USWG will undertake the evaluation, migration and support of computational tools and pipelines developed and submission of data for H3Africa and H3ABioNet projects as well as ensure accessibility of data to end users via requested interfaces.

Dr. Judit Kumuthini. Dr. Jonathan Kayondo.

- Node Assessment



The creation of the Node Assessment Working Group (NAWG) was decided during the 2012 General Assembly of H3ABioNet in Cape Town. It is not one of the formal Working Groups of H3ABioNet as its mission and activities were not included in the H3ABioNet grant proposal to the NIH. The mission of the NAWG is to design and manage an accreditation process whereby H3ABioNet nodes can be assessed for their capability to analyze the types of datasets that will be produced by the H3Africa research projects, and therefore ensure that the research groups can identify nodes that are fully qualified to help them with the management and analysis of their data. The accreditation process will also help H3ABioNet nodes with establishing their status as fully qualified bioinformatics service providers.

The NAWG is composed of representatives of H3ABioNet nodes and of external experts who can guarantee that the accreditation process is scientifically sound and is administered fairly (see table on page 7 – 8 for listing of members). The external experts recruited by the NAWG for input on the accreditation process and evaluation of the accreditation results are:

- **Brad Chapman, Harvard University School of Public Health, USA**
- **Noah Zaitlen, University of California San Francisco, USA**
- **Fran Lewitter and George Bell, Whitehead Institute, USA**

The initial goal of the WG was to identify external scientists with specific expertise in the analysis of genotyping and high-throughput sequencing data documenting human genetic and genomic variation. We now have highly qualified experts for both types of data who have agreed to help the NAWG in its tasks.

The second challenge was to produce Standard Operating Procedures (SOPs) that would describe in sufficient detail the steps that are required to analyze genotyping and HTS datasets. These will be useful not only to the activities of the NAWG, but also more generally to all H3Africa participants who are planning to generate and analyze such datasets. The NAWG has produced draft SOPs that will be submitted for comment to the external experts within the next few weeks. The next challenge will be to produce realistic datasets that can be analyzed by nodes seeking accreditation.

Dr. Victor Jongeneel.

Table summarising each H3ABioNet Working Group's membership, Institutional affiliation and Country represented.

Name	Institution	Country	E&T	RTDWG	ISWG	USWG	NAWG
Adekunle Farouk	National Biotechnology Development Agency	Nigeria			X	X	
Ahmed Mansour Mohamed Mansour Alzohairy	Zagazig University	Egypt	X				X
Ahmed Moussa	Ecole de Sciences Appliqués de Tanger	Morocco	X				
Alia Benkahla	Institut Pasteur de Tunis	Tunisia			X		
Anne Fischer	International Centre of Insect Physiology and Ecology	Kenya	X				
Atinuke Hassan	National Biotechnology Development Agency	Nigeria					X
Ayton Meinjes	University of Cape Town	South Africa		X	X	X	
Benjamin Kumwenda	Center for Proteomic and Genomic Research	South Africa			X	X	
Dawe, Adam	South African National Bioinformatics Institute	South Africa			X	X	
Deborah Fasesan	National Biotechnology Development Agency	Nigeria		X			
Deogratius Ssemwanga	Ugandan Viral Research Institue	Uganda			X		
Jean-Baka Domelevo Entfellner	South African National Bioinformatics Institute	South Africa	X	X			
Dean Everett	Malawi-Liverpool Wellcome Trust Clinical research Programme	Malawi		X			
Ezekiel Adebiyi	Covenant University	Nigeria		X			X
Faisal M. Fadlelmola	Future University of Sudan	Sudan	X	X			
Flora Elias Mlyango	University of Dar es Salaam	Tanzania			X		
Fourie Joubert	University of Pretoria	South Africa			X		
Gerrit Botha	University of Cape Town	South Africa			X	X	
James Brandful	Noguchi Memorial Institute for Medical Research	Ghana	X	X			
John Ssemwanga	Ugandan Viral Research Institue	Uganda				X	
Jonathan Kayondo	Ugandan Viral Research Institue	Uganda	X	X		X	
Victor Jongeneel	University of Illinois	USA			X		X
Judit Kumuthini	Center for Proteomic and Genomic Research	South Africa	X			X	X
Julie Makani	Muhimbili University of Health and Allied Sciences	Tanzania		X			
Chisomo Msefula	College of Medicine - University of Malawi	Malawi		X			
Mutawakil Saad	Future University of Sudan	Sudan			X	X	
Nicola Mulder	University of Cape Town	South Africa	X	X	X	X	X
Nzovu Ulenga	Management and Development for Health	Tanzania		X			
Odile Ouwe Missi Oukem	Centre de Recherche Médicale et Sanitaire	Niger	X				

