



A biological bank of liver samples and related information intended for hepatocellular carcinoma research

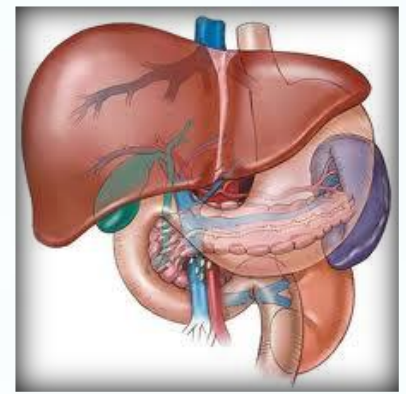
Osman Zin Al-Abdin

Liver Disease Research center
King Saud University, Riyadh, Saudi Arabia

Objectives

- Liver disease in Saudi Arabia
- Liver Disease Research Center mission and outcomes
- Establishment of a Liver Disease Biobank
- CAISIS Data Management Registry
- Quality Assurance controls of biospecimen collected

Background



- Liver disease is a major medical problem in Saudi Arabia
- 7% of Saudi children have HBsAg (before vaccine program)
- 2% have Hepatitis C
- HCC is the most common cancer in Saudi men
- Nonalcoholic fatty liver disease (NAFLD) is currently the most common form of chronic liver disease
- 20% of Saudis have diabetes
- 25% of Saudis are obese



KSU Liver Disease Research Center



- An effective research infrastructure for liver disease research in Saudi Arabia.

LDRC Objectives

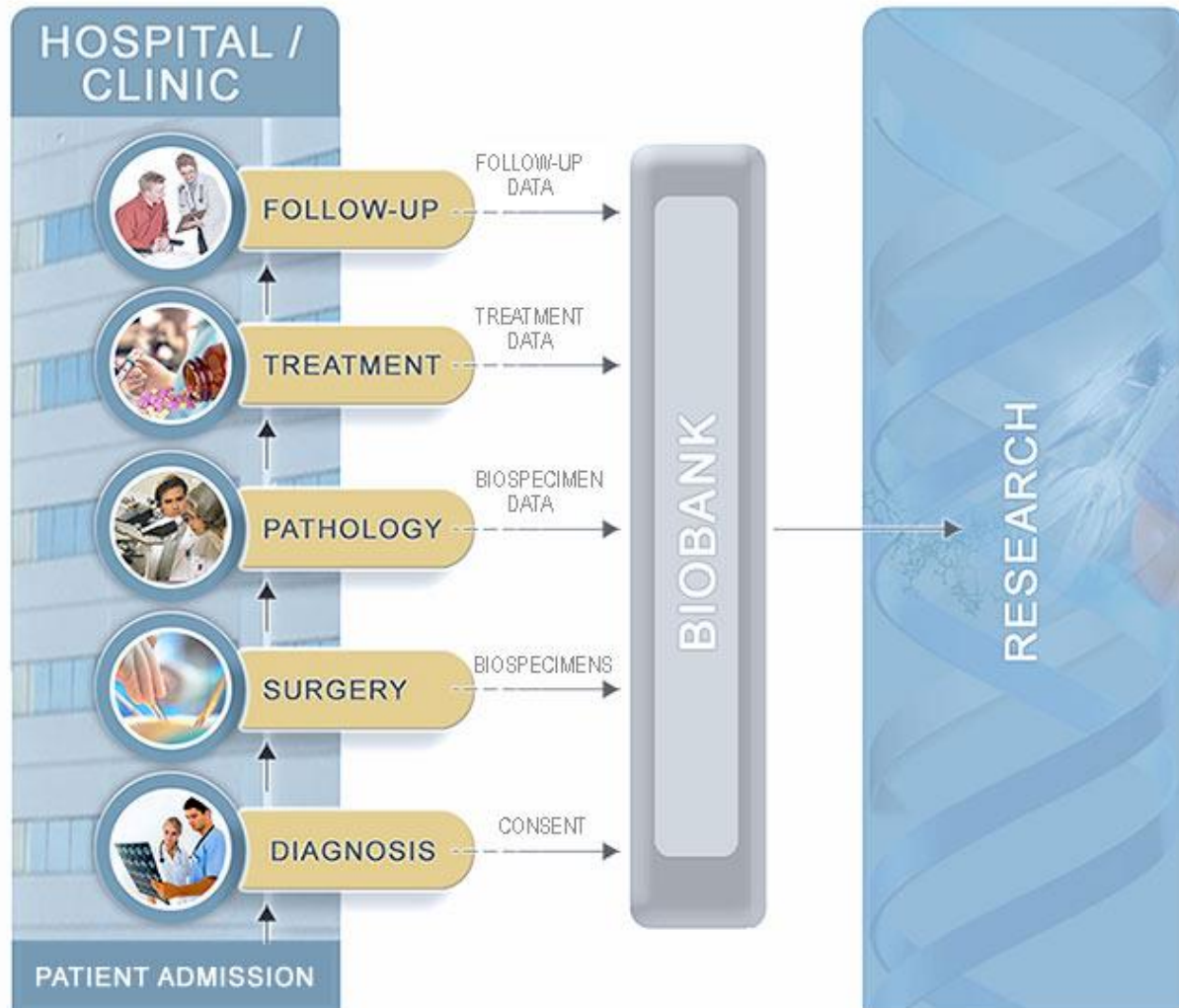
- To engage in high quality basic and clinical research to improve our understanding of the pathology, diagnosis, and management of liver diseases
- To perform basic science research in the field of virology, genetics, and proteomics of liver diseases
- To promote the culture of clinician scientists
- To build a Biobank and a clinical registry

