

H3ABioNet

Pan African Bioinformatics Network for H3Africa



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Pan African Bioinformatics Network for H3Africa

2nd H3Africa Consortium Meeting, Accra

H3ABioNet Project Goal

- **To build H3ABioNet -- a sustainable African Bioinformatics Network -- to provide bioinformatics infrastructure and support for the H3Africa consortium.**

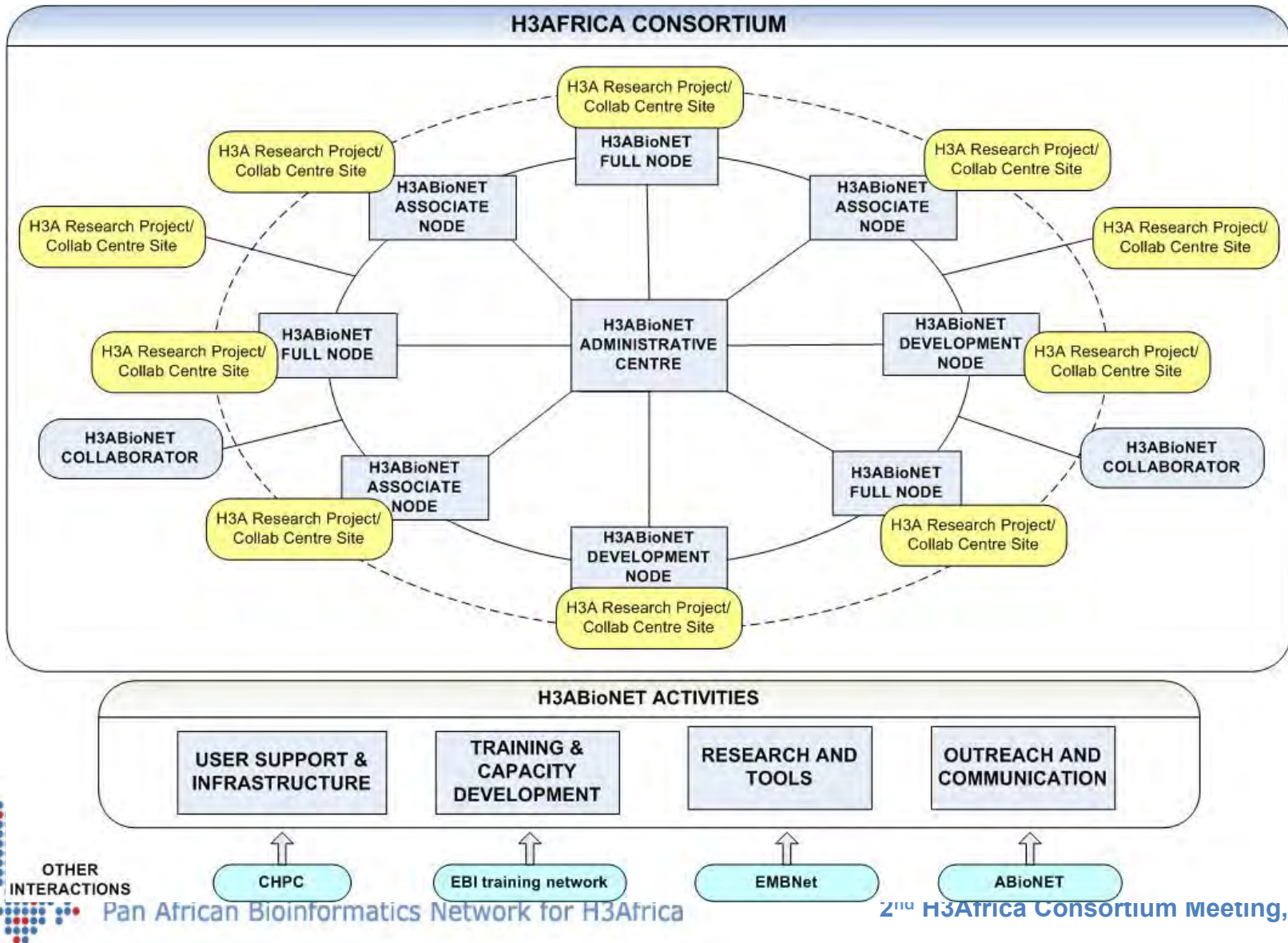


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Network structure



Partner institutions

Administrative hub at UCT

34 partner institutions, 32
in 15 African countries, 2 in
USA



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Pan African Bioinformatics Network

Partner institutions -projects



○ PI sites,
other sites
around
Africa too

H3Africa's needs

- Large-scale data analysis for:
 - Genotyping by arrays
 - Next generation sequencing
 - GWAS
- Support for analysis:
 - General questions
 - Access to computing resources
 - Technical computing support
- Data access and visualization (public and new)
- Data storage, backup and transfer
- Data submission
- Training



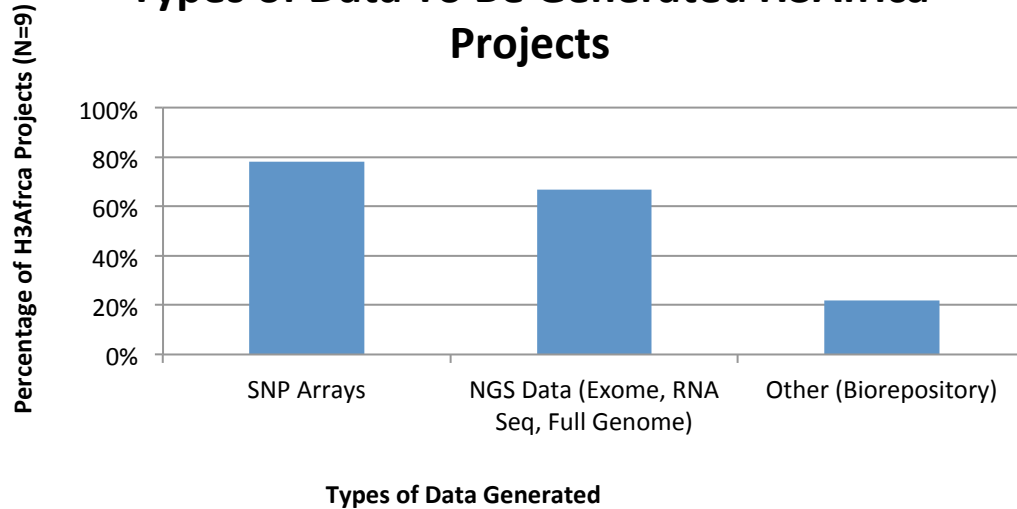
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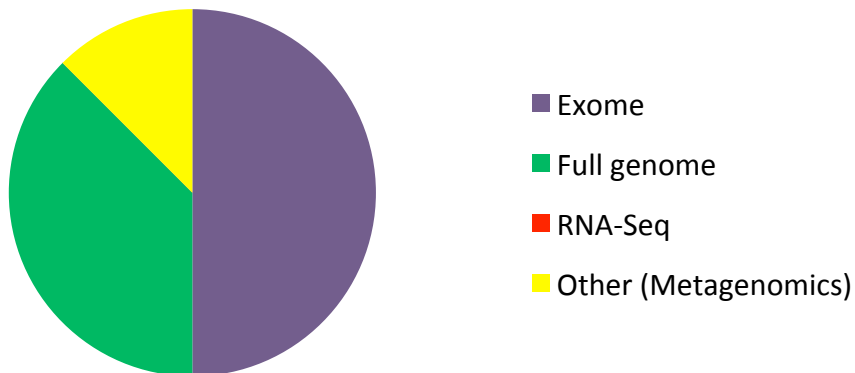
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H3Africa data expected (1)

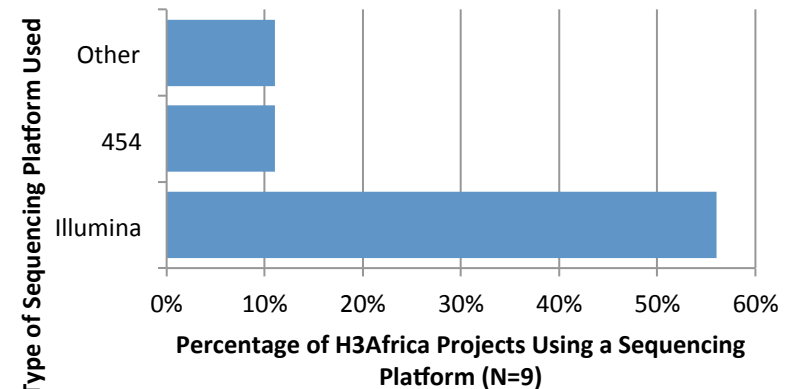
Types of Data To Be Generated H3Africa Projects



Types of Sequence Data Generated by H3Africa Projects



Sequencing Platform Used



H3Africa data expected (2)

