Bench Space Dashboard
Juma Research Lab (Ground Floor)

July – December, 2020
Figure 1: BSL2- Ground Floor Juma Lab Bench Space Occupancy by each department

<table>
<thead>
<tr>
<th>Department</th>
<th>Benches</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatrics</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Community Health Sciences</td>
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<tr>
<td>Surgery</td>
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<td>5</td>
</tr>
<tr>
<td>Pathology and laboratory medicine</td>
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<td>4</td>
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<tr>
<td>Biological and Biomedical sciences</td>
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<td>Core equipment + NGS+ staff</td>
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<td>Total</td>
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<td>26</td>
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</tbody>
</table>

![Bench Occupancy Graph]
Figure 2: BSL2- Ground Floor Juma Lab
Projects by each department

**Paediatrics**
1. SEAP II
2. Intusseption
3. SEEM-Ph.D.
4. ROTA
5. Azithromycin for improved growth
6. CHAIN
7. SEEM
8. MiEED
9. TB biomarker
10. Typhoid - cholecystectomy
11. Intestinal organoid-Enteroids.
12. Adeno virus
13. SEES

**Biological & Biomedical Dept.**
1. Neutrophils in SCC
2. AML resistance

**Surgery**
1. Dental Stem Cells
2. Glioblastoma Multiform
3. GLIOMAS
4. Oral squamousal Carcinoma
5. Pancreatic Adeno carcinoma

**Pathology & Lab Med.**
1. AMR Surveillance
2. EFGR Pathway
3. Bedaquiline resistant M. tuberculosis
4. dynamics of SARS-CoV-2

**Community Health Science**
1. PURPOSE
2. Single dose-Azithromycin-

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**Projects by each department**

- **Paediatrics**
  - SEAP II
  - Intusseption
  - SEEM-Ph.D.
  - ROTA
  - Azithromycin for improved growth
  - CHAIN
  - SEEM
  - MiEED
  - TB biomarker
  - Typhoid - cholecystectomy
  - Intestinal organoid-Enteroids.
  - Adeno virus
  - SEES

- **Biological & Biomedical Dept.**
  - Neutrophils in SCC
  - AML resistance

- **Surgery**
  - Dental Stem Cells
  - Glioblastoma Multiform
  - GLIOMAS
  - Oral squamousal Carcinoma
  - Pancreatic Adeno carcinoma

- **Pathology & Lab Med.**
  - AMR Surveillance
  - EFGR Pathway
  - Bedaquiline resistant M. tuberculosis
  - dynamics of SARS-CoV-2

- **Community Health Science**
  - PURPOSE
  - Single dose-Azithromycin-
Dr. Sarah Saleem
Professor, Community Health Sciences. The Aga Khan University, Pakistan

Purpose:
Project to understand and Research Preterm pregnancy outcomes: South Asia

Grant Equipment
ULT freezer

Jan, 2019- June 2020*

* extension in process
Dr. Sarah Saleem
Professor, Community Health Sciences. The Aga Khan University, Pakistan

Prevention of maternal and neonatal death/infections with a single oral dose of azithromycin in women in labor (in low- and middle-income countries): a randomized controlled trial

Aug, 2020- Sep, 2022

Grant Equipment

ULT freezer
The Project is a prospective study aiming to generate data to inform policy recommendations on enteric fever prevention and control, as well as to facilitate typhoid vaccine implementation.

Aug, 2016 – March, 2022

Dr. Farah Qamar
Associate Professor
Paediatrics & Child Health, The Aga Khan University, Pakistan

Bench no. A-5

Core Equipment
- Refrigerated Centrifuges
- Non Refrigerated Centrifuge
- Water Bath
- Vortex
- Under counter & Walk- In Fridge
- pH meter
- Thermal Cylcers
- Real Time PCRs
- Desktop PCs

Grant Equipment
- Biosafety Cabinet
- Water Bath
- Vortex
- Gel documentation System
Dr. S. Asad Ali  
Professor  
Paediatrics & Child Health, The Aga Khan University, Pakistan

Intussusception Study  

Aug-2017 – Dec, 2020

**Core Equipment**

- Refrigerated Centrifuges
- Non Refrigerated Centrifuge
- Water Bath
- Vortex
- Under counter & Walk-in Fridge
- pH meter
- Thermal Cyclers
- Real Time PCRs
- Desktop PCs