Collaborations

- McGill University, Canada
- University of Calgary, Canada
- National Liver Institute, Egypt



Overall Design



*Biobank Resource Center documentation templates

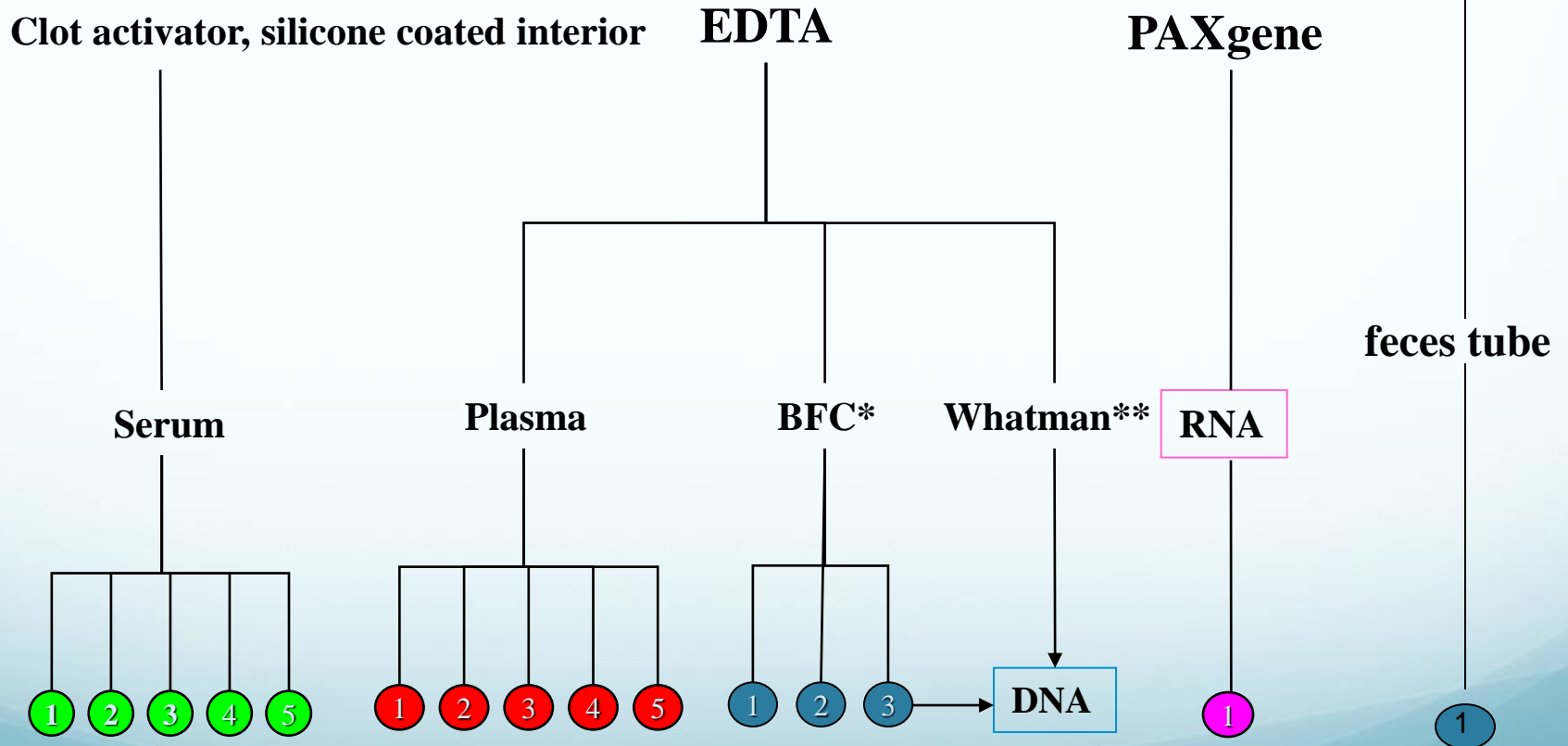
Blood Processing



Biospecimens

Total Blood

Stool



*Buffy coat; **Whatman FTA Elute card;

Quality Assurance End Products

- **Traceability**

- Creation of Worksheet system

- 15 worksheets that record every step and log the materials used

- W1 Informed consent signature
- W2 Questionnaire administration
- W3 Blood collection
- W4 Blood reception
- W5A Blood processing
- W5B Blood processing
- W6 Blood storage
- W7 Urine collection

- W8 Urine processing
- W9 Urine storage
- W10 tissue collection
- W11 tissue reception
- W12 tissue freezing
- W13 Storing tissue
- W14 Stool collection
- W15 Stool storage

- W0 Data entry (collection; verification of all worksheets for each specific case)

Quality Assurance End Products



LIVER DISEASE
Research Center

جامعة الملك سعود
مركز أبحاث الكبد



PARTICIPANT FILE

W1 - CONSENT FORM SIGNATURE WORKSHEET

Identification

FLS1P00 V0 -CSF1