Table Continued Overleaf

Name	Institution	Country	E&T	RTDWG	ISWG	USWG	NAWG
Oladipo Olaleye	Covenant University	Nigeria			X		
Oliver Hofmann	Harvard School of Public Health	USA	X		X		
Oveeyen Moonian	SANBio Network, University of Mauritius	Mauritius			X		
Ellis Owusu-Dabo	Kwame Nkrumah University of Science and Technology	Ghana	X				
Nash Oyekanmi	National Biotechnology Development Agency	Nigeria	X	X			X
Hugh Patterton	University of Free State	South Africa		X			
Peter van Heusden	South African National Bioinformatics Institute	South Africa			X		
Salifu Pandam	Kwame Nkrumah University of Science and Technology	Ghana	X				
Samar Kassim	Ain Shams University	Egypt	X				
Samna Oumarou	Centre de Recherche Médicale et Sanitaire	Niger		X			
Scott Hazelhurst	University of the Witwatersrand	South Africa			X		
Segun Fatumo	National Biotechnology Development Agency	Nigeria	X			X	
Shakuntala Baichoo	SANBio Network, University of Mauritius	Mauritius	X				
Shannan Ho Sui	Harvard School of Public Health	USA	X				
Shaun Aron	University of the Witwatersrand	South Africa	X				
Sumir Panji	University of Cape Town	South Africa	X	X	X	X	X
Suresh Maslamoney	University of Cape Town	South Africa			X	X	
Sylvester Leonard Lyantagaye	University of Dar es Salaam	Tanzania	X	X			
Malawian Postdoctoral - c/o Dean Everett	Malawi-Liverpool Wellcome Trust Clinical research Programme	Malawi	X				
Timothy Wamala	Ugandan Viral Research Institue	Uganda				X	X
Victor Osamor	Covenant University	Nigeria	X				
Wande Daramola	Covenant University	Nigeria			X		
Wintson Hide	Harvard School of Public Health	USA	X				
Yasmina Fakim	SANBio Network, University of Mauritius	Mauritius	X	X			
Zainab Abimbola Kashim	National Biotechnology Development Agency	Nigeria					X

Table summarising each H3ABioNet Working Group's membership, Institutional affiliation and Country represented.

- Node Feature CPGR

Node Name : Center for Proteomic and Genomic Research (CPGR)
Node Status : Full
Node Manager : Dr. Judit Kumuthini
Location : Cape Town, South Africa
Website : www.cpgr.org.za

The CPGR is based on an initiative by the South African Department of Science and Technology (DST), and funded by the Technology Innovation Agency (TIA), to boost biotech innovation and to grow an internationally competitive bio-economy in South Africa. The organization was created in 2006 with a vision of establishing a modern, world-class facility that serves the needs of the scientific community in South Africa by providing state-of-the-art services, technical expertise and collaborative research capabilities in the high throughput genomics and proteomics arena.

The organization employs a project management approach that has been devised to tackle the complexities of genomic, proteomic and bioinformatics projects in a unique manner. We take a holistic, interdisciplinary stance that is aimed at integrating a diverse range of disciplines (e.g. statistics, bioinformatics, sample logistics, and data-generation) into an effective array of competencies. Following this approach, we strive to enhance quality, turnaround and cost-effectiveness of genomic and proteomic projects. In addition, we take a long-term perspective to planning the early stages of the research & development life cycle, thereby enhancing our ability to support Translational outcomes in the projects we support.

