Leveraging Laboratory information management systems – a case study of Baobab LIMS

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Biobanks

- Specialized laboratories which collect, process, and store biospecimens

- Organised collections of biological samples and associated data

- Types of biobanks
  - Disease-orientated
  - Population-based
  - Virtual repositories

Find sample 1568

Find the patient consent form for sample 1568
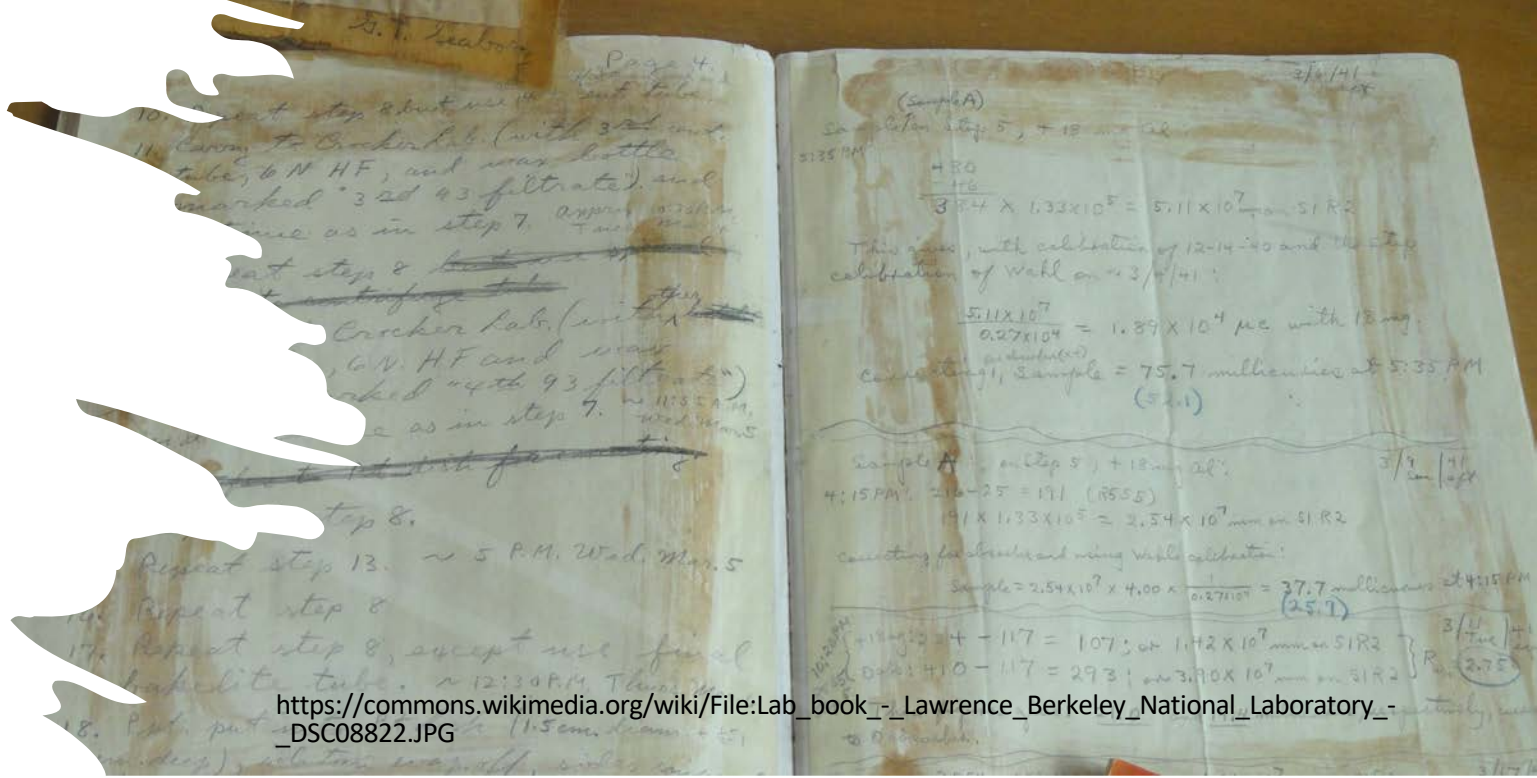
Why is your biorepository important?

- They are custodians of biospecimens
  - Collect
  - Store
  - Maintain
  - SHARE

- Maintain quality biological material for current and future research
  - R&D at private and public level

- Promote a greater understanding of biobanking science

- Resource which adds value

Biological specimens in research

- Biorepositories need to be bio-trusts
- For a biocollections to be an important resource in research
  - Samples need
    - **High quality**
    - **Easily tracked with COC**
   - **Associated metadata**

- How much time, effort and cost does it take to collect a sample

- What would happen if you did not know where your sample was?

- What would happen to a 'business' whose sustainability relied on samples
  - Labs, Pharma, Biobanks, Reference laboratories

- Biocollections are a national resource and contributor to the Bio-Economy

What does research need?