Information on the administration of the Consent form

Signature Date: __/__/____
dd / mm / yyyy

Signature time : ____ : ____ AM
(hr) (min) PM

Consent form version: English
 Arabic

Revised date: __/__/____
dd / mm / yyyy

I confirm that the identity of the participant has been verified



Initials

Quality Assurance End Products



LIVER DISEASE
Research Center

جامعة الملك سعود
مركز أبحاث الكبد



PARTICIPANT FILE

W4 - BLOOD RECEIPT WORKSHEET

Receipt

Date: __/__/____
dd / mm / yyyy

At: ____ : ____ AM
(hr) (min) PM

- Serum tubes were kept at room temperature for 1 hour
- PAXgene tube were kept at room temperature for 2 hours

Type of tube	Time at refrigeration	Number of tubes received
SERUM (Red)	____ : ____ (hr) (min)	<input type="checkbox"/> Tube 1 ____ ml <input type="checkbox"/> Tube 2 ____ ml <input type="checkbox"/> Tube 3 ____ ml
PAXgene (Brown)	____ : ____ (hr) (min)	<input type="checkbox"/> Tube 1 ____ ml
EDTA (Lavender)	____ : ____ (hr) (min)	<input type="checkbox"/> Tube 1 ____ ml <input type="checkbox"/> Tube 2 ____ ml <input type="checkbox"/> Tube 3 ____ ml

Non-alcoholic fatty liver disease (NAFLD)