- GWAS arrays:
 - 30Mb/cell file (per sample), 150Gb per 96 well plate processed.
 - Samples planned ~33,380
 - Storage required for processed data: **52TB**
- Sequencing NGS:
 - Exome = illumina, ~45 depth, 90bp paired end, 17GB raw fastq, Full = Illumina, ~33 depth, 101 bp paired end, 250GB raw fastq (per sample)
 - Samples planned in total 12, 580 (exome 11,330, full genome 1,250)
 - Total storage for raw reads: 505TB, processed **2.5PB**

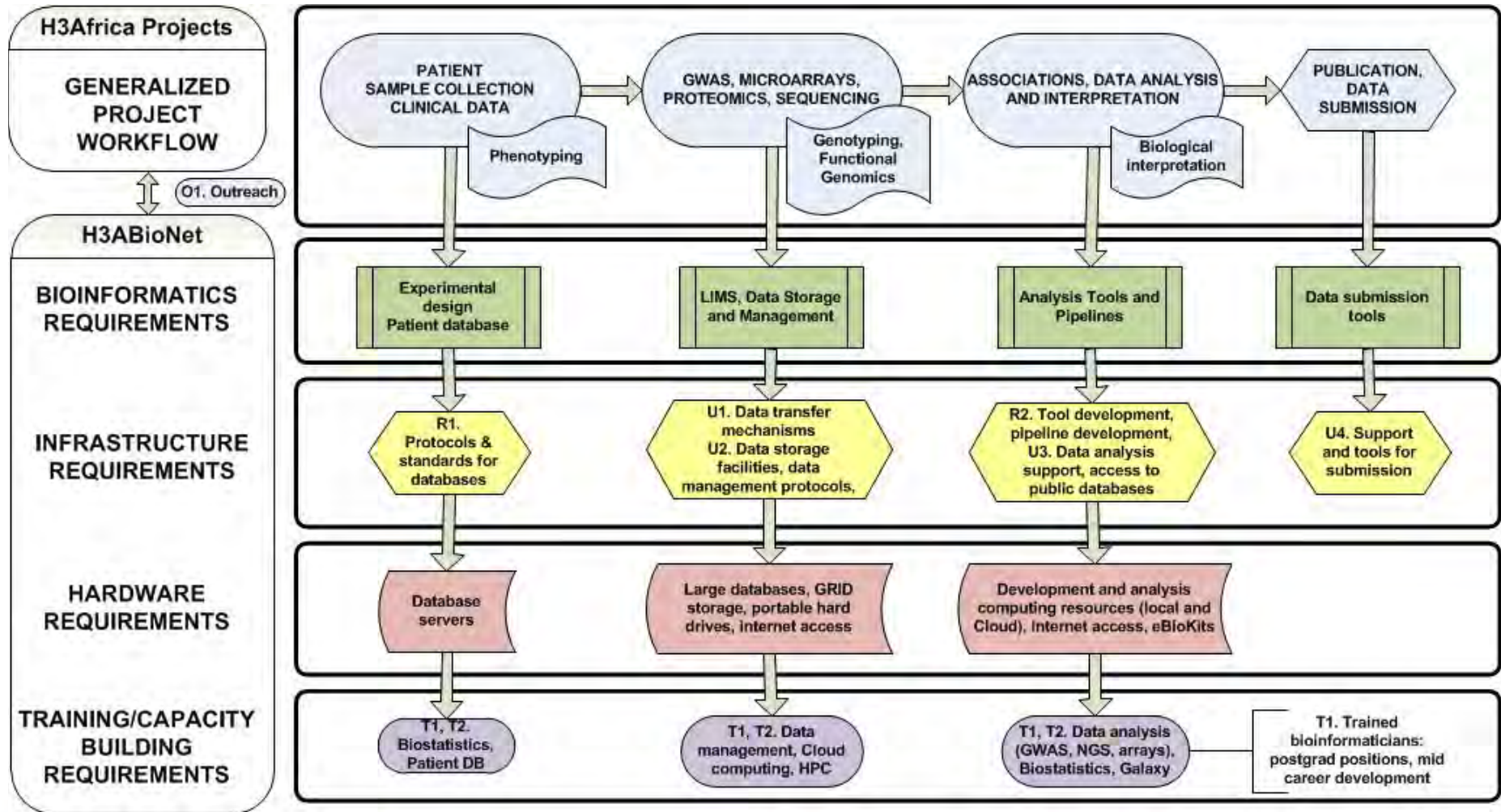


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Network activities



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Major activities

- **Infrastructure Development**
 - Develop the hardware and software infrastructure capacity of African Bioinformatics laboratories in preparation for genomic scale studies.
- **User Support**
 - Provide user support to H3Africa researchers and Bioinformatics capacity development through a pool of specialists and supported tools & resources.
- **Node Assessment and Accreditation**
 - Provide an accreditation programme to help prepare and develop African Bioinformatics' laboratories in line with current international standards.
- **Research and Tool Development**
 - Provide research and development of Bioinformatics and genomics tools, standardised workflows and pipelines for H3Africa research projects.
- **Education and Training**
 - Develop Bioinformatics capacity of African scientists through co-ordinated education and training programmes.



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Infrastructure development

- Technical support –programming, pipeline development, sys admin
- Access to HPC, Cloud, eBioKits
- Access to public data
- Standard operating procedures and guidelines for data analysis
- Tools/support for data submission
- Storage, movement & management of data



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Infrastructure activities and plans (1)

- Working group met 6 times
- Developed specifications of types of machines for different types of Bioinformatics workflows
- Negotiations for purchasing of ~ 20 high end servers capable of doing NGS analysis for various nodes
- One-on-one consultations with development and associate nodes for advice on hardware
- Purchasing of e-BioKits for training and processing at nodes



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Infrastructure activities and plans (2)

- Conducting Iperf (internet bandwidth tests) between servers from all H3ABioNet nodes to determine:
 - True internet bandwidth across Africa
 - Best place to host mirror sites
 - How to move data around
- Researching data storage and processing options:
 - Getting Galaxy running at CHPC

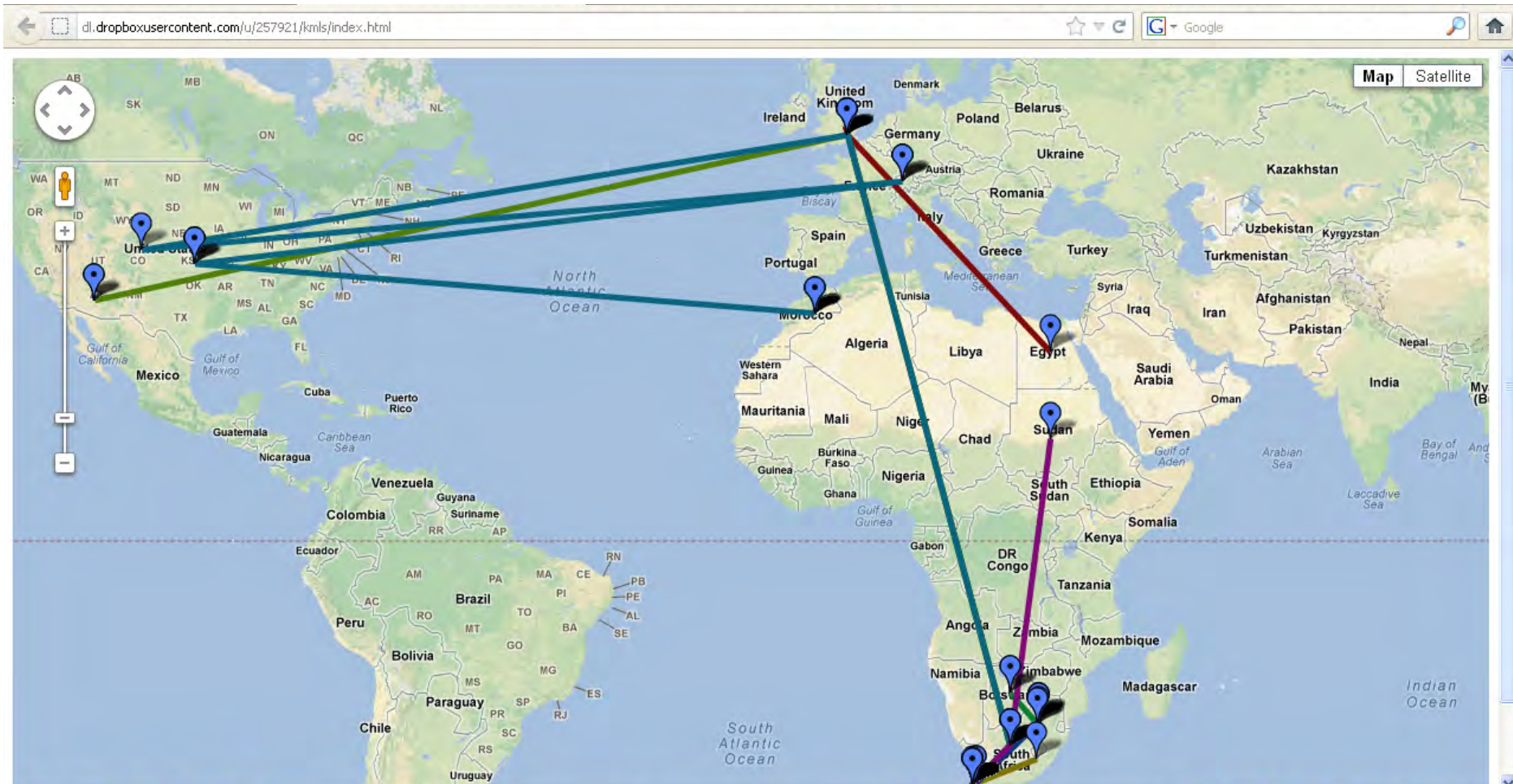


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Infrastructure activities and plans (2)