- Result reproducibility matters
  - A lack of reproducibility costs $28 Billion per annum in the US alone
  - Costs we can not calculate
- Quality management matters
- Junk in = Junk out
  - Critical throughout the operational processes

Main components of a biorepository

- Management of biological samples and associated metadata
- Standards and best practices
  - ISBER
  - ISO 20387: 2018
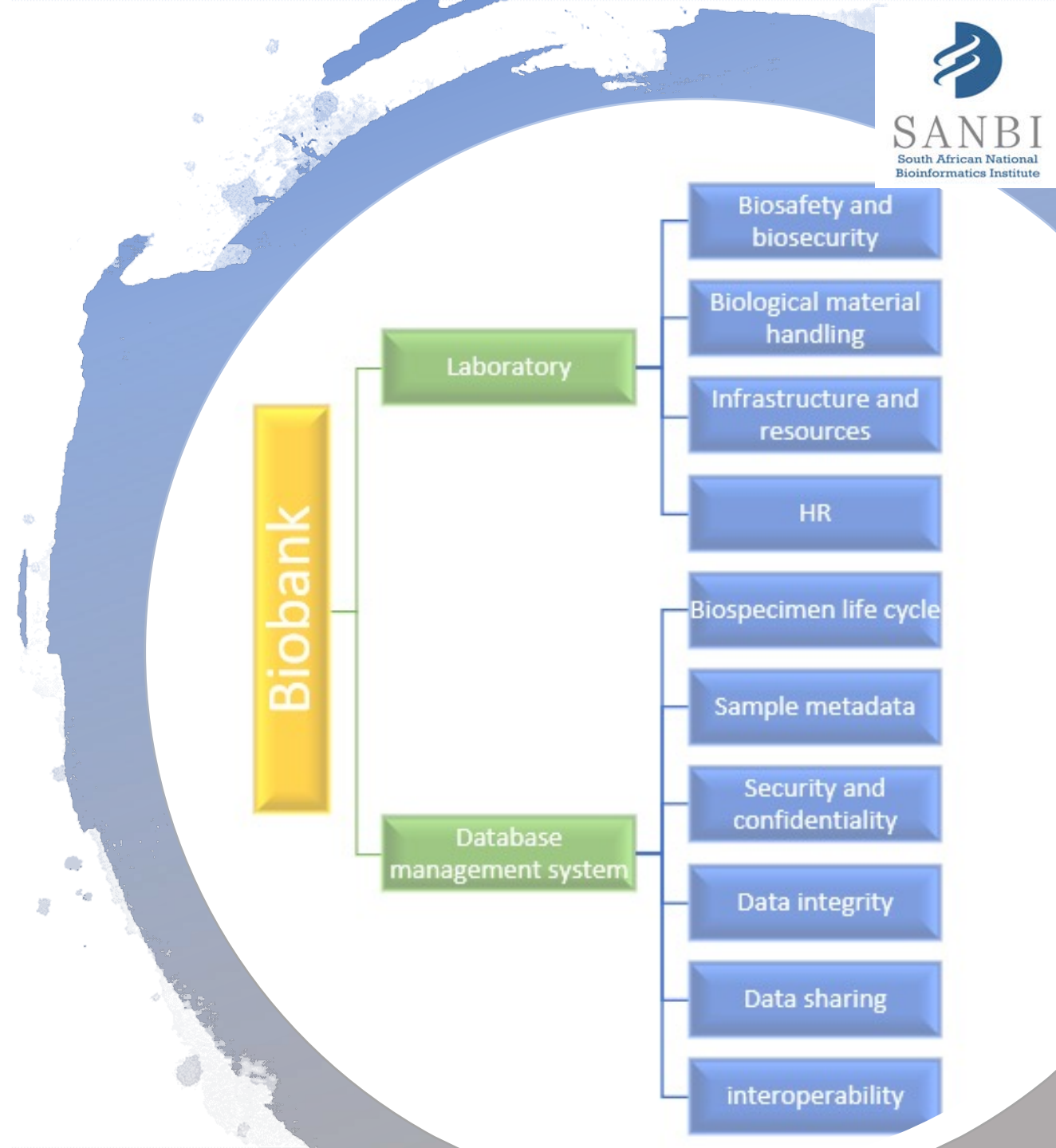
Find sample 1568 and the consent form
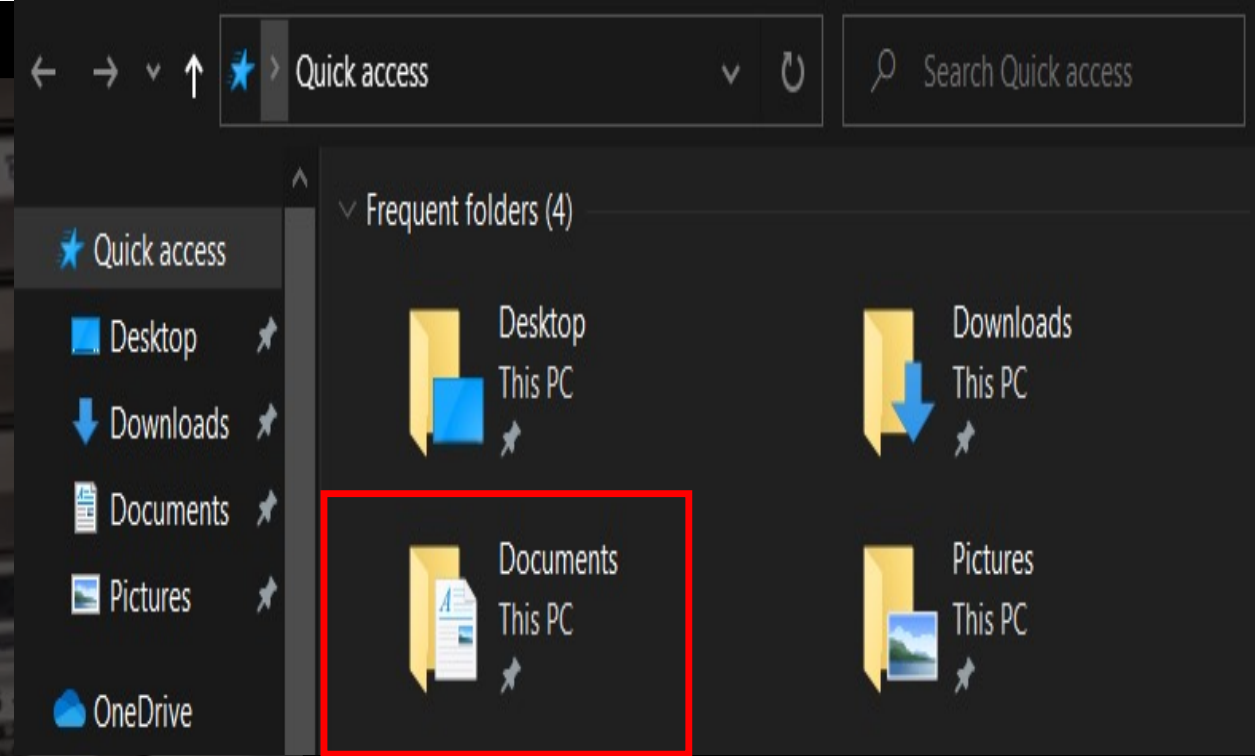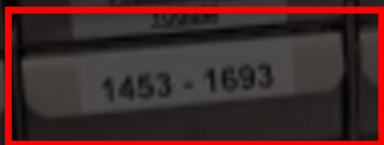
IT for bio-resource management