**Grant Equipment**

- Biosafety Cabinet
- Water Bath
- Vortex
- Taqman Low Density Array (TLDA)
- Bioplex- Luminex Array
- BD- FACS- Celesta
- Bead beater
- Gel documentation System

**Bench no. A-6**
Dr. S. Asad Ali  
Professor  
Paediatrics & Child Health, The Aga Khan University, Pakistan

**Environmental Enteropathy**

The project is aimed to study the Interaction of gut micro biome with intestinal epithelium in children with suspected risk of environmental Enteropathy.  
(Ph.D. Project)

**Feb-2019 – Jan-2021**

**Core Equipment**

- Refrigerated Centrifuges
- Non Refrigerated Centrifuge
- Water Bath
- Vortex
- Under counter & Walk- In Fridge
- pH meter
- Thermal Cyclers
- Real Time PCRs
- Desktop PCs

**Grant Equipment**

- Vortex
- BD- FACS
- Bioplex- Luminex Array

Bench no. A-7
Bench no. A-8

Dr. S. Asad Ali  
Professor  
Paediatrics & Child Health, The Aga Khan University, Pakistan

Aug, 2018 - July, 2020

Impact Assessment of Rotavirus Vaccine Introduction in Pakistan’s Routine Immunization Program.

Core Equipment

- Refrigerated Centrifuges
- Non Refrigerated Centrifuge
- Water Bath
- Vortex
- Under counter & Walk- In Fridge
- Ultra Low Temp. Freezers
- Desktop PC
- Tissue Culture Room
- Inverted Microscope

Grant Equipment

- Biosafety Cabinet
- Water Bath
- Vortex
- Liquid Nitrogen Tank
**Bench no. A-9**

Dr. Tashfeen Ahmad  
Assistant Professor,  
Department of Surgery  
The Aga Khan University, Pakistan

**Core Equipment**

<table>
<thead>
<tr>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tissue Culture Room</td>
</tr>
<tr>
<td>Biosafety Cabinets</td>
</tr>
<tr>
<td>Refrigerated Centrifuges</td>
</tr>
<tr>
<td>Non Refrigerated Centrifuge</td>
</tr>
<tr>
<td>Water Bath</td>
</tr>
<tr>
<td>Vortex</td>
</tr>
<tr>
<td>Under counter &amp; Walk-In Fridge</td>
</tr>
<tr>
<td>Ultra Low Temp. Freezers</td>
</tr>
<tr>
<td>Carbon dioxide Incubator</td>
</tr>
<tr>
<td>Inverted Microscope</td>
</tr>
<tr>
<td>Fluorescence Microscope</td>
</tr>
<tr>
<td>Liquid Nitrogen Tank</td>
</tr>
<tr>
<td>Desktop PC</td>
</tr>
</tbody>
</table>

**Dental Stem Cells**

Primary objective of this study is to use human dental pulp for tissue engineering of tooth defects: an in-vitro model

March, 2019 - March, 2021
This study is to identifying gene mutations in low and high grade gliomas’s patients of tertiary care hospital and to assess risk factors associated with respective genetic mutations.
ORAL CARCINOMA

The objective of this study is to analyze the Frequency of p53 Gene mutation in oral squamous cell carcinoma (OSCC). A cross sectional study.

**Core Equipment**

<table>
<thead>
<tr>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCR</td>
</tr>
<tr>
<td>Microscope</td>
</tr>
<tr>
<td>Refrigerated Centrifuges</td>
</tr>
<tr>
<td>Non Refrigerated Centrifuge</td>
</tr>
<tr>
<td>Water Bath</td>
</tr>
<tr>
<td>Vortex</td>
</tr>
<tr>
<td>Under counter &amp; Walk-In Fridge</td>
</tr>
<tr>
<td>Ultra Low Temp. Freezers</td>
</tr>
<tr>
<td>Microtome</td>
</tr>
<tr>
<td>IHC bench</td>
</tr>
<tr>
<td>Desktop PC</td>
</tr>
<tr>
<td>Fume Hood</td>
</tr>
</tbody>
</table>
This study will be characterizing role of neutrophils in progression of head and neck squamous cell carcinoma.
Dr. Fareena Bilwani
Assistant Professor
Biological & Biomedical Sciences
The Aga Khan University, Pakistan

Acute Myeloid Leukemia

This study will be characterizing determinants of acute myeloid leukemia resistance to ex-vivo expanded allogeneic natural cell-mediated killing