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Infrastructure activities and plans (2)

- Conducting Iperf (internet bandwidth tests) between servers from all H3ABioNet nodes to determine:
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User support

- H3Africa research projects provide support on:
 - Small bioinformatics queries (scripts etc)
 - Data management
 - Large-scale analysis
 - Access to computing infrastructure (data & hardware)
 - Submission to EGA
- Support provided through:
 - Helpdesk
 - Training



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Helpdesk

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<http://www.h3abionet.org/helpdesk>



National Human
Genome Research
Institute

eting, Accra

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Help desk - dashboard

Helpdesk

New Ticket

Contact Information

User Name:

E-Mail:

Department:

Location:

Phone:

Classification

Category:

Status:

Priority:

Assigned To:

Time Spent:

 Submit  Print  Close  Refresh  Home

TicketInformation

Title:

Description

Notes

Enter Additional Notes

Solution

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Help desk - dashboard

Helpdesk

New Ticket

Contact Information

User Name:
E-Mail:
Department:
Location:
Phone:

Classification

Category:
Status:
Priority:
Assigned To:
Time Spent:

[Submit](#) [Print](#) [Close](#) [Refresh](#) [Home](#)

Ticket Information

Title:

Description

[B](#) [I](#) [U](#) [List](#) [Link](#) [Quote](#) [Code](#) [Help](#)

Notes

Enter Additional Notes

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Solution

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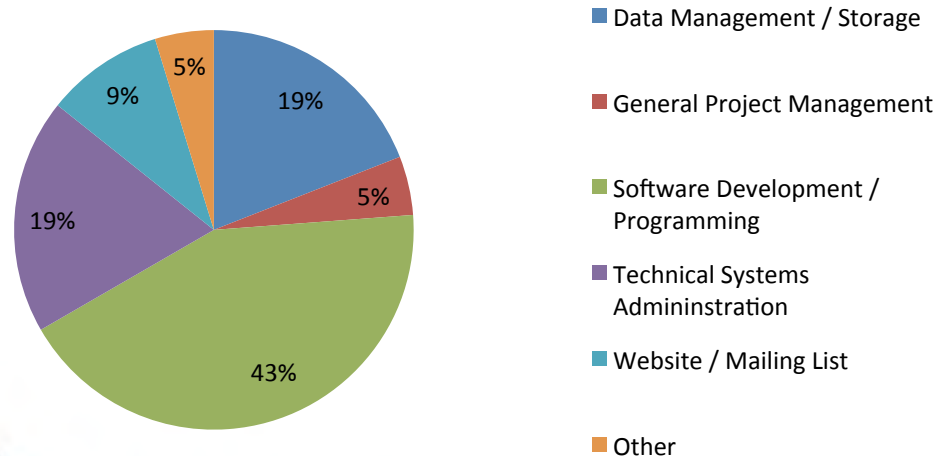
Categories:

Analysis - Genotyping arrays
Analysis - NGS data
Analysis - Other (Not arrays or sequence data)
Biostatistics, Data Management (storage, etc)
Software Development/Technical/System Admin
Website / Mailing List
General Project Administration.

Help desk continued

- Help desk system has been tested
- Created documentation & technical specs
- Created pool of 20 people to answer queries

**Personnel Contributing to H3ABioNet
Helpdesk Categories**



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Node assessment & accreditation

- Assessing internet capacity at each node
- Node assessment exercises
- Set of workflows with simulated data covering:
 - Analysis of NGS data (exome and full genome)
 - Variant calling
 - Genotyping array data analysis
 - GWAS analysis



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Node assessment & accreditation

- Accreditation board established with international experts:
 - 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
- Getting datasets together (simulated)
- Nodes can choose when they are ready for accreditation



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Research and tools

- Working group met 5 times
- Aim to facilitate collaborative projects
- Working group has established project and collaboration documents
- Nine collaborative projects set up so far
- Some overlap with the User Support and Infrastructure working groups



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Research and tools

- Data management and storage
 - Patient databasing protocols
 - **BioMart for genotyping data**
 - Grid-based tool for data storage
- Data analysis tools
 - **Galaxy for NGS and Genotyping analysis**
 - Genome assembly pipeline
 - Functional SNP calling pipeline
 - **Admixture mapping and network tools**
 - Data visualization tools
 - Recombination tools
 - Structural SNP analysis tool
- Joint research projects



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BioMart for genotyping data

- BioMart –suite of tools for integration of data in RDBMS
- Widely use for public databases, e.g. Ensembl, InterPro
- Has web front-end, BioMart library for R or import into Galaxy
- Have developed BioMart for local genotype data and interface for searching
- Can develop BioMart for public data
- Can query across BioMarts
- Can protect data in BioMart



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Example of BioMart interface 1

AfMap v2.0

New

Count

Results

Dataset 46 / 932979 Entries

Allele frequencies

Filters

Gene id : %BRCA%

Genesymbol : %BRCA%

Attributes

RSID

Chrm

Pos

KHS

HER

STS

XHS

ZUL

ASW

CEU

CHB

CHD

GIH

JPT

LWK

MEX

MKK

TSI

YRI

Please restrict your query using criteria below

Marker

Identifiers

RSID

Choose File

No file chosen

Probeset ID

Choose File

No file chosen

Other details

Allele A

Allele B

Allele A orig

Allele B orig

Flipped

Location

Associated Genes

AfMap v2.0

New

Count

Results

Dataset 46 / 932979 Entries

Allele frequencies

Filters

Gene id : %BRCA%

Genesymbol : %BRCA%

Attributes

RSID

Chrm

Pos

KHS

HER

STS

XHS

ZUL

ASW

CEU

CHB

CHD

GIH

JPT

LWK

MEX

MKK

TSI

YRI

Please restrict your query using criteria below

Marker

Location

Chromosome

Chromosome

Position

1

Associated Genes

Identifiers

Association count

Accession

Gene id

Genesymbol

Unigeneid

Description

Ncbigeneid

%BRCA%

Location

Location

Distance

3



H3ABioNet

Pan African Bioinformatics Network

Example of BioMart interface 2

AfMap v2.0

Dataset 46 / 932979 Entries
Allele frequencies

Filters

Gene id : %BRCA%
Genesymbol : %BRCA%

Attributes

RSID
Chrm
Pos
KHS
HER
STS
XHS
ZUL
ASW
CEU
CHB
CHD
GIH
JPT
LWK
MEX
MKK
TSI
YRI

Please select columns to be included in the output and hit 'Results' when ready

FEATURES

Marker

☒ RSID
☒ Chrm
☒ Pos
☐ Allele A
☐ Allele B

☐ Allele A orig
☐ Allele B orig
☐ Flipped
☐ Probeset ID
☐ Association count

Allele A frequencies

☐ Select all ☐ Deselect all

☒ KHS
☒ HER
☒ STS
☒ XHS
☒ ZUL
☒ ASW
☒ CEU
☒ CHB

☒ CHD
☒ GIH
☒ JPT
☒ LWK
☒ MEX

Sample counts

☐ KHS n
☐ HER n
☐ STS n
☐ XHS n
☐ ZUL n
☐ ASW n
☐ CEU n
☐ CHB n

Dataset 46 / 932979 Entries
Allele frequencies

Filters

Gene id : %BRCA%
Genesymbol : %BRCA%

Attributes

RSID
Chrm
Pos
KHS
HER
STS
XHS
ZUL
ASW
CEU
CHB
CHD
GIH
JPT
LWK
MEX
MKK
TSI
YRI

Export all results to

File TSV Unique results only ☒

Email notification to

View

10 rows as HTML Unique results only ☐

RSID	Chrm	Pos	KHS	HER	STS	XHS	ZUL	ASW	CEU	CHB	CHD	GIH	JPT	LWK	MEX	MKK	TSI	YRI
rs8176225	17	38475122	0.000	0.020	0.100	0.054	0.088	0.041	0.000	0.000	0.000	0.000	0.006	0.033	0.000	0.021	0.000	0.102
rs11571699	13	31824654	0.104	0.020	0.000	0.018	0.000	0.020	0.031	0.157	0.100	0.165	0.083	0.039	0.060	0.035	0.062	0.027
rs11571594	13	31793674	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
rs206081	13	31820136	0.021	0.080	0.180	0.196	0.265	0.153	0.232	0.226	0.153	0.131	0.143	0.178	0.180	0.217	0.193	0.239
rs9567578	13	31819944	0.083	0.040	0.140	0.107	0.147	0.194	0.250	0.337	0.347	0.256	0.482	0.144	0.240	0.108	0.284	0.195
rs11571681	13	31819306	0.000	0.000	0.000	0.000	0.000	0.020	0.031	0.157	0.100	0.165	0.083	0.017	0.060	0.021	0.062	0.009
rs11571591	13	31792738	1.000	1.000	1.000	1.000	1.000	0.969	0.960	0.880	0.929	0.847	0.923	0.983	0.940	0.979	0.932	0.991
rs9895855	17	38523881	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.028	0.010	0.003	0.000	0.035
rs8176318	17	38450800	0.938	0.780	0.940	0.946	0.882	0.786	0.670	0.669	0.565	0.557	0.726	0.917	0.776	0.846	0.636	0.889
rs206079	13	31818618	0.250	0.560	0.340	0.339	0.500	0.286	0.558	0.446	0.464	0.432	0.386	0.315	0.490	0.462	0.455	0.383