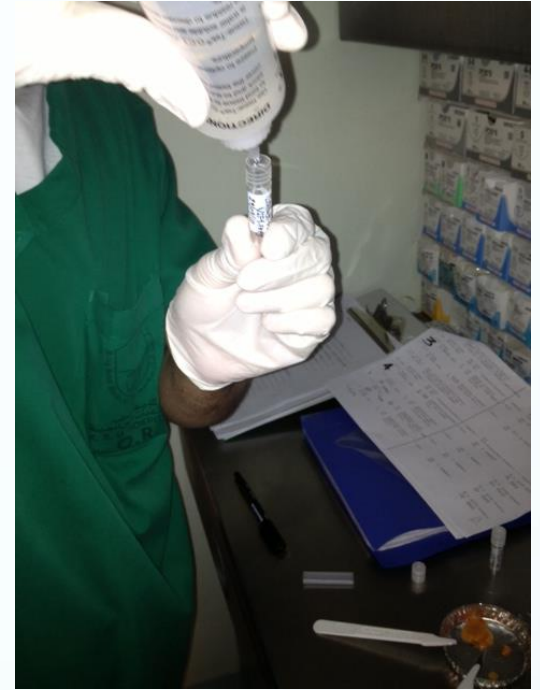
1. The Effects of Bariatric Surgery on Non-alcoholic Fatty Liver Diseases

2. Prevalence of Non-Alcoholic Fatty Liver Disease in Patients with Gallstone Disease

Biospecimen collected from NAFLD

SUMMARY	Total Banked Specimens
PARTICIPANTS	403
BLOOD	325
PAXgene	145
LIVER TISSUE	245
Subcutaneous fat, Visceral fat and Abdominal muscle	79

Tissue Processing



Other Samples

LDRC biobank samples :

- HCV= 949 blood samples, no liver tissue
- HBV= 1904 blood samples, no liver tissue
- HCC= 341 blood samples, 7 primary liver neoplastic tissue

The BiobankResource Center



Office of Biobank
Education and Research



CANADIAN TUMOUR
REPOSITORY NETWORK

RÉSEAU CANADIEN DE
BANQUE DE TUMEURS



PATHOLOGY
laboratory medicine
UNIVERSITY OF BRITISH COLUMBIA

RE: COMPLETION OF BIOBANK CERTIFICATION

May 23, 2014

Liver Disease Research Center

Reg. # BRC-00013

Dear LDRC Biobank,

Please accept this letter as documentation that you have completed all of the requirements of the UBC Office of Biobank Education and Research Biobank Certification Program.

CAISIS LOG IN SCREEN

Welcome to CAISIS

[? Help](#)

Please enter your username and password on the right to begin.

The application will automatically log out after 60 minutes inactivity.

Please update your password on your first login.

If you need assistance, use the help link from anywhere in the application to contact the system administrator.



[change your password](#)

[forgot your password?](#)

username

password

Purpose: Clinical Research Operations

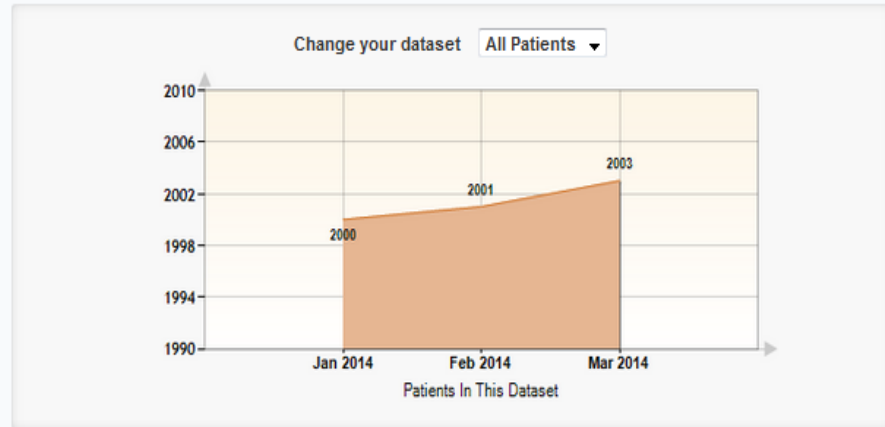
HOME SCREEN

Today is 25 March 2014. What would you like to do?