To create effective solutions in complex biological projects, the CPGR has established more than 50 validated genomic, proteomic and bio-informatic workflows. These include array-based RNA expression profiling, DNA genotyping and drug metabolism on the Affymetrix GeneChip platform, mass spectrometry based protein ID and biomarker discovery, and multiplex antibody capturing assays on protein arrays. Computational workflows for high-throughput analysis of genomic and proteomic data-sets, including standard DNA and next-generation sequencing (NGS) data analysis complete the portfolio.

More recently, the CPGR has added the opportunity for users to access are range of NGS platforms and workflows, including Illumina, Roche 454, IonTorrent and SOLID, through collaborations with other service providers. The value we add to scientists is based on the fact that we can chose from a range of options and devise customs solutions that meet diverse requirements such as throughput, coverage, depth, and costs in NGS projects. In addition, we offer sample preparation, sequence capturing and result validation on microarray or qRT-PCR platforms.

- Node Feature CPGR

Dr. Judit Kumuthini, Associate PI and Node Manager.
e - mail : judit.kumuthini@cpgr.org.za
http://www.linkedin.com/pub/judit-kumuthini/14/5a3/833

Judit Kumuthini received her BSc in Biomedical Science and MSc in Bioinformatics in the UK. She completed her PhD at University of Cranfield, in Bioinformatics in genetic network (GN) extraction using a using a Bayesian belief framework. During her PhD, Judit established novel processes to learn genome-wide GN for *E. coli*, yeast and humans, from microarray data. Judit later joined the drug discovery group at GSK (Glaxo Smith Kline, UK) as a drug-target bioinformatician. After completing a post-doctoral research fellowship at University of Cape Town, she became the Bioinformatics Manager at the CPGR and is now leading her team to provide expertise in various fields in bioinformatics. This includes providing service, support and R&D through collaboration, to life scientists in the "omics" field, and addressing a wide range of biological questions from genomics to system biology. Judit is the Associate Node Manager for the EMBNET, where she was elected as the PRP (Public Relations and Publicity) committee member. She is committed to human capital development in the bioinformatics arena to enhance the knowledge base in Africa. At the CPGR, Judit started and manages MIP and KTP, both aimed at developing specific skill sets required for the next generation of *in silico* biologists. Judit has trained and supervised many postgraduate students in Europe and Africa. Judit's broad research interests include African genetic rare diseases, process optimization, algorithms and systems development, information management and visualization, and e-learning.

Mr. Benjamin Kumwenda, Software developer.
e-mail : ben@cpgr.org.za

Benjamin Kumwenda started his career as a Computer Scientist from the University of Malawi, Chancellor College where he completed his Bachelor Degree. He was employed by the College of Medicine, a constituent college of the University of Malawi where he got sponsorship to further his studies at Masters Degree level at the University of the Witwatersrand (Wits). At Wits University he completed his postgraduate diploma, Honours and Masters Degree in Computer Science under the supervision of Prof. Ian Sanders and Prof. Scott Hazelhurst. It was during his studies at the University of the Witwatersrand that Benjamin was introduced to computational biology at honours level which provoked his enthusiasm for Bioinformatics. With this background, he continued his academic career to pursue doctoral studies at the University of Pretoria under the supervision of Prof Oleg Reva. Benjamin has recently joined the H3ABioNet project as a bioinformatics programmer at the CPGR as he completes his PhD studies and is currently involved in the H3ABioNet user and infrastructure working groups.

- Node Feature CPGR

CPGR Node Role & Activities

H3A Consortia & H3ABioNet Workgroup

Within the H3ABioNet, the CPGR node participates in Infrastructure, User Support, Training and Education and Node Accreditation Task Force.

Within H3A consortia CPGR is part of bio-repository, data sharing and publication WG.

Research and Development

Bioinformatics platform actively participates in developing novel algorithms, systems, tools, and pipelines. The tools focus on automation and streamlining of data analysis processes, storage and management.