H3AB
Pan African

Example of BioMart interface 3

AFRIVARIANTS African Mutations and Polymorphisms Database

Home Biomart Browse Upload data Documentation Publications

AfMap - dev version

Showing 500 kbp from chr18, positions 411,072 to 911,070

Instructions
Searching: Search using a sequence name, gene name, locus, or other landmark. The wildcard character * is allowed.
Navigation: Click one of the rulers to center on a location, or click and drag to select a region. Use the Scroll/Zoom buttons to change magnification and position.

Examples: Chr18:411072..911070, SNP:rs6870660, NM_153254, BRCA2, 5q31, ENM010, gwa*, PARK3.

[\[Bookmark this\]](#) [\[Upload your own data\]](#) [\[Hide banner\]](#) [\[Share these tracks\]](#) [\[Link to Image\]](#) [\[SNP genotype data\]](#) [\[HapMap LD Data\]](#) [\[High-res Image\]](#) [\[Help\]](#)
[\[Reset\]](#)

Search
 Landmark or Region: Chr18:411072..911070
 Data Source: AfMap - dev version
Overview

Region

Details

Genotyped SNPs

Reports & Analysis:
 Annotate LD Plot
 Scroll/Zoom: ☐ Flip

AFRIVARIANTS African Mutations and Polymorphisms Database

Biomart Browse Upload data Documentation Publications

Export all results to: File ☐ Unique results only

Email notification to:

View: 10 rows as HTML ☐ Unique results only

Chrm	Pos	KHS	HER	STS	XHS	ZUL	ASW	CEU	CHB	CHD	GIH	JPT	LWK	MEX	MKK	TSI	YRI
1	84647761	0.375	0.540	0.480	0.446	0.471	0.480	0.590	0.641	0.500	0.583	0.506	0.580	0.500	0.557	0.518	
5	156323558	1.000	0.920	0.840	0.893	0.912	0.847	1.000	0.964	0.941	1.000	1.000	0.883	0.980	0.969	1.000	0.827
5	158662525	0.458	0.160	0.240	0.268	0.176	0.250	0.259	0.247	0.282	0.153	0.190	0.228	0.300	0.378	0.364	0.195
9	22966592	0.917	0.960	0.920	0.929	0.941	0.939	1.000	1.000	1.000	1.000	1.000	0.922	1.000	0.982	1.000	0.903
11	26257545	0.479	0.620	0.540	0.589	0.588	0.643	0.833	0.886	0.882	0.920	0.917	0.528	0.888	0.631	0.837	0.545
13	76334809	0.188	0.380	0.340	0.446	0.353	0.378	0.281	0.223	0.271	0.432	0.161	0.356	0.350	0.427	0.312	0.385
2	224934756	0.042	0.000	0.000	0.000	0.000	0.000	0.247	0.212	0.000	0.286	0.000	0.110	0.017	0.000	0.009	
8	119481632	0.188	0.080	0.080	0.125	0.088	0.133	0.196	0.000	0.000	0.051	0.000	0.133	0.120	0.101	0.176	0.076
6	169694703	1.000	1.000	1.000	0.982	1.000	0.949	1.000	1.000	1.000	1.000	1.000	0.978	1.000	0.989	1.000	0.965
7	12953585	0.021	0.120	0.080	0.143	0.000	0.245	0.558	0.476	0.512	0.453	0.572	0.100	0.490	0.112	0.528	0.116



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STS
XHS
ZUL
ASW
CEU
CHB
CHD
GIH
JPT
LWK
MEX
MKK
TSI
YRI

Galaxy for NGS and arrays

- Galaxy –web-based framework for building workflows for data analysis
- Contains modules for searching and extraction of human data and many NGS analyses
- Can plugin in own modules
- Workflows and histories can be customized, saved and shared
- Can export data to visualization tools
- Different levels of protection
- Can integrate with HPC solutions



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Galaxy example

Galaxy Analyze Data Workflow Shared Data Visualization Help User Using 451.8 Mb

Tools ⚙️

PopGen

[Get Data](#)
[Lift-Over](#)
[Text Manipulation](#)
[Filter and Sort](#)
[Join, Subtract and Group](#)
[Convert Formats](#)
[Extract Features](#)
[Fetch Sequences](#)
[Operate on Genomic Intervals](#)
[Statistics](#)
[Graph/Display Data](#)
[Regional Variation](#)
[Multiple regression](#)
[Multivariate Analysis](#)
[Evolution](#)
[NGS: RNA Analysis](#)
[NGS: SAM Tools](#)
[SNP/WGA: Data; Filters](#)
[SNP/WGA: QC; LD; Plots](#)
[SNP/WGA: Statistical Models](#)
[Human Genome Variation](#)
[VCF Tools](#)

Workflows
■ All workflows

chr1	881626	881627	rs2272757	0	+	A/G	NOC2L
chr1	909325	909326	rs61573829	0	+	T/C	PLEKHN1
chr1	949653	949654	rs8997	0	+	A/G	ISG15
chr1	981930	981931	rs2465128	0	+	A/G	AGRN
chr1	982993	982994	rs10267	0	+	T/C	AGRN
chr1	1118274	1118275	rs61733845	0	+	T/C	TTL10
chr1	1254840	1254841	rs10907179	0	+	C/G	CPSF3L
chr1	1290407	1290408	rs147996767	0	+	G/A	MXRA8
chr1	1354593	1354594	rs3766165	0	+	G/A	ANKRD65
chr1	1635021	1635022	rs1136978	0	+	G/A	CDK11A
chr1	1684471	1684472	rs7407	0	+	T/C	NADK
chr1	1896332	1896333	rs61734005	0	+	A/G	KIAA1751
chr1	2704111	2704112	rs56328393	0	+	C/T	TTC34
chr1	3301720	3301721	rs2282198	0	+	T/C	PRDM16
chr1	3394440	3394441	rs17854723	0	+	T/C	ARHGEF16
chr1	3669200	3669201	rs10797410	0	+	A/G	CCDC27
chr1	3697699	3697700	rs6694319	0	+	A/G	LRRC47
chr1	6271124	6271125	rs1052598	0	+	G/A	RNF207
chr1	6508711	6508712	rs77656032	0	+	C/T	ESPN
chr1	6529442	6529443	rs730600	0	+	G/A	PLEKHG5
chr1	9005974	9005975	rs34649225	0	+	A/G	CA6
chr1	10218438	10218439	rs2273299	0	+	C/T	UBE4B
chr1	10511543	10511544	rs628462	0	+	T/C	APITD1-CORT
chr1	10511543	10511544	rs628462	0	+	T/C	CORT
chr1	11087523	11087524	rs1782455	0	+	G/A	MASP2
chr1	11103407	11103408	rs7536030	0	+	A/G	MASP2
chr1	11132216	11132217	rs1130683	0	+	G/A	EXOSC10
chr1	11205057	11205058	rs1057079	0	+	C/T	MTOR
chr1	11301713	11301714	rs1135172	0	+	A/G	MTOR
chr1	11561936	11561937	rs12144924	0	+	C/T	PTCHD2
chr1	11579818	11579819	rs61739687	0	+	T/C	PTCHD2
chr1	11854456	11854457	rs4846051	0	+	G/A	MTHFR

History ⚙️

Unnamed history 0 bytes

1: AFR-NON-E5M2O10-unknown.bed 👁 🗑

2,077 regions
 format: interval, database: hg19
 Info: uploaded interval file

view in [GeneTrack](#)
 display at Ensembl **Current**
 display at RViewer [main](#)

1.Chrom	2.Start	3.End	4	5	6
chr1	881626	881627	rs2272757	0	+
chr1	909325	909326	rs61573829	0	+
chr1	949653	949654	rs8997	0	+
chr1	981930	981931	rs2465128	0	+
chr1	982993	982994	rs10267	0	+
chr1	1118274	1118275	rs61733845	0	+