- LIMS is also a critical part of the biorepositories
  - A protected database to track biospecimens and laboratory data
- Software system
  - Supports data collection, analysis and management
  - Providing strong security and protection of privacy
- LIMS are an integral part of the quality management operations
- Information system evaluation checklist
  - https://www.isber.org/page/BPR

Considerations for the IT resource to create benefit

- Fit-for-purpose
  - Long-term sustainability [future-proof]
  - Continued implementation and use
  - Can it be customized for need
- The true cost of ownership
  - Infrastructure, personnel, maintenance
- Commercial vs open source

Baobab LIMS for Biospecimen lifecycle and lab management

- Baobab LIMS is an open-source system

- Developed using SOPs of a functional biobank

- Designed for adequate and consistent metadata capture

- Tracking a biospecimens' lifecycle

- Several enhancements and developments to support Laboratory operations

Basic functionality for laboratories

Three phases; installation, set-up, operations

Installation

- Stand-alone server or cloud
- Database replication functionality
- Access via a web browser interface

Set-up

- Lab specific configuration ability
- Future expansion in lab functionality

Operations

- Day-to-day operations

Biospecimen Management Features	
System provides ability to generate/assign a unique accession to each sample.	B

Barcode

1001DNA

1002DNA

1003DNA

1004DNA

15419494

1544411

194981

B1001

B1002

B1003

B1004

BP-0004

BP-0005

BP-0006

BP-0007

BP-0008

BP-0009

BP-0010

BP-0011

- ALL BARCODES MUST BE UNIQUE OR A SYSTEM ERROR OCCURS

- Barcodes can be scanned

- If a barcode is not provided, Baobab LIMS will assign one

System provides ability to assign sample component with physical location | B

Add/Edit Biospecimen

View | Edit | Analyses | Log | Aliquots

Parent Biospecimen
Create an Aliquot of the biospecimen selected.

■ Project
Select the project of the sample.

Kit
Select the kit of the sample if exists.

■ Sample Type

Storage Location
Location where item is kept

Title

Room-2.Freezer-1.Box-01.13
Room-2.Freezer-1.Box-01.14
Room-2.Freezer-1.Box-01.15
Room-2.Freezer-1.Box-01.16
Room-2.Freezer-1.Box-01.17
Room-2.Freezer-1.Box-01.18
Room-2.Freezer-1.Box-01.19
Room-2.Freezer-1.Box-01.20
Room-2.Freezer-1.Box-01.21
Room-2.Freezer-1.Box-01.22

Page 1 of 104 | 10 | View 1 - 10 of 1040

System provides ability to associate the sample and component to the participant.

B

Sample Donor

Select the sample donor.

[🔎] ➡️ Drop down from sample donor ontology

Subject ID

Human-subject ID the specimen is taken from.