Outreach H3ABioNet & Advocacy

The CPGR is actively involved as a member or partner in various networks and societies such as EMBNET, GOBLET, SASBi, ITFoM, PGENI, ASBCB, ISCB, the Genomic Standards Consortium, and the Biomarkers Consortium, ANDI, and the Accordia network of African Centres of Excellence in Health, amongst others. By extending KTP to H3A consortium, the node reaches out to areas and other parts of Africa

Education & Training

CPGR is spearheading the Knowledge Transfer Programme (KTP), IPA online training and busy developing E-learning platform UKUFUNDA to enhance access to Genomics related knowledge. It runs Mini Internship Programme (MIP) in addition to the funded NRF (National Research Foundation) and TIA funded internship programmes.

Pathway Analysis and Online Training

The CPGR manages Ingenuity Pathway Analysis licenses and actively runs online trainings for the software package for the benefit of its academic users. This training will be available later this year.

The KTP has been Extended for the H3A Consortia

The CPGR is spearheading the cost-effective and sustainable Knowledge Transfer Programme, which brings experts to train local scientists in Africa within their local environments, in academia and in the private sector.

Other Training

Upcoming cutting edge training activities include high throughput genotyping data analysis at the CPGR. The CPGR is also currently in negotiation with Affymetrix to do a road show across the African continent.

GOBLET : Global organization for bioinformatics learning, education and training.

EMBNET : European molecular biology network.

SASBi : South African Society for bioinformatics.

ISCB : International society computational biology.

PGENI : Personalized genomics for every nation's initiative.

ASBCB : African society for bioinformatics and computational biology.

Announcements

We have had successful outcomes for some nodes related to their involvement in H3ABioNet. The Egyptian node, through their association with H3ABioNet has established a new center of bioinformatics in Egypt and the hired team. The center, entitled The Egyptian center of Bioinformatics and Genomics (ECBAG) is in the process of training its team and enlarging their activities around Egypt.

The "Centre de Recherches Médicales et Sanitaires" (CERMES) in Niamey, Niger, and the HPCBio group at the University of Illinois have been awarded a $5000 grant by the Illinois Strategic International Partnerships program. The grant will fund a visit to the University of Illinois by a scientist from CERMES, Ibrahim Maman Laminou, for 4 weeks in June and July 2013. During his visit, Lamine will have an opportunity to analyze genetic polymorphism data that he obtained on *Plasmodium falciparum* specimens collected in different locations in Niger. He will be hosted by two Illinois graduate students, Arnab Mukherjee and Obaid Sarvana, and will work within the HPCBio group. We expect that this will result in a joint scientific publication. Lamine will also learn some of the bioinformatics techniques used by the HPCBio group, and deploy them at CERMES upon his return to Niger. A reciprocal visit is planned for the end of 2013, with the aim to install on the servers at CERMES a suite of software tools that will help the scientists there analyze their data. If this visit should not be possible because of the regional political situation, we will explore other ways to leverage the grant money to ensure that bioinformatics software is installed at CERMES.

This project was conceived in discussions during the H3ABioNet GA in Cape Town in November 2012, and would not have been possible without H3ABioNet. We expect that many other opportunities for collaborative projects will be able to build upon the successes of H3ABioNet.

Bruno Mmbando, H3ABioNet funded research fellow who is working in Muhimbili University node in Tanzania. Bruno is developing an application to the Wellcome trust for a training fellowship. His preliminary application was successful. He is submitting the final application in May 2013. The project is on Genetic Epidemiology of Malaria and Haemoglobinopathies in Tanga, Tanzania. Collaborators include Nicola Mulder, Julie Makani and collaborators in Tanzania (National Institute Of Medical Research NIMR) and UK (Wellcome Trust Sanger Institute and MalariaGEN).

Important Dates

- **H3Africa Consortium Meeting : 16th – 18th May, 2013, Accra, Ghana.**
- **African Society for Human Genetics Conference : 19th – 21st May, 2013, Accra, Ghana.**
- **NIH Grants Management Workshop : 27th – 28th May, 2013, Cape Town, South Africa.**
- **NIH annual report due 1st June**
- **Technical Systems Administration Workshop : 3rd – 14th June, Pretoria, South Africa.**