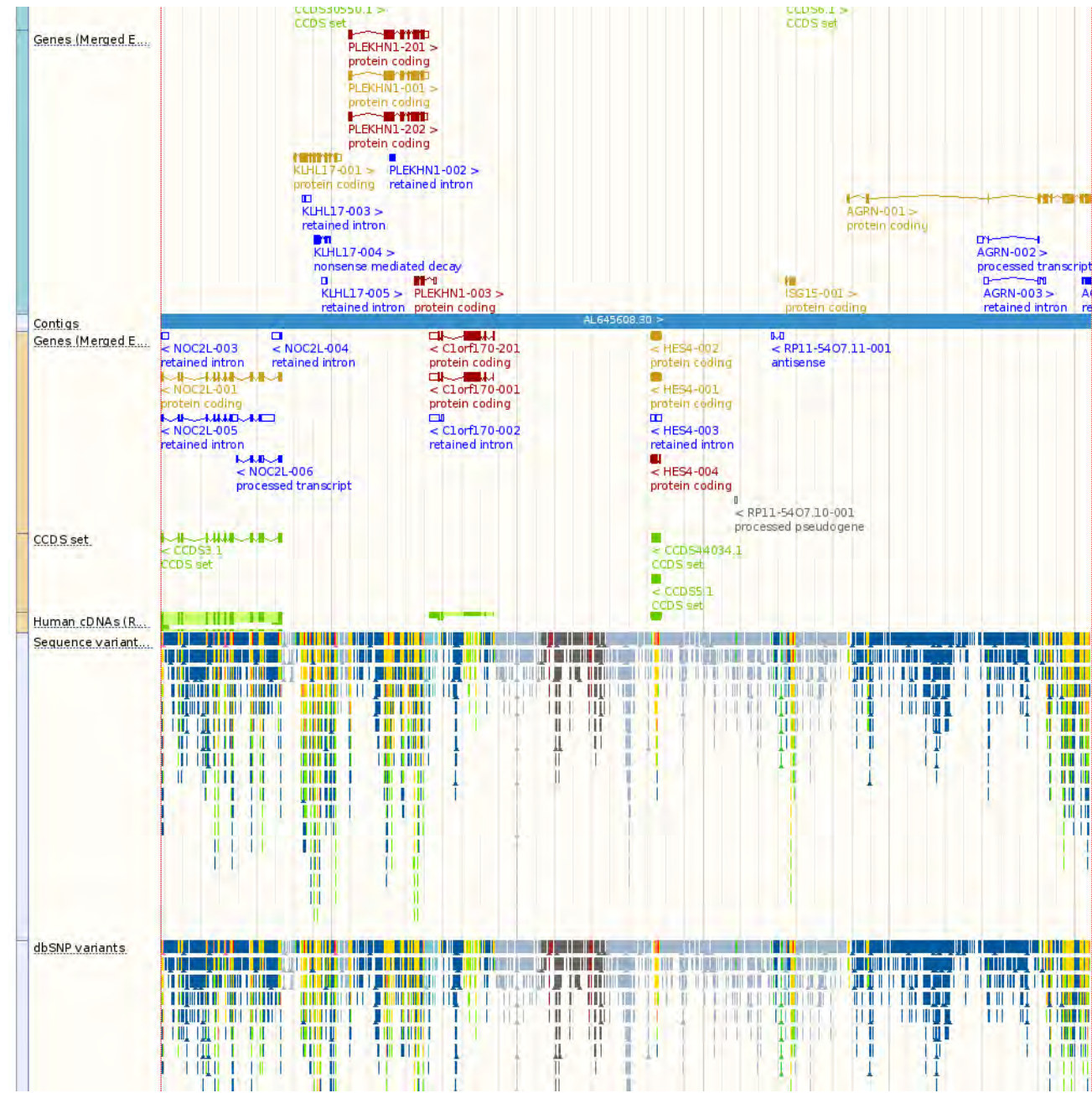


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Ensembl view



Admixture mapping tools

- Most tools were developed for 2-way admixture, although some can handle 4-way
- Some local populations are at least 5-way admixed
- Developing new tools for multi-way admixture mapping
- Developing tools for network analysis of admixed populations

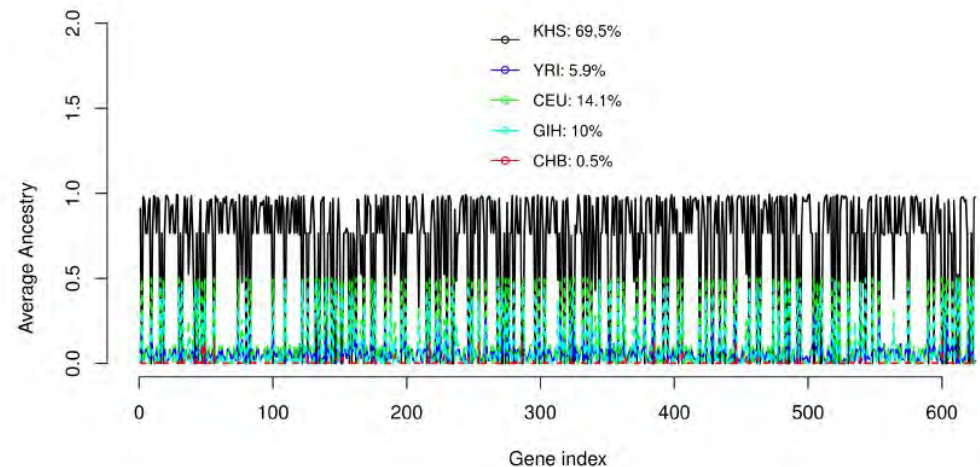
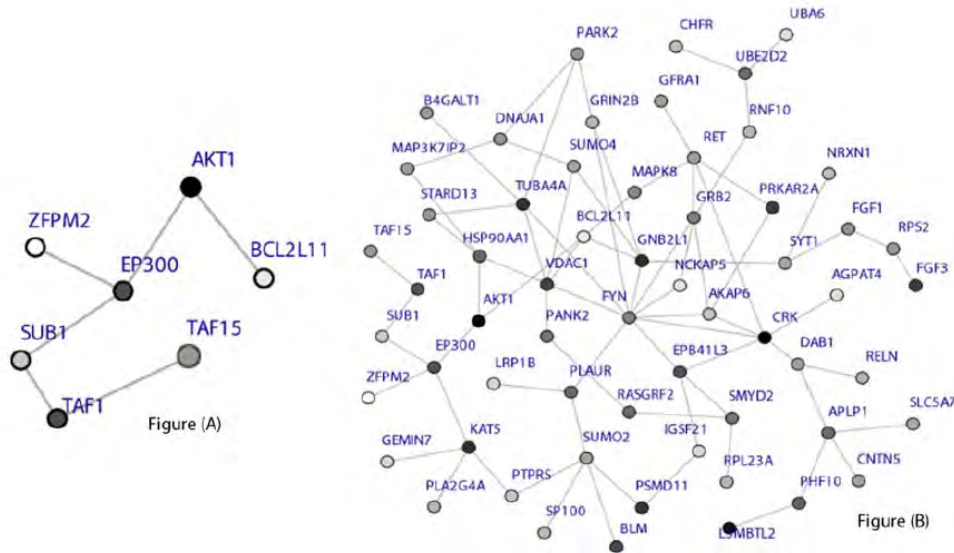


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GWAS network tools



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Pan African Bioinformatics Network for

Education and training

- Working group has met 7 times
- Researching current programs:
 - Collected Bioinformatics curriculums from different Universities in Africa –very few!
- Developing application and selection procedures for courses and internships
- Developing training courses