May, 2018 – May, 2021

<table>
<thead>
<tr>
<th>Core Equipment</th>
<th>Carbon dioxide Incubator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tissue Culture Room</td>
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<tr>
<td>Biosafety Cabinets</td>
<td></td>
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<tr>
<td>Refrigerated Centrifuges</td>
<td></td>
</tr>
<tr>
<td>Non Refrigerated Centrifuge</td>
<td></td>
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<tr>
<td>Water Bath</td>
<td></td>
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<tr>
<td>Vortex</td>
<td></td>
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<tr>
<td>Under counter &amp; Walk-In Fridge</td>
<td></td>
</tr>
<tr>
<td>Ultra Low Temp. Freezers</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Inverted Microscope</td>
<td></td>
</tr>
<tr>
<td>Fluorescence Microscope</td>
<td></td>
</tr>
<tr>
<td>Liquid Nitrogen Tank</td>
<td></td>
</tr>
<tr>
<td>Desktop PC</td>
<td></td>
</tr>
</tbody>
</table>

Bench no. A-14
Dr. Najeeha Iqbal
Associate Professor
Paediatrics & Child Health, The Aga Khan University, Pakistan

Project 1: TB biomarkers
Exploration of TB Biomarkers in Pakistani Children.

Core Equipment
- Refrigerated Centrifuges
- Non Refrigerated Centrifuge
- Water Bath
- Vortex
- Under counter & Walk-In Fridge
- pH meter
- Thermal Cyclers
- Real Time PCRs
- Desktop PCs

Grant Equipment
- Biosafety Cabinet
- Water Bath
- Vortex
- Taqman Low Density Array (TLDA)
- Thermal Cyclers
- Gel Documentation System
- Real Time PCRs

Sep, 2017 – June, 2020

Bench no. A-15

* ext. in process
Dr. Najeeha Iqbal
Associate Professor
Paediatrics & Child Health,
The Aga Khan University,
Pakistan

Project 2: MiEED
This Study covers the aspect of Microbiota, Inflammation & Environmental Enteric dysfunction

Aug, 2017 – March, 2021

Core Equipment

- Refrigerated Centrifuges
- Non Refrigerated Centrifuge
- Water Bath
- Vortex
- Under counter & Walk- In Fridge
- pH meter
- Thermal Cyclers
- Real Time PCRs
- Desktop PCs

Grant Equipment

- Biosafety Cabinet
- Water Bath
- Vortex
- Taqman Low Density Array (TLDA)
- Thermal Cyclers
- Gel Documentation System
- Real Time PCRs
Bench no. A-19

Dr. Farah Qamar
Associate Professor
Paediatrics & Child Health, The Aga Khan University, Pakistan

Oct, 2019 – Oct, 2020

TYPHIOD BURDEN
Sero-epidemiology and environmental surveillance (SEES) in SEAP sites.

Core Equipment

- Refrigerated Centrifuges
- Non Refrigerated Centrifuge
- Water Bath
- Vortex
- Under counter & Walk- In Fridge
- pH meter
- Thermal Cyclers
- Real Time PCRs
- Desktop PCs

Grant Equipment

- Biosafety Cabinet
- Water Bath
- Vortex
- Gel documentation System
- ELISA
Dr. Rumina Hasan  
Professor  
Pathology & Lab Medicine,  
The Aga Khan University,  
Pakistan

**Core Equipment**

- Biosafety Cabinets- BSL3
- Under counter & Walk-in Fridge
- Ultra Low Temp. Freezers
- Vortex
- TB Lab, BSL 3
- Centrifuges
- 37°C Incubator
- Carbon dioxide Incubator
- Autoclave

**AMR Surveillance**

This grant is designed to work towards strengthening lab capacity for antimicrobial testing in three phases: capacity for drug sensitivity testing, investigating AMR in specific community and hospital based organisms and identifying gaps to support AMR training and research.

April, 2017 – Dec, 2020

Bench no. A-22
The aim of this study is to determine the metabolic pathways involved in persistence of Mycobacterium tuberculosis in the presence of drug pressure of BDQ.

