**3rd H3Africa Consortium Meeting JBorg, South Africa Oct 3-5, 2013** 

#### Institute of Human Virology Nigeria H3 Africa Biorepository Initiative (I-HAB): Update

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### Why use the H3Africa biorepository?

- Standardization
  - SOPs for all processes and activities.
  - Consistency among processes, which may not be achievable when performed by various clinics or without standardized measures.
  - High quality QC methods ensure sample integrity and quality.
- LIMS
  - Data security
  - Documentation of all stages of sample management & QC.
  - Sample tracking prevents sample mix-ups.
  - Sample inventories may be shared with investigators.





#### Laboratory capacity for Program, Training and Research in Nigeria



- 5 Regional training labs (one dedicated to TB)
- 20 Tertiary level labs
- 15 Secondary labs
- 30 Primary sites
- 185 Health care facilities
- 11 PCR labs (EID, VL, HAIN)
- 1 BSL-3 (TB)
- 3 Developed research

facilities & Biorepositories





#### **IHVN H3Africa Biorepository**

#### Partnering with the Institute for Human Virology, Nigeria



### **Goals of I-HAB**

To partner with internationally recognized Coriell Institute for Medical Research to:

<u>Phase I</u>: Upgrade IHVN's H3Africa Biorepository (I-HAB) to achieve International Society for Biological and Environmental Repositories (ISBER) best practices and

Phase II: to expand it's capacity to support multiple H3Africa investigators to conduct high quality genomics and translational research in Africa using well processed, preserved and quality controlled and redundantly protected human biological samples accessible to the H3Africa and larger research community



May 16-18, 2013 Accra Ghana



### Organizational structure for I-HAB Phase I



#### I-HAB Current Activities: Specimen Processing





- 70% Biological fluids Blood, saliva, breast milk processing
  - Characterize PBMCs
  - Plasma
  - Serum
  - Cell pellet
  - DNA
- 30% cancer tissues (breast, colon, head and neck, sarcoma)
  - Cytological slides
  - Extracted DNA

IHV-Nigeria

#### **Freezer Works**

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# Updates

### (Based on proposed activities in the grant and 2 site visits by Coriell Institute for Medical Research)





### **Expansion of Freezer Space**

#### **Current Blueprint**



# Trainings

- Biorepository training
  - 8 biorepository trainees
  - 1 week
- Grants Mgmt: 1 admin officer
- Freezerworks training
  - New software release
  - 2 biorepository trainees
  - Step down in November
- H3ABioNet Train the Trainer Bioinformatics
  - ICIPE), for 3 weeks, July 2013
- Clinical sites
  - Basic Lab Orientation
  - Study Specific Activities
- Coriell Training (ISBER standards)



November 2013









## **Pilot Supporting Clinical sites**

Pls: Dwomoa Adu and Lolu Ojo Obafemi: H3A kidney disease research network organization

- Past & Future Lab Asst. Training
- Lab facility provided by IHVN PEPFAR site
- MTA under revision
- TA for SOPs (whole blood (DNA, serum, saliva, urine), lab supplies, processes
- Pilot shipment by year ending









THIN HIS Africa Bio Report

J'Borg South Africa

### Shipment

Courier	Account in Africa	Cost	Provide supplies	Maintain Coldchain	Timeliness	Access H3A Sites	Assist Permit
FedEx	X	1			Х	X	X
Marken	X	3	X	X	X	X	X
World Courier		2	X	X	Х	X	X

DHL??, TNT?? Average shipping cost \$3,000 Shipping between BioR in a few months

DATE Shipped (DD/MM/YYYY)	SAMPLE TYPE	TOTAL #SAMPLES	DESTINATION	SHIPPING CONDITION			
23/08/2013	DNA	487	UMD, USA	ROOM TEMP			
19/07/2013	Plasma	550	UMD, USA	DRY ICE			
10/5/13	Plasma, DNA	371	UMD, USA	DRY ICE			
12/2/13	Plasma	319	UMD, USA	DRY ICE			
3/10/12	Plasma; DNAs	680	UMD, USA	DRY ICE			
9/8/12	Buffy coat, mid vaginal swab, cervical lavage, oral rinse, ecto cervical cells	1382	UMD, USA	DRY ICE			
18/7/2012	Plasma, VS, Meconium, stool, DBS, DPT,	200	UMD, USA				
	Plasma October 3-5,	201 <b>3</b> 8\$Borg	HNRC Lab,	DRY ICE			

#### Quality assessment: OD readings of samples prior to shipment

#	Fraction ID#	Total # of cells (x106)	# of Aliquots	# of Cells/Aliquot (x106)	Nucleic Acid Conc. (ng/μl) Nanodrop	A260	A280	260/ 280	260/ 230
85	114/2 T&B	36.8	7	4.0	61.7	1.234	0.636	1.94	1.49
86	115/2 CD14	7.6	2	3.8	7.5	0.15	0.072	2.08	1.53
87	115/2 CD16	0.5	1	0.5	1.5	0.03	0.03	1.01	-1.43
88	115/2 T&B	42	9	4.7	13.8	0.277	0.143	1.93	2.45
89	116/1 CD14	6.8	2	3.4	28.5	0.57	0.312	1.83	1.43
90	116/1 CD16	2.8	1	2.8	19.1	0.382	0.201	1.9	1.96
91	116/1 T&B	43	9	4.8	105.7	2.114	1.126	1.88	2.02
92	117/2 CD14	13	3	4.3	117.6	2.352	1.276	1.84	2.42
93	117/2 T&B	9.5	2	4.8	51.2	1.025	0.572	1.79	2.76
94	118/2 CD14	10.6	2	5.3	83.7	1.674	0.898	1.86	1.69
95	118/2 CD16	1.8	1	1.8	27.9	0.558	0.304	1.84	0.91
96	118/2 T&B	23.5	5	4.7	41.8	0.837	0.442	1.89	1.46
97	119/3 CD14	6.8	2	3.4	38.4	0.768	0.396	1.94	1.89
98	119/3 T&B	26.4	5	5.3	30.7	0.614	0.322	1.91	1.85

Absorption at 260 nm : 1  $A_{260} = 50 \ \mu g \ ds$ -DNA/ml

260 / 280 ratio: 1.6 - 2.0 (< 1.6 : residual proteins or phenol, > 2.0 : residual RNA)

230 / 260 ratio: 0.3 - 0.9 (> 0.9 : residual sugars)





### **Analytical Hb Assessment**

- Hb is converted to a uniform color
- Color intensity directly proportional to concentration
- Measured at 400nm by cuvette or plate reader
- Hb concentration determined against standard







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