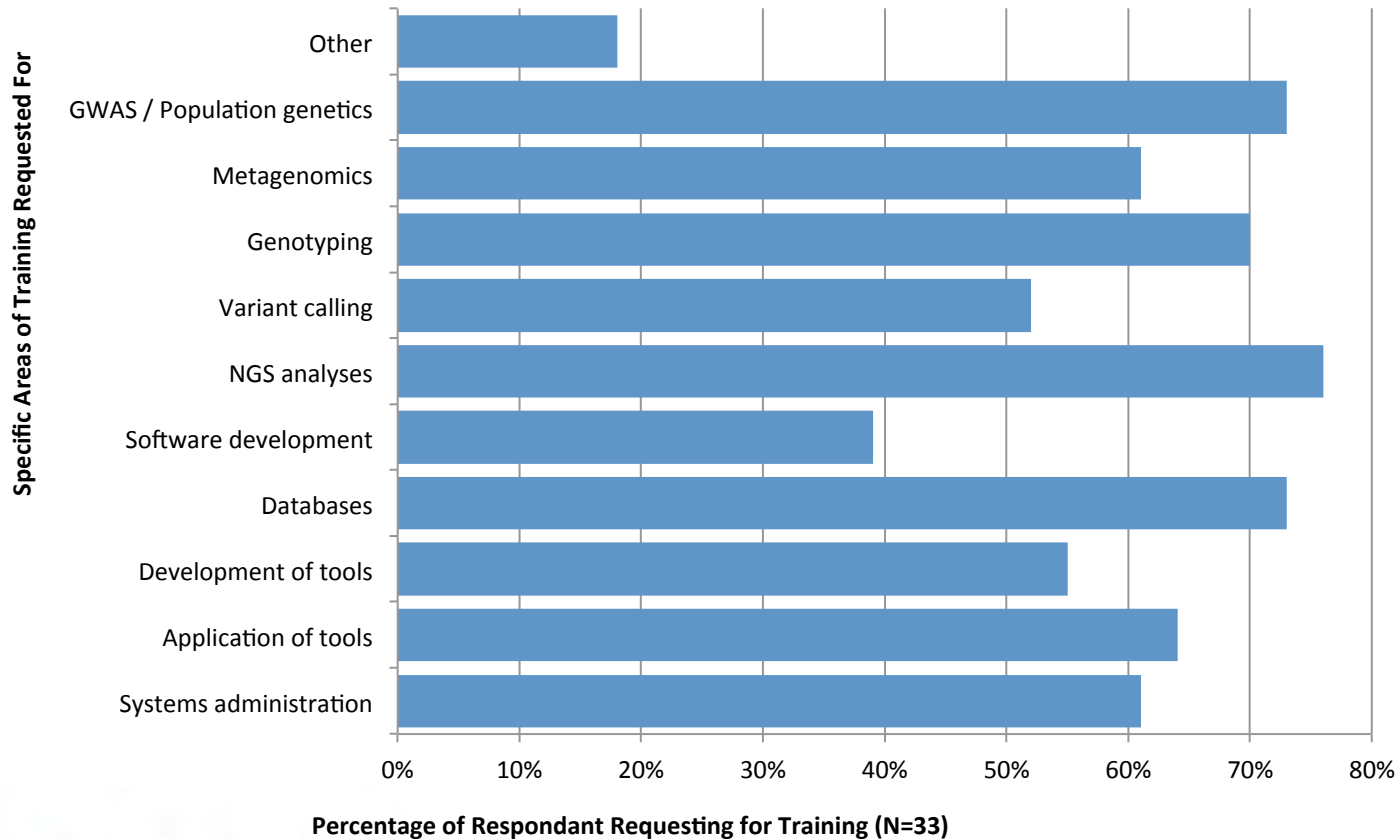
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Training –H3ABioNet

Training Requests of H3ABioNet Nodes



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H3ABioNet training plan

- Train-the trainer
- Graduate training MSc/PhD/Postdocs
 - Shared course curriculum
 - Co-supervision across nodes
 - Project approval by advisory board
 - Specialised courses
- Technical staff
 - Computing/sys admin courses
 - HPC, Cloud, data management
- Internships with external partners



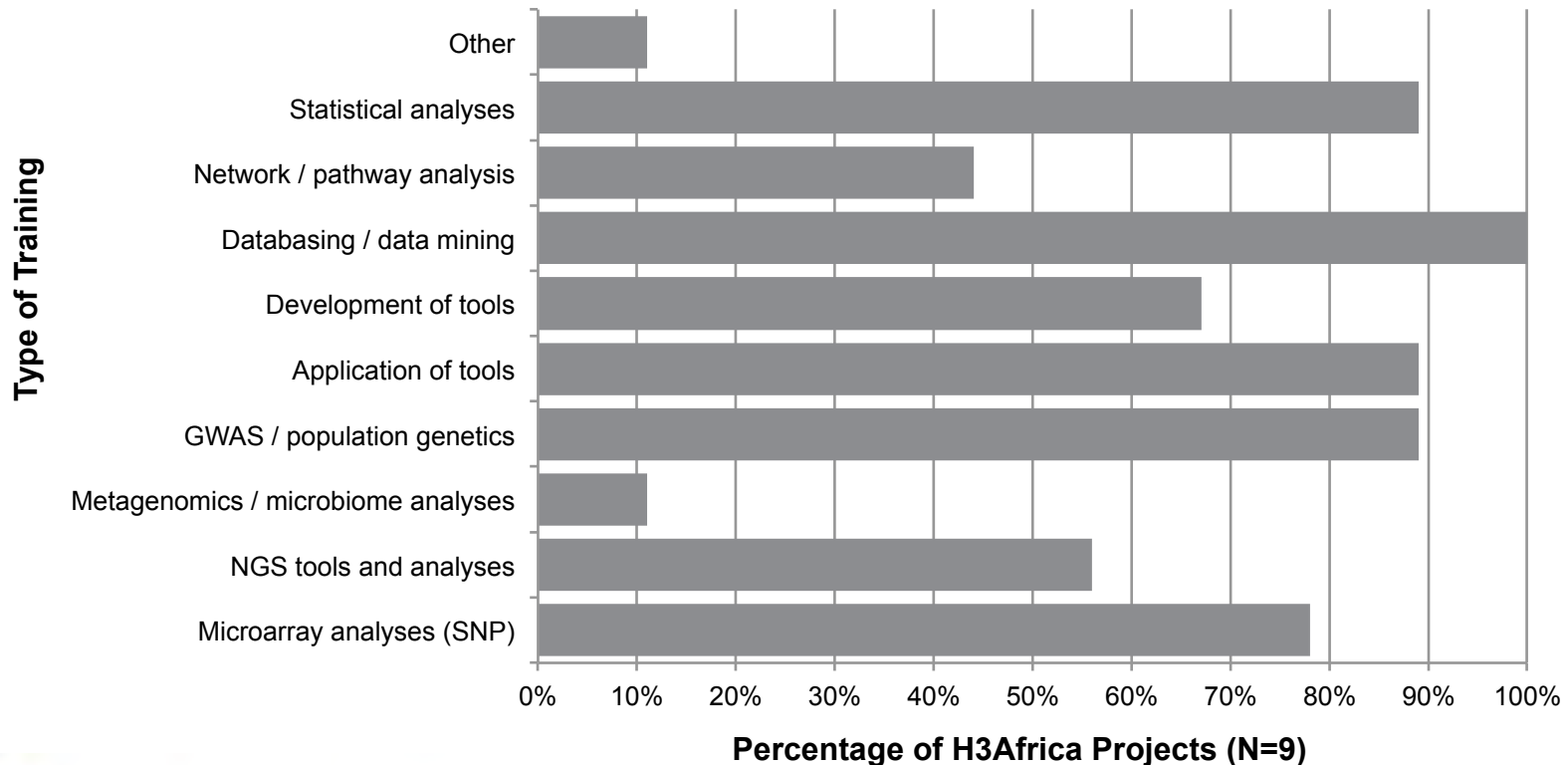
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Training –H3Africa

Types of Training Required from H3ABioNet



H3ABioNet

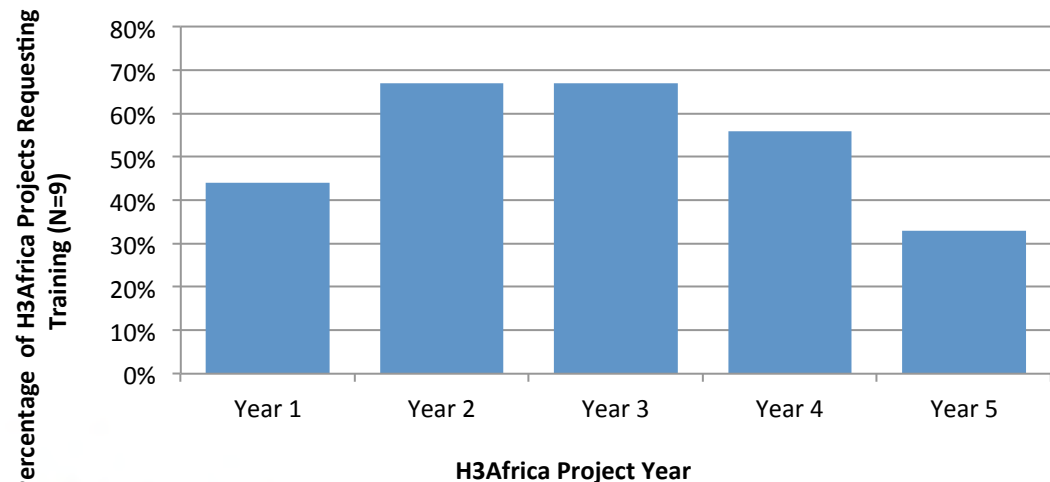
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H3Africa training

- Specialised courses (NGS, genotyping data analysis, pop genetics, databasing)
- Internships for H3-researchers to visit bioinformatics nodes

Estimated Year H3Africa Projects Require Bioinformatics Training



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First training course

- NIH grants management workshop 27th – 28th May, UCT
- Anticipated number 25 – 30
- Topics covered:
 - NIH and recipient roles and responsibilities, roles and responsibilities of the grantee and consortium sites, understanding the Notice of Award, award budgets, costs and allowable expenditures, award Delays, Progress Reports/Completing the PHS 2590, Consortium/Subcontract Policy requirements, Payment Management System training, Federal Financial Report reporting, Post Award Actions



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Second training course

- Pretoria for systems administrators, developers
3rd – 14th June
- Anticipated number 25
- Topics covered:
 - HPC, Grid Computing, Linux admin and set up of purchased servers, backups, Cloud computing, Data management and visualisation and Data Security
- Students will learn to install and manage machines they purchase



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Third training course

- Bioinformatics training of H3ABioNet trainers to be held in Central location –ICIPE, Nairobi, Kenya
- 25 participants from H3ABioNet nodes
- Criteria – must be staff, have some bioinformatics experience, involved in teaching and provide support and training for their nodes when they return
- Course from 8th to 26th July and covers:
 - Unix / Linux, biostatistics, programming, data management, NGS pipelines, GWAS and genotyping.