- View a list of patients
- Print paper forms
- View a report
- Manage Specimens
- Manage projects
- View/enter patient data
- Enter an EForm
- Manage protocols
- Print education materials
- Administer this system
- Customize this page

Patient Accrual by Dataset

Patients entered in the past year.



Recently Viewed Patients

select a patient to view data

Name	MRN	Last Viewed
MJQ, MJQ	1004621056	Today 13:51
CZZ, CZZ	36763644	19/03/2014
AAA, AAA	1011559218	17/03/2014
sample,	123456789	09/03/2014
sample,	23569	09/03/2014
SAM_SAM	27908	09/03/2014

[Find More Patients](#)

Patients for Today's Clinic

select a patient to view.

Clinic: [Clinics on Other Dates](#)

Time	Name	MRN	Visit Type
Select a clinic above to view patient appointments.			

Recently Viewed Reports

select a report to view.

Name	Last Viewed
You have not viewed any reports recently.	

[More Reports](#)

Enter Data for MJQ MJQ

- NAFLD CRF: Baseline**
- Demographics
- Disease Related Parameters
- Co-Morbid Illness
- Medication
- Physical Examination
- Investigations
- Management

[view xml](#)

HIDE PAGES

NAFLD CRF: BASELINE

[Enter Data](#) [Review for Approval](#)

PART 1 : DEMOGRAPHICS

Date:	<input type="text"/>
Registry ID	<input type="text"/>
Medical Record Number	<input type="text"/>
Patient Initial	<input type="text"/>
Date of Birth	<input type="text"/>
Age	<input type="text"/>
Gender (m/f)	<input type="text"/>

Weight (kg)	<input type="text"/>	Height (cm)	<input type="text"/>
BMI (kg/m2)	<input type="text"/>	Waist (cm)	<input type="text"/>
Hip (cm)	<input type="text"/>	Waist-Hip Ratio:	<input type="text"/>
Blood Pressure	<input type="text"/>	Neck (cm)	<input type="text"/>
		RR	<input type="text"/>
		HR (bmp)	<input type="text"/>
		Temperature	<input type="text"/>


Data Systems and Records Management Registry


No Patient Selected DOB:
Find A Patient
Help Log Out (ozinalabdin)
Disease View: All


PATIENT LISTS PATIENT DATA FORMS EFORMS **SPECIMEN MANAGEMENT**


Specimens Collections Transfers Manage Storage

What would you like to do?

 View Specimens

 Manage Collections

 Manage Transfer Requests

 Manage Storage










Data Systems and Records Management Registry

No Patient Selected DOB:
Find A Patient Help Log Out (ozinalabdin)
Disease View: All

PATIENT LISTS PATIENT DATA FORMS EFORMS SPECIMEN MANAGEMENT
Specimens Collections Transfers Manage Storage

Manage Storage

Select a storage level to view its contents. For further information on a level, click the applicable  icon.

Site	Storage/Shelf	Container/Rack	Box
 LDRC <input type="button" value="▶"/>	 Thermoscientific Freezer # 1 <input type="button" value="▶"/>	 HBv and HCv Rack # 1 <input type="button" value="▶"/>  Bariatric Study Rack # 1 <input type="button" value="▶"/>  Bariatric Study Rack # 2 <input type="button" value="▶"/>  Gallstone Study Rack # 1 <input type="button" value="▶"/>  Gallstone Study Rack # 2 <input type="button" value="▶"/>	 PLASMA "1" <input type="button" value="▶"/>  Buffy Coat "1" <input type="button" value="▶"/>
<input type="button" value="Add New Site"/>	<input type="button" value="Add New Storage"/>	<input type="button" value="Add New Container"/>	<input type="button" value="Add New Box"/>

Data Systems and Records Management Registry

Manage Storage

Select a storage level to view its contents. For further information on a level, click the applicable icon.