[   ] ➡️ Coded ID – not required to be unique

System provides ability to annotate sample with sample attributes, like method of specimen preparation and environmental conditions under which specimen is stored: (e.g. type of sample, volume, container size, description, date drawn, source of sample, person storing, temperature.)

B

Add/Edit Biospecimen

View | Edit | Analyses | Log | Aliquots

Parent Biospecimen
Create an Aliquot of the biospecimen selected.

■ Project
Select the project of the sample.

Kit
Select the kit of the sample if exists.

■ Sample Type

Storage Location
Location where item is kept

Sampling Date
Define when the sampler has to take the samples

Sample Condition

Disease Ontology
Select disease ontology of the sample.

Allow Sharing
☐ Check to allow researchers to share sample freely.

Will Return From Shipment
☐ Indicates if sample will return if shipped.

Sample Donor
Select the sample donor.

Subject ID
Human-subject ID the specimen is taken from.

Barcode
Biospecimen barcode.

■ Volume
The volume of the biospecimen taken from the subject.

0.00

Unit

ml

Anatomical site term
The ICD-O-3 topography code for describing the anatomical source of the sampled material

Anatomical site description
The anatomical position of the body where the solid sample was taken from

System provides ability to a user with special permissions to define hierarchical storage configurations.

B

baobabLIMS Home   GT ON OFF   Search Site   Search Admin

Quick access   Laboratory   Workflow   Samples   Management   Instruments   Accounting   Other   Tools

(i) 6 Instruments' calibration certificates expired:

Mass Spectrometer, Automated cell counter, NanoDrop spectrophotometer, Freezer -20°C, Freezer -80°C, Cell Counter

You are here: Home

Storage

⊕ Create new storages

All   Storage Units   Managed Storages   Unmanaged Storages   Occupied   Occupied Boxes

	Title	Type	Temperature	Department
☐	Room 1	Storage unit		
☐	Room 2	Storage unit		
☐	Room 3	Storage unit		

System provides ability to optimize storage of samples within a physical storage configuration by distributing samples in open spaces or gaps created from sample retirement or checkout, (without retiring and reregistering)

∧∧ Occupancy

Total Positions	24
Available	12
Reserved	0
Occupied	12

Room-2.Freezer-1.Box-01.1

Sample ID	U1001
Sample Name	U1001
Volume (ml)	15.00
Subject ID	s1
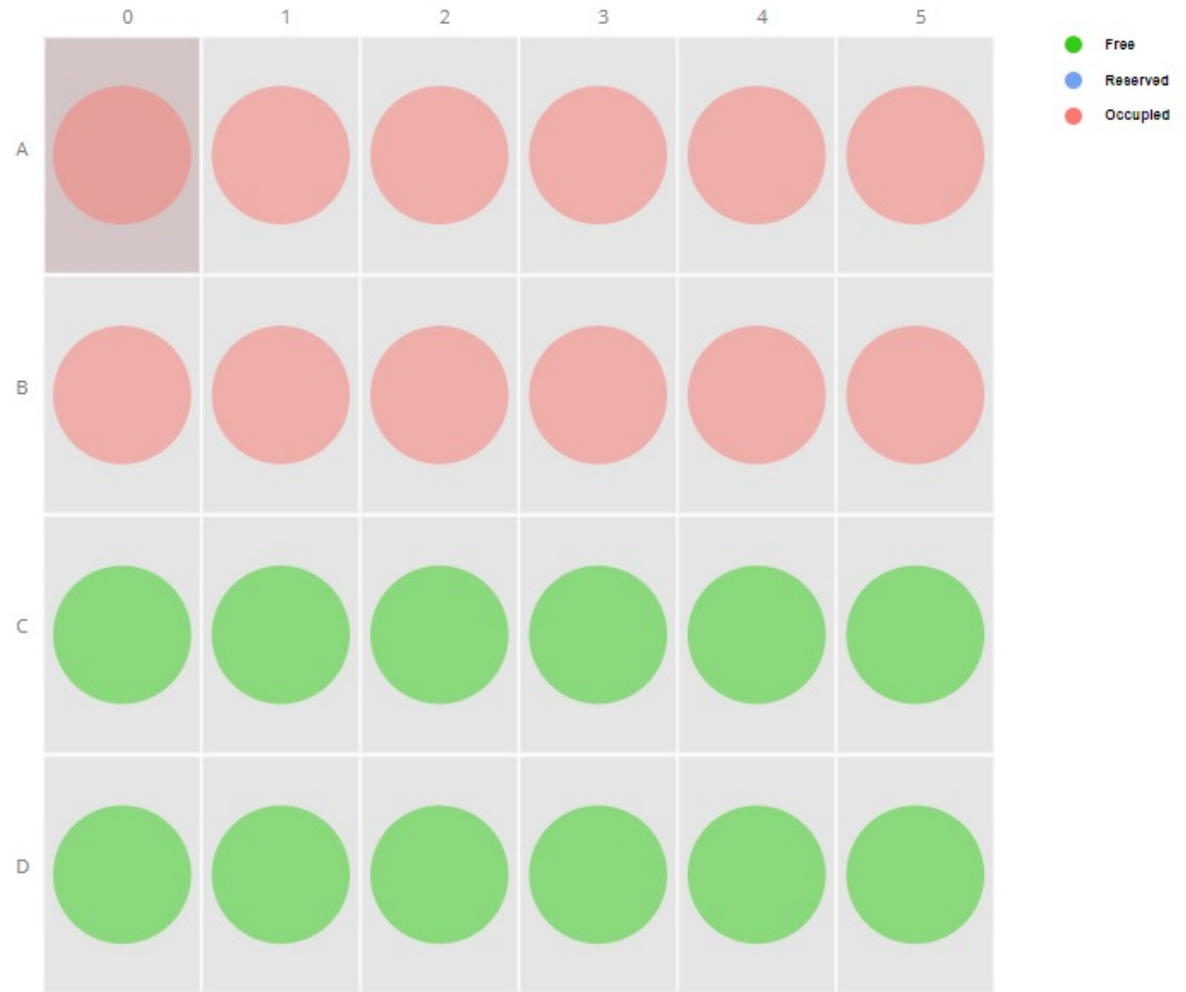
System provides ability to track specimens with barcoded IDs printed on labels	B
Provides ability to query/search inventory of specimen and specimen components.	B