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Fourth training course

- eBioKit workshop ICIPE 29th July – 1st August
- Anticipated number 25
- Some will be from bioinformatics course
- Topics covered:
 - UNIX, Biological databases/ENSEMBL
NGS (Galaxy mainly), phylogenetics or
wEMBOSS



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Training courses

- Technical course will be webcast to some sites using USTREAM
- Train-the trainer course will have live Vidyo streaming to 2 sites Tunisia and Nigeria
- In total >150 people all over Africa anticipated to have access to training
- All lectures will be recorded
- This will enable us to reach a wider audience



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Knowledge transfer program -CPGR

- KTP brings together experts from around the world to Africa to train upcoming researchers on specialized projects
- Transfer of knowledge from higher concentration to lower concentration for longer period of time e.g. 3-6 months
- Faster turnaround time of effective transfer of knowledge
- The programme cuts running costs as more people are trained within their local environment
- KTP allows training within the resource deprived environment and provides a wider experience for visiting experts
- You can take part in the programme as an expert, associate or host of a project.
- Online registration will be available at www.ktp.cpgr.org.za



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Future training plan

- Work with H3Africa projects to set up suitable training plan for years 2 and 3
- Ensure courses reach wide audience
- Coordinate with other training programs –Wellcome Trust, EMBO, etc.
- Work with GOBLET on training objectives, quality etc.
- Set up internship program
- Set up co-supervision program
- Work towards degree programs at African institutions



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Communication

- Meetings
 - Kick-off meeting Nov 2012
 - Meeting in Casablanca March 2013
 - WG meetings fortnightly, MC monthly
- Web portal:
 - Members info and expertise
 - Documents
 - Tools and resources, etc.
- Mailing lists, biweekly bulletin
- Internal database –info on nodes



H3ABioNet

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Kick-off meeting



H3ABioNet website -public



The screenshot shows the H3ABioNet website homepage. The browser address bar displays 'www.h3abionet.org'. The page features a header with the H3ABioNet logo (a stylized map of Africa composed of blue and red dots) and the text 'H3ABioNet Pan African Bioinformatics Network for H3Africa'. A navigation menu includes links for Home, About, Consortium, Training & Education, User Support, Research & Tools, Links, Contacts, and Log in. A search bar is located on the right side. The main content area has a 'User Support' section with a background image of a microscope. Below this, a paragraph describes H3ABioNet as the Pan African Bioinformatics network for H3Africa (Human Heredity and Health in Africa), mentioning over 30 partner institutions. A list of four main components is provided: User support and computational infrastructure development, Training and capacity development, Research and tool development, and Outreach and communication. On the right, there is an 'Events' section titled 'Second Meeting of the H3Africa Consortium, Accra Ghana' and a 'Helpdesk' section with a link to 'iAnn'.

www.h3abionet.org

H3ABioNet
Pan African Bioinformatics Network for H3Africa

Home About Consortium Training & Education User Support Research & Tools Links Contacts Log in

User Support

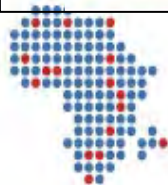
H3ABioNet is the Pan African Bioinformatics network for [H3Africa](#) (Human Heredity and Health in Africa). H3ABioNet consists of partners from over 30 institutions in many African countries and abroad. For a complete list of partners see [Consortium Members](#).

H3ABioNet has four main components

- [User support](#) and computational infrastructure development
- [Training](#) and capacity development
- Research and tool development
- Outreach and communication.

Events
[Second Meeting of the H3Africa Consortium, Accra Ghana](#)

Helpdesk
[iAnn](#)



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Pan African Bioinformatics Network for H3Africa

2nd H3Africa Consortium Meeting, Accra

H3ABioNet website -private



H3ABioNet

Pan African Bioinformatics Network for H3Africa



[Home](#) [About](#) [Consortium](#) [Training & Education](#) [User Support](#) [Research & Tools](#) [Links](#) [Contacts](#) [Members](#)

[Documentation](#) [Node status](#) [Meetings](#) [Working Groups](#) [Education and Training](#) [Calendar](#) [Forum](#) [Documentation](#)



Working Groups

- [Education and Training](#)
- [Infrastructure](#)
- [Research and Tool Development](#)
- [User Support](#)
- [Node Assessment Task Force](#)

[Node status](#)[Meetings](#)[Working Groups](#)[Education and Training](#)[Calendar](#)[Forum](#)[Log out](#)

Events calendar

May 2013						
S	M	T	W	T	F	S
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1

Consortium Members

A comprehensive, informative and interactive map of members across Africa and internationally



Funding Partners

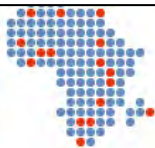


National
Human Genome
Research Institute



National Institutes
Of Health

This project is funded by NIH grant
number U41HG006941



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Pan African Bioinformatics Network for H3Africa



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[Documentation](#) [Node status](#) [Meetings](#) [Working Groups](#) [Education and Training](#) [Calendar](#) [Forum](#) [Log out](#)



[Terms of Reference](#)

Members

Name	Institute
Nash Oyekanmi	NABDA
Shaun Aron	Wits
James Brandful	NMIMR
Segun Fatumo	NABDA
Judit Kumuthini	CPGR
Ahmed Moussa	AEU
Shakuntala Baichoo	UoM
Nicky Mulder	UCT
Jonathan Kayondo	UVRI
Faisal M. Fadlelmola	FUS
Victor Osamor	CU
Jean-Baka Domelevo Entfellner	SANBI
Sylvester Leonard Lyantagaye	UDSM
Odile Ouwe Missi Oukem	CERMES
Owusu-Dabo Ellis	KCCR
Sampson Salifu Pandam	KCCR
PostDoc C / O Dean Everett	MLWCTR
Winston Hide	HSPH
Shannan Ho Sui	HSPH
Ahmed Mansour Mohamed Mansour Elzohairy	ZU
Samar Kassim	ZU
Anne Fischer	ICIPE
Sumir Panji	UCT

Minutes

- [Meeting #1 \(2013-01-29\)](#)
- [Meeting #2 \(2013-02-12\)](#)
- [Meeting #3 \(2013-02-26\)](#)
- [Meeting #4 \(2013-03-13\)](#)
- [Meeting #5 \(2013-04-09\)](#)
- [Meeting #6 \(2013-04-23\)](#)

Search

Events

[Second Meeting of the H3Africa Consortium, Accra Ghana](#)


Helpdesk

iAnn

Working group page


Consortium Meeting, Accra

Training page




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[Documentation](#) [Node status](#) [Meetings](#) [Working Groups](#) [Education and Training](#) [Calendar](#) [Forum](#) [Log out](#)



Education and Training

Upcoming courses

Grant Management Training

Date: 27-28 May, 2013
Venue: University of Cape Town
Deadline for Nomination of participants: 26 April, 2013

Technical Training Course

Date: 2-14 June, 2013
Venue: University of Pretoria
Deadline for Nomination of participants: 10 May, 2013

Train-the-Trainer Bioinformatics Course

Date: 8-26 July, 2013
Venue: ICIPE, Nairobi
Deadline for Nomination of participants: 17 May, 2013

Previous course material

Recorded lectures/seminars


Events

[Second Meeting of the H3Africa Consortium, Accra Ghana](#)

[Helpdesk](#)

[iAnn](#)