Site: LDRC Storage/Shelf: Thermoscientific Freezer # 1 Container/Rack: HBV and HCV Rack # 1 Box: PLASMA "1"

Specimen Box Details PRINT

LDRC > Thermoscientific Freezer # 1 > Bariatric Study Rack # 1 > PLASMA "1"

Name: PLASMA "1" # of Columns: 9 Type: Structure # of Rows: 9 Status: Max Position #: Curr Position #:	Tumor Bank Number: Reference #: 1R0002-V01-PLA2 SampleStatus: Available SpecimenType: Blood Contact: SubType: Plasma StorageType: -80 Original: Remaining: Units: Quantity: 1.0 ml
--	--

Total Specimens In Box: 9

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	32	33	34	35	36
37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54
55	56	57	58	59	60	61	62	63
64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81

Location #:	LDRC	Thermoscie	Bariatric St	PLASMA "1"	Pstn: 5
-------------	------	------------	--------------	------------	---------

Notes:

cancel
update

Save & Close
Cancel Changes
Delete & Close

Move Entire Box

Data Systems and Records Management Registry

Disease View: All

- PATIENT LISTS
- PATIENT DATA**
- FORMS
- EFORMS
- DATA ANALYSIS
- MORE

- Common Tasks
- Patients
- Encounters
- Procedures
- Therapies
- Diagnostics
- Outcomes

Specimen Accessions for MMW MMW

Collection Date: 27/08/2012

27/08/2012

Collection Time: 14:00

Received Condition: Fridge

EDTA Tubes: 1

Date Frozen: 29/08/2012 00:00:

Time Frozen: 15:20

Institution: KKHU

Blood Collection Location: Phlebotomy Lab

Method of Collection:

Time Received in Lab: 15:00

RED TOP Clotted Tubes: 2

YELLOW TOP Gel Tubes:

Other Tube Type: PAXgene

Other Tubes: 1

Notes:

Specimens (8)

Identification	Box : Position	Type	Sub Type	Status	Original Qty	Units	Storage Type	Remaining Qty	Notes	Reset
FLS1P0045	SER1, Bc 43	Blood	Serum	Available	1.0	ml	-80			
FLS1P0045	SER1, Bc 44	Blood	Serum	Available	1.0	ml	-80			
FLS1P0045	PLA1 Bo 45	Blood	Plasma	Available	1.8	ml	-80			
FLS1P0045	PLA1 Bo 46	Blood	Plasma	Available	1.6	ml	-80			
FLS1P0045	PLA1 Bo 47	Blood	Plasma	Available	1.2	ml	-80			
FLS1P0045	BFC1, Bc 34	Blood	Buffy Coat	Available	0.7	ml	-80			