Track with a live search

Print barcodes from the system

View   Edit   Analyses   Log   Aliquots

DNA-0001

Title	DNA-0001
Parent Biospecimen	1001DNA
Project	AfriGen
Kit	
Sample Donor	
Disease Ontology	
Storage Location	Room-2.Freezer-1.Box-01.13
Sampling Date	
Allow Sharing	
Subject ID	
Barcode	
Volume	

You are here: Home › Clients › Brooklyn Chest Hospital › AfriGen › 1001DNA

View   Edit   Analyses   Log   Aliquots

Aliquots   Add Human Sample   Add Virus Sample

Active   Sample Registered   Sample Due   Sample Shipped   Received   Cancelled   All

	Title	Project	Kit	Type	Subject ID	Barcode	Volume	Unit
	DNA-0001	AfriGen		DNA		DNA-0001	10.00	ml

Remarks

You are here: Home › Clients › Brooklyn Chest Hospital › AfriGen › [···]

Add Shipment

| Default | Correspondence | Shipping information | Dates |

■ Title

⊗ Title is required, please correct.

[   ]

Description
Used in item listings and search results.

[   ]

■ From Contact
Laboratory contact sending this shipment.

[🔍]

■ To Contact
Client contact receiving this shipment.

[Andre Corbin ⌄]

■ Kits
Start typing to filter the list of available kits to ship.

[▲
                                     ▼]

You are here: Home › Sample Shipments › [···]

Add Sample Shipment

| Default | Delivery info | Dates | Correspondence | Shipping information |

■ Title

⊗ Title is required, please correct.

[   ]

Description
Used in item listings and search results.

[   ]

samples
Select samples to ship

[🔍]

Sender Email Address

[   ]

Receiver Email Address

[   ]

Controlled Vocabulary and Data Integrity Features	
System provides ability to maintain controlled vocabularies (ontologies) to enforce data standardization and control.	B

Add Sample Donor

Sample Donor ID
The unique ID code assigned to the sample donor.

[   ]

Select Project
Select the project of the sample donor.

[🔍]

Information Link
The link to information for this sample donor.

[   ]

Sex   [Male   ▼]
Select the sex of the sample donor

Age
The age of the sample donor.

[0.00   ]

Age Unit   [Years   ▼]
Whether the age is in years, months, weeks, days etc

[Save]   [Cancel]

Add Disease Ontology

Disease Ontology
Name of ontology used fro disease. Can be several values e.g. ICD, SNOMED

[   ]

Description
Description from the selected Disease Ontology Code e.g. Malignant neoplasm of prostate

[   ]

Version
Version of selected ontology for disease e.g. ICD-9, ICD-10, SNOMED-CT

[   ]

Code
Disease code from the selected Disease Ontology Version e.g. C61

[   ]

Remarks
Explanation about disease or symptom in case of unknown disease or insufficient information

[   ]

🩸 Add Virus Sample

Default	Repository accession numbers	Sample collection and processing	Host information	Host exposure information	Sequencing

■ **Specimen Collector Sample ID**
The user-defined name for the sample

■ **Sample Collected By**
The name of the agency that collected the original sample

■ **Sample Collection Date**
The date on which the sample was collection.

■ **Sample Received Date**
The date on which the sample was received.

Country Geo Location
The country of origin of sample

State/Province Geo Location
State/province/region of origin of the sample

■ **Organism**
Taxonomic name of the organism

Ebola Virus

■ **Isolate**
Identifier of the specific isolate

Security, Privacy and Auditing Features	
System is capable of maintaining user profiles and credentialing users for different levels of access and functionality.	B

Login details

Edit | Login details | **Login details**

No user exists for stanley bekker and he/she will not be able to log in. Fill in the form below to create one for him/her.

Link an existing User

[_____] Suche

Full Name   Email   User Name

[Link User]

Create a new User

User Name   *

Enter a user name, usually something like 'jsmith'. No spaces or special characters. Usernames and passwords are case sensitive, make sure the caps lock key is not enabled. This is the name used to log in.