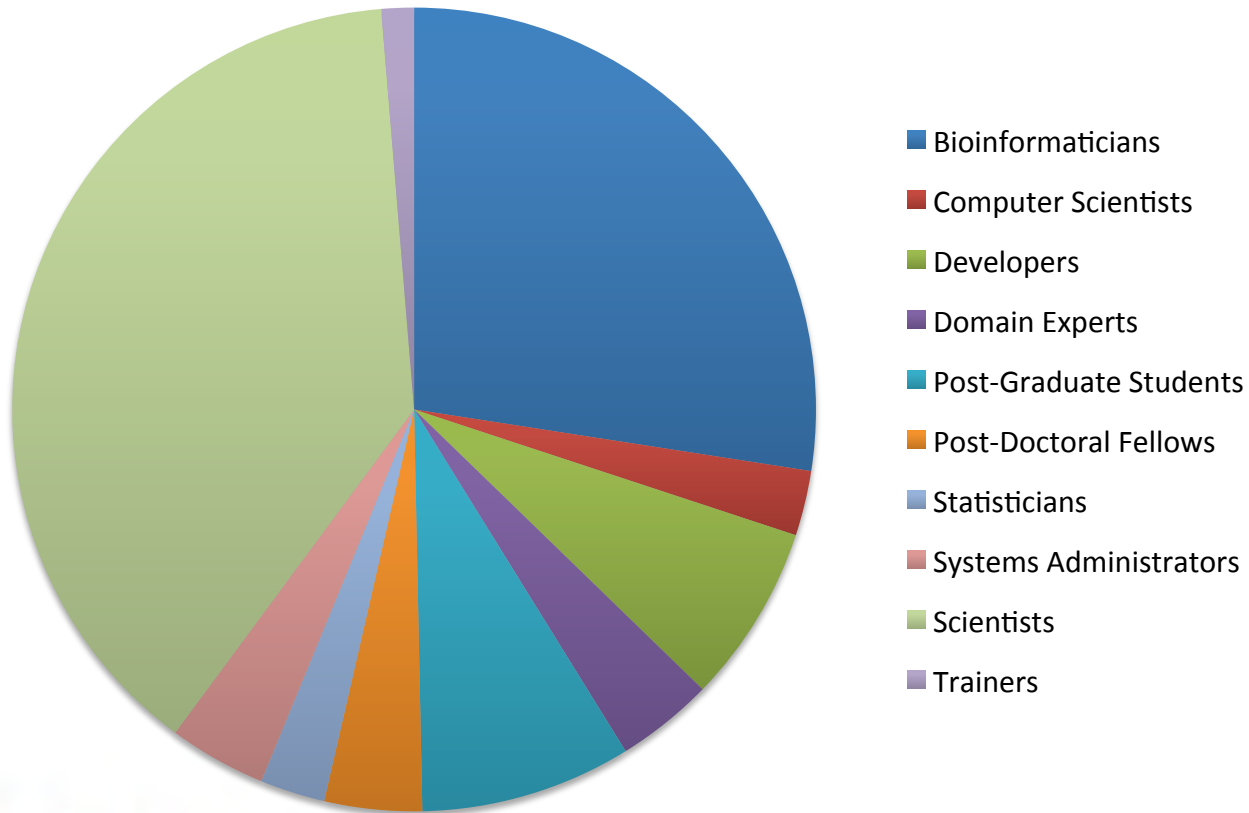
Online application system for courses



Accra

H3ABioNet funded personnel

Composition of H3ABioNet Members (N=153)



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Pan African Bioinformatics Network for H3Africa

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Internal database

NETCAPDB
NETWORK CAPACITY DATABASE

DATA COLLECTION




Logged in as H3A_UCT ([Logout](#))

[Help](#) [Change Password](#)

You are here: NODE MEMBERS :: Dashboard personnel

NEWS & UPDATES

NODE MEMBER DASHBOARD - tables and action shortcuts

Click on the heading to go straight to the corresponding table or else choose an action shortcut. (Table visible to all nodes shown by: )

NODES

NODE MEMBERS

H3AFRICA INVOLVEMENT

FUNDING, COLLABORATIONS & AFFILIATIONS

TEACHING & TRAINING


PUBLICATIONS & CONFERENCES


REPORTING PERIODS


NODE REPORTS

DETAILS:

+ ADD A NEW PERSON


 EDIT S DETAILS


 LIST PERSONNEL RECORDS


 SEARCH PERSONNEL DETAILS

QUALIFICATIONS:

+ ADD A NEW QUALIFICATION

 LIST QUALIFICATION RECORDS


 SEARCH QUALIFICATION RECORDS


 To EDIT - select records from **LIST** or **SEARCH**


STATUS:

(Employment/Educational)

+ ADD A NEW RECORD


 LIST STATUS RECORDS


 SEARCH STATUS RECORDS


 To EDIT - select records from **LIST** or **SEARCH**

RESOURCES:

+ ADD A NEW PERSONNEL RESOURCE


 LIST PERSONNEL RESOURCES


 SEARCH PERSONNEL RESOURCES


 To EDIT - select records from **LIST** or **SEARCH**

PROJECT INVOLVEMENT:

+ ADD A NEW RECORD

 LIST PROJECT INVOLVEMENT


 SEARCH PROJECT INVOLVEMENT


 To EDIT - select records from **LIST** or **SEARCH**


PROJECTS REFERENCE TABLE:

(Sub-table of PROJECT INVOLVEMENT)

+ ADD A NEW PROJECT


 LIST PROJECTS


 SEARCH PROJECTS


 To EDIT - select records from **LIST** or **SEARCH**

TRAVEL:

+ ADD A NEW JOURNEY

 LIST JOURNEYS TAKEN

 SEARCH JOURNEYS TAKEN


 To EDIT - select records from **LIST** or **SEARCH**


SKILLS:



+ ADD A NEW SKILL

 LIST SKILLS

 SEARCH SKILLS

 To EDIT - select records from **LIST** or **SEARCH**

Internal database

NETCAPDB
NETWORK CAPACITY DATABASE

DATA COLLECTION



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NEWS & UPDATES

NODE MEMBER DASHBOARD tables and action shortcuts

Click on the heading to go straight to the

NETCAPDB
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NODES

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H3AFRICA
INVOLVEMENT

FUNDING,
COLLABORATIONS
& AFFILIATIONS

TEACHING &
TRAINING

PUBLICATIONS &
CONFERENCES

REPORTING
PERIODS

NODE REPORTS

DETAILS:

+ ADD A NEW PERSON

EDIT S DETAILS

LIST PERSONNEL RECORDS

SEARCH PERSONNEL DETAIL

PROJECT INVOLVEMENT:

+ ADD A NEW RECORD

LIST PROJECT INVOLVEMENT

SEARCH PROJECT INVOLVEMENT

To EDIT - select records from or **SEARCH**

You are here: NODE MEMBER QUALIFICATIONS :: Add New Record

NEWS & UPDATES

⊕⊕ NODE MEMBER QUALIFICATIONS

Click on table heading to return to action shortcuts

ADD NEW RECORD SHOW CURRENT RECORD DELETE CURRENT RECORD SHOW ALL

Add a new qualification for someone from the **UCT** node:

Node member Other..

Qualification Other..

Awarding Institution Other..

Discipline(s) Other..

Start date (YYYY-MM-DD)

Date awarded/completed (YYYY-MM-DD)

Outreach

- Casablanca conference exhibition
- Represented at SASA meeting
- Coordination with other training programs
- Work with GOBLET –attended their TGAC workshop
- External mailing lists –interest groups
- Work more closely with H3Africa projects



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2nd H3Africa Consortium Meeting, Accra

Acknowledgements

Funding: NIH/NGHRI

Name	Institution	Country
Simani Gaseitsiwe	Botswana Harvard AIDS Institute Partnership	Botswana
Ahmed Mansour Alzohairy	Zagazig University	Egypt
James Brandful	NMIMR	Ghana
Ellis Owusu-Dabo	KNUST	Ghana
Daniel Masiga	ICIPE	Kenya
Dean Everett	Malawi-Liverpool Wellcome Trust Clinical research Programme	Malawi
Seydou Doumbia	University of Bamako	Mali
Yasmina Jaufeerally Fakim	SANBio	Mauritius
Hassan Ghazal	University Mohammed First	Morocco
Azedine Ibrahimi	Faculte de Medecine et de Pharmacie de Rabat	Morocco
Ahmed Moussa	Abdelamlek Essaadi University, Tangier	Morocco
Fouzia Radouani	Pasteur Institute Casablanca	Morocco
Fouad Seghrouchni	Institut National d'Hygiène, Rabat	Morocco
Fatima Gaboun	National Institute of Agronomic Research, Rabat	Morocco
Khalid Sadki	Mohammed V University, Rabat	Morocco
Alami Raouf	Centre National de Transfusion Sanguine, Rabat	Morocco
Odile Ouwe Missi	CERMES	Niger
Ezekiel Adebiyi	Covenant University Bioinformatics Research	Nigeria
Oyekanmi Nash	NADBA	Nigeria
Nicky Mulder	University of Cape Town	South Africa
Judit Kumuthini	CPGR	South Africa
Nicki Tiffin	SANBI, University of the Western Cape	South Africa
Ozlem Tastan Bishop	Rhodes University	South Africa
Scott Hazelhurst	Wits University	South Africa
Fourie Joubert	University of Pretoria	South Africa
Hugh Patterton	University of the Free State	South Africa
Faisal Fadlelmola	Future University	Sudan
Sylvester Lyantagaye	University of Dar es Salaam (UDSM)	Tanzania
Nzovu Ulena	MDH	Tanzania
Julie Makani	MUHAS	Tanzania
Alia Benkahla	Institute Pasteur of Tunis	Tunisia
Jonathan Kayondo	UVRI	Uganda
Victor Jongeneel	NCSA	USA
Win Hide	Harvard School of Public Health	USA



Meeting, Accra



Thanks: Sumir Panji –Project Manager



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Questions to H3Africa

- How will you get your data from the generator to your lab?
- Are there any specific journal ToCs you want access to?
- What else do you want from us?
- How best can we engage with you?



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