return

- New
- Edit
- Save
- Lock
- Cancel
- Delete

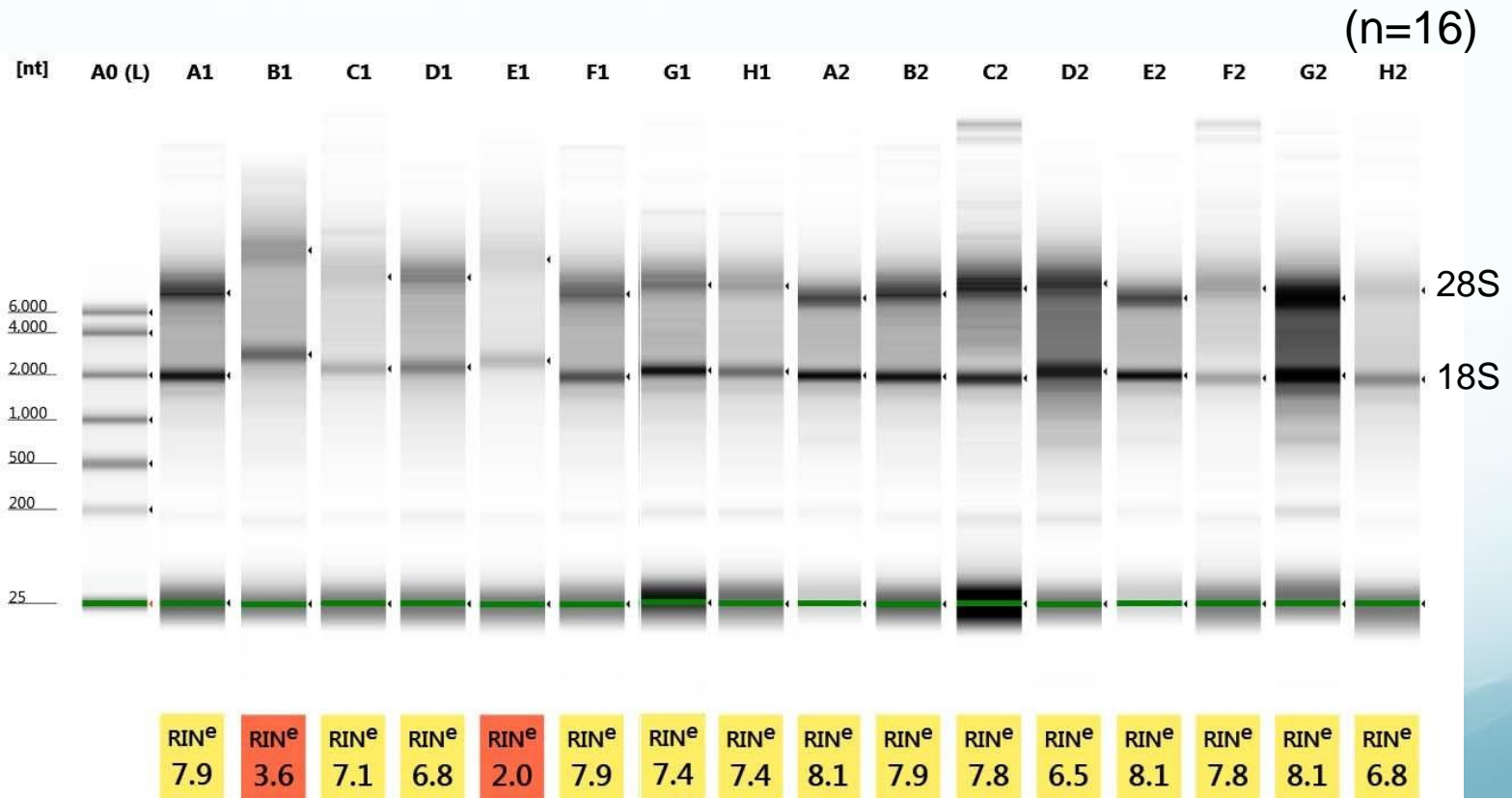
Entered By: ozinalabdin @ 31/12/2014 05:48:43
 Updated By: ozinalabdin @ 31/12/2014 05:54:00
 Looked By:

Phase II – Quality Control

- The LDRC Biobank should be confident that it is providing nucleic acids that is suitable for meaningful gene expression data.

Blood RNA: Quality Assessment

- Agilent 2200 TapeStation system
- For RNA quality analysis RIN equivalent (RINe) is indicated



Quality of frozen tissue

- A quality score based on “Collection time” is applied to categorize one scale of tissue biospecimen quality

Research Needs

Scientists

Laboratories

Human
Samples

Money

**“Who ever has the biologic material
will drive the discoveries”**



LIVER DISEASE
ResearchCenter

جامعة الملك سعود
مركز أبحاث الكبد



Special thanks to our team at the LDRC family!

- Dr. Ayman Abdo
- Dr. Mazen Hassanain
- Dr. Anthoula Lazaris
- Dr. Peter Metrakos
- Dr. Walid AlHamoudi
- Dr. Khaled AlSwat
- Dr. Faisal AlSaif
- Dr. Kinjal Vora
- Dr. Nehad AlAjez
- Esther Robles



The best is yet to come.