[_____]

Password   *

Minimum 5 characters.

[_____]

Confirm password   *

Re-enter the password. Make sure the passwords are identical.

[_____]

Email   *

Enter an email address. This is necessary in case the password is lost. We respect your privacy, and will not give the address away to any third parties or expose it anywhere.

[_____]

Add to the following groups: *

LabManagers
LabClerks
Analysts
Verifiers
Samplers
Preservers
Publishers
Reviewers
EMSystems

Save

Users | Groups | Settings | Member Registration

Groups Overview

Groups are logical collections of users, such as departments and business units. Groups are not directly related to permissions on a global level, you normally use Roles for that - and let certain Groups have a particular role. The symbol ⊗ indicates a role inherited from membership in another group.

Add New Group

Group Search [_____]   Search   Show all

Group Name	Roles																		Remove Group
	Analyst	Client	Contributor	EMS	Editor	LabClerk	LabManager	Member	Preserver	Publisher	Reader	RegulatoryInspector	Reviewer	Sampler	SamplingCoordinator	Site Administrator	Verifier	Manager	
(Suppliers)	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Administrators	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐
Authenticated Users (Virtual Group) (AuthenticatedUsers)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Clients	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
EMSystems	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Lab Clerks (LabClerks)	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Lab Managers (LabManagers)	☐	☐	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐
Lab Technicians (Analysts)	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Publishers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
Reviewers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐
Site Administrators	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐
Verifiers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐

Apply Changes

You are here: Home › Audit Log

Audit Log

Title	Audit Date	Audit User	Item Type	Item Title	Item UID	Change	Old Value	New Value
2021/03/02 08:36:6.935128 UTC_admin	2021/03/02 08:36:6.935303 UTC	admin	Project	AfriGen	0ab377b87249484fbce38b76d0a69528	AgeLow		0
2021/03/02 08:36:6.865499 UTC_admin	2021/03/02 08:36:6.865709 UTC	admin	Project	AfriGen	0ab377b87249484fbce38b76d0a69528	AgeHigh		0
2021/02/18 07:20:17.753419 UTC_admin	2021/02/18 07:20:17.753605 UTC	admin	Sample	1004DNA	4e5fe9a8072a4c6aac758153829da810	DateCreated		2021/02/18 07:20:17.722576 UTC
2021/02/18 07:20:17.687933 UTC_admin	2021/02/18 07:20:17.688118 UTC	admin	Sample	1004DNA	4e5fe9a8072a4c6aac758153829da810	StorageLocation	Room-2.Freezer-1.Box-01.01	Room-3.Freezer-1.Box-01.04
2021/02/18 07:19:52.160299 UTC_admin	2021/02/18 07:19:52.160504 UTC	admin	Sample	1003DNA	76bf07acb99c4b6c905bf2d1b7fc714d	DateCreated		2021/02/18 07:19:52.124748 UTC
2021/02/18 07:19:52.089144 UTC_admin	2021/02/18 07:19:52.089339 UTC	admin	Sample	1003DNA	76bf07acb99c4b6c905bf2d1b7fc714d	StorageLocation	Room-2.Freezer-1.Box-01.01	Room-3.Freezer-1.Box-01.03
2021/02/18 07:19:1.156407 UTC_admin	2021/02/18 07:19:1.156626 UTC	admin	Sample	1002DNA	8635182c499f4b86a258df99d50517d3	DateCreated		2021/02/18 07:19:1.123757 UTC
2021/02/18 07:19:1.067204 UTC_admin	2021/02/18 07:19:1.067394 UTC	admin	Sample	1002DNA	8635182c499f4b86a258df99d50517d3	StorageLocation	Room-2.Freezer-1.Box-01.01	Room-3.Freezer-1.Box-01.02
2021/02/18 07:18:31.276625 UTC_admin	2021/02/18 07:18:31.276812 UTC	admin	Sample	1001DNA	1c89d382507b43f58c27b8de1b64e050	DateCreated		2021/02/18 07:18:31.244225 UTC
2021/02/18 07:18:31.207078 UTC_admin	2021/02/18 07:18:31.207255 UTC	admin	Sample	1001DNA	1c89d382507b43f58c27b8de1b64e050	StorageLocation	Room-2.Freezer-1.Box-01.01	Room-3.Freezer-1.Box-01.01

Challenges addressed in Baobab LIMS

- Biorepository heterogeneity
  - Configurability and operations
- Through-put
  - Batching and importing
- Standardization
  - Metadata awareness
- Infrastructure challenges
  - Excel import capability
- Interoperability
  - JSON application programing interface
  - ID linkage

Configurability

Sample Types [Add]

Active   Dormant   All

|	Sample Type	Description	Hazardous	Retention Period	SampleMatrix	Default Container	Sample Points	Prefix	Minimum Volume
☐	Bacterial Isolate			hours: 0 minutes: 0 days: 30				BI	100 ul
☐	Blood Plasma	The liquid portion of normal unclotted blood containing the red and white cells and platelets. The straw-colored/pale-yellow liquid component of blood that normally holds the blood cells in whole blood in suspension.		hours: 0 minutes: 0 days: 10				BP	1 ml
☐	Bone marrow aspirate			hours: 0 minutes: 0 days: 30				BMA	100 ul
☐	Cell culture		True	hours: 0 minutes: 0 days: 30				CC	1
☐	Cerebrospinal fluid		True	hours: 0 minutes: 0 days: 42				CSF	230 ul
☐	DNA			hours: 0 minutes: 0 days: 100				DNA	20 ul
☐	FFPE			hours: 0 minutes: 0 days: 150				FFPE	1
☐	RNA			hours: 0 minutes: 0 days: 100				RNA	20 ul
☐	Serum	The clear liquid that can be separated from clotted blood. Serum differs from plasma, the liquid portion of normal unclotted blood containing the red and white cells and platelets. It is the clot that makes the difference between serum and plasma.		hours: 0 minutes: 0 days: 10				SE	1 ml

Instruments [Add]

Active   Dormant   All

	Instrument	Type	Brand	Model	Expiry Date
☐	Cell Counter	Automated cell counter		2000B	No date set
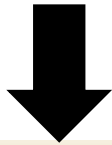
(i) **1 Instrument's calibration certificate expired:**

Cell Counter
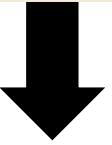
[Edit] [QC Results] [Calibrations] [**Calibration Certificates**] [Validations] [Documents]

Cell Counter

Calibration Certificates   [Add]

Cert. Num	Agency	Date	Valid from	Valid to
SANCal 11/5783	SANCal	2017-01-01	2017-01-01	2018-12-31

🏢 Suppliers [Add]

Active   Dormant   All

	Name	Email
☐	Biomerieux	supplier@example.com
☐	Bio	supplier@example.com

[Edit] [Products] [Contacts] [Instruments] [Orders]

🧪 Products

Active   Dormant   All

	Title	CAS	Quantity	VATAmount	Total Price
☐	Gloves ⚠️		0	1.40	11.40
☐	Tube 15ml		0	2.80	22.80

MIABIS – Minimum Information About BIobank data Sharing

PHA4GE – SARS-COV-2 Metadata standard

Analysis Services

Add

Active   Dormant   All

	Service	Category	Keyword	Instrument	Unit	Price
⌄ Genome						
☐	DNA concentration	Genome	dnac		ug/ul	10.00
☐	RNA concentration	Genome	RNAc		ug/ul	20.00
⌄ Lateral flow assays						
☐	HIV testing	Lateral flow assays	HIV			15.00
☐	Pregnancy testing	Lateral flow assays	PREG			45.00
⌄ Proteome						
☐	Mass Spectrometry	Proteome	Maldi-tof		mg/l	10.00

Sample management operations

Quick access   Laboratory   Workflow   Samples   Virus   Management   Instruments   Accounting   Other   Tools

View   Edit   Kits   Shipments   Biospecimens   Analysis Requests

project-2

📁 Info Project:

Title	AfriGen
Description	Genomics for Ancestry
Ethics Form Link	
Client	Brooklyn Chest Hospital
Study Type	Cohort
Number of Participants	200
Age low - Age high	0 - 0

🩸 Biospecimen Types:

Name	Description
DNA	
RNA	

🧪 Laboratory Analyses:

Service	Price
⌄ Genome	
DNA concentration	10.00

View | Edit | Kits | Shipments | **Biospecimens** | Analysis Requests

🩸 Biospecimens

[Add Human Sample] [Add Virus Sample]

Active | Sample Registered | Sample Due | Sample Shipped | Received | Cancelled | All

	Title	Kit	Type	Subject ID	Barcode
☐	1001DNA		DNA	s1	1001DNA
☐	1002DNA		DNA	s2	1002DNA
☐	1003DNA		DNA	s3	1003DNA
☐	1004DNA		DNA	s4	1004DNA
☐	15419494		DNA	test	15419494
☐	1544411		RNA	test	1544411
☐	194981		DNA	test1	194981
☐	BP-0004		[⌄]		BP-0004

View Edit **Biospecimens**

Batch2

Title:

Batch2

BatchId:

Project:

AfriGen

Parent Biospecimen:

Human or Virus:

Human Sample

Number of Biospecimens:

4

Storage Location:

Box 02

Date Created:

2021-03-09
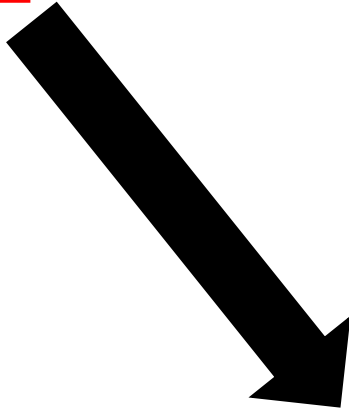
View Edit Biospecimens

🩸 **Biospecimens**   [Add Human Sample]   [Add Virus Sample]

Active Sample Registered Sample Due Sample Shipped Received Cancelled All

	Title	Kit	Type	Subject ID	Barcode
☐	BP-0022		⌄		BP-0022
☐	BP-0023		⌄		BP-0023
☐	BP-0024		⌄		BP-0024
☐	BP-0025		⌄		BP-0025

Import

Select a data interface

| Instrument Import | Load Setup Data |

Submit a valid Open XML (.XLSX) file containing Bika setup records to continue.

Load from file

Choose File | No file chosen | Submit

Tip. Attached documents will not be loaded unless they are present in the instance.

BaobabLIMS_importer_Dummydata

	A	B	C	G	H	I	J	M	N
1	title	description	Project	Subject	Barcod	Volume	Unit	LocationTitle	SampleType
2	Biospecimens								
3	title	description	Project	Subject	Barcod	Volume	Unit	LocationTitle	Sample Type
4	B1001		LFA	s1	B1001	7.5	ml	Room-2.Freezer-1.Box-C	Whole blood
5	B1002		LFA	s2	B1002	7.5	ml	Room-2.Freezer-1.Box-C	Whole blood
6	B1003		LFA	s3	B1003	7.5	ml	Room-2.Freezer-1.Box-C	Whole blood
7	B1004		LFA	s4	B1004	7.5	ml	Room-2.Freezer-1.Box-C	Whole blood
8	U1001		LFA	s1	U1001	15	ml	Room-3.Freezer-1.Box-C	Urine
9	U1002		LFA	s2	U1002	15	ml	Room-3.Freezer-1.Box-C	Urine
10	U1003		LFA	s3	U1003	15	ml	Room-3.Freezer-1.Box-C	Urine
11	U1004		LFA	s4	U1004	15	ml	Room-3.Freezer-1.Box-C	Urine
12	1001DNA		AfriGen	s1	1001DN	150	ul	Room-3.Freezer-1.Box-C	DNA
13	1002DNA		AfriGen	s2	1002DN	180	ul	Room-3.Freezer-1.Box-C	DNA
14	1003DNA		AfriGen	s3	1003DN	150	ul	Room-3.Freezer-1.Box-C	DNA
15	1004DNA		AfriGen	s4	1004DN	180	ul	Room-3.Freezer-1.Box-C	DNA
16									

SARS-CoV2- enhancements

🩸 Add Virus Sample

Default	Repository accession numbers	**Sample collection and processing**	Host information	Host exposure information	Sequencing

■ **Specimen Collector Sample ID**
The user-defined name for the sample

[   ]

■ **Sample Collected By**
The name of the agency that collected the original sample

[   ]

■ **Sample Collection Date**
The date on which the sample was collection.

[   ]

■ **Sample Received Date**
The date on which the sample was received.

[   ]

Country Geo Location   [▼]
The country of origin of sample

State/Province Geo Location   [▼]
State/province/region of origin of the sample

■ **Organism**
Taxonomic name of the organism

[Ebola Virus   ▼]

■ **Isolate**
Identifier of the specific isolate

Library ID
The user-specified identifier for the library prepared for sequencing

[   ]

Instrument Type
Select the type of instrument

[▼]

Instrument
Select the preferred instrument

[▼]

Sequencing Protocol Name
The name and version number of the sequencing protocol used

[   ]

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	barcode	Project		Sample Type	Storage L	Volume	Unit	Anatomic:	Allow Sha	Will Retur	Bio Samp	Specimen	Sample C	Sample C	Sample R	Geo Loc (	Geo Loc !	Organism	Isolate		Purpose (
2	Virus Sample																				
3	title	Project		SampleType	StorageLi	Volume	Unit	Anatomic:	AllowShar	WillReturi	BioSampli	Specimen	SampleCc	SampleCc	SampleRe	GeoLocCi	GeoLocSi	Organism	Isolate		PurposeC
4	E4001	Green Goblin Project		Whole Blood	Room-2.Fr	12	ml	Arm			A1001	C1001	James Ca	########	########	Australia	Canberra	Rocket	Tresae		Research
5	E4002	Green Goblin Project		Whole Blood	Room-2.Fr	23	g	Arm			A1002	C1002	Spies Jan	########	########	South Afri	Western C	Rocket	Wormwoo		Restricted
6																					
7																					

AnatomicalMaterial | CollectionDevice | Host | HostDisease | LabHost | Organism | **VirusSample** | ⊕

SARS-CoV2- enhancements

- Stand-alone viral analysis module
  - Extract genomic material
  - Aliquot genomic material
  - Quantify genomic material (Fluorimeter and / or nanodrop)
  - Viral load determination via qPCR
  - Sequence library preparation
- Interoperability with NGS LIMS
  - API functionality and sequence library identifiers

Quality management done right

- Quality management done right results in trust
  - People trust your processes and results
- Quality management done right results in opportunity
  - Funding, economic opportunity, capacity development, collaboration
- Quality management done right results in translational benefit

Resources

- Follow us on twitter
  - @BaobabLIMS

- *Website*
  - www.baobablims.org

- Get the code (and more)
  - https://github.com/BaobabLims

- Send us an email
  - Training – dominique@sanbi.ac.za
  - Helpdesk – help@baobablims.org

- Hands on training event – April 2021

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- African Society for Laboratory Medicine
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