(Ph.D. Project)

March, 2020 – May, 2021

Bedaquiline resistant *M. tuberculosis*

Dr. Rumina Hasan  
Professor  
Pathology & Lab Medicine, The Aga Khan University, Pakistan

**Core Equipment**

- Thermo cyclers (PCR)
- Under counter & Walk- In Fridge
- Ultra Low Temp. Freezers
- Vortex
- Centrifuges
- Water bath, Heat blocks
- 37C Incubator
- Tissue Culture Facility BSL-2
- Desktop PC
Dr. Farah Qamar  
Associate Professor  
Paediatrics & Child Health, The Aga Khan University, Pakistan

**TYPHIOD BURDEN**  
Sero-epidemiology and environmental surveillance (SEES) in SEAP sites.  
Oct, 2019– Oct, 2020

**Core Equipment**
- Refrigerated Centrifuges
- Non Refrigerated Centrifuge
- Water Bath
- Vortex
- Under counter & Walk- In Fridge
- pH meter
- Thermal Cyclers
- Real Time PCRs
- Desktop PCs

**Grant Equipment**
- Biosafety Cabinet
- Water Bath
- Vortex
- Gel documentation System
- ELISA
The study is planned to find out the Frequency of typhoid carrier in patients undergoing cholecystectomy for gall bladder.

Dr. Farah Qamar
Associate Professor
Paediatrics & Child Health, The Aga Khan University, Pakistan

July, 2019 – Mach, 2022

TYPHIOD CARRIERS

Core Equipment
- Refrigerated Centrifuges
- Non Refrigerated Centrifuge
- Water Bath
- Vortex
- Under counter & Walk- In Fridge
- pH meter
- Thermal Cyclers
- Real Time PCRs
- Desktop PCs

Grant Equipment
- Biosafety Cabinet
- Centrifuge
- Thermal Cycler
- ELISA
Bench no. A-29

Dr. Syed Adnan
Assistant Professor
Department of Surgery
The Aga Khan University, Pakistan

April. 2019 - Apr, 2021

Pancreatic Adeno Carcinoma

Correlation of molecular markers expression and overall survival in pancreatic adeno carcinoma patients. (Ph.D. Study)

Core Equipment

- Thermal Cycler
- Microtome
- Refrigerated Centrifuges
- Non Refrigerated Centrifuge
- Water Bath
- Vortex
- Under counter & Walk- In Fridge
- Ultra Low Temp. Freezers

- Microscope
- Desktop PC
Glioblastoma Multiforme

It is a prognostic cohort study, designed to investigate the gene expression of cancer stem cell markers in Glioblastoma multiforme.

Core Equipment

- Microtome
- Microscope
- Water Bath
- Vortex
- Under counter & Walk-in Fridge
- Ultra Low Temp. Freezers
- Desktop PC

June, 2018 – Nov, 2020

Dr. Ather Enam
Professor, Department of Surgery.
The Aga Khan University,
Pakistan

Dr. Syed Adnan
Associate Professor,
Department of Surgery.
The Aga Khan University,
Pakistan
Bench no. B-9

Dr. Junaid Iqbal
Assistant Professor
Paediatrics & Child Health. The Aga Khan University, Pakistan

Intestinal Organoid
This is a supplemental study of project “SEEM Pakistan” in which human biopsy tissues will be used for the development of Intestinal Organoid from Environmental Enteropathy Patient’s Gut.

Core Equipment

- Refrigerated Centrifuges
- Non Refrigerated Centrifuge
- Water Bath
- Vortex
- Under counter & Walk- In Fridge
- Ultra Low Temp. Freezers
- Desktop PC
- Tissue Culture Room (BSL2) & Virology (BSL3)
- Inverted Microscope

Jan, 2018 – Jan 2021
CHAIN PROTOCOL

This is a cohort study, aiming towards evidence based care of acutely ill, undernourished children in limited resource settings – cohort study

Oct, 2016 – June, 2020*

* extension in process
Dr. S. Asad Ali
Professor
Paediatrics & Child Health, The Aga Khan University, Pakistan

SEEM Pakistan
This Study covers the aspect of Environmental Enteropathy & malnutrition in Pakistan.

Nov, 2015 – Jan 2021

Core Equipment
- Refrigerated Centrifuges
- Non Refrigerated Centrifuge
- Water Bath
- Vortex
- Under counter & Walk- In Fridge
- pH meter
- Thermal Cyclers
- Real Time PCRs
- Desktop PCs

Grant Equipment
- Biosafety Cabinet
  - Water Bath
  - Vortex
  - Taqman Low Density Array (TLDA)
  - Bioplex- Luminex Array
  - BD- FACS- Celesta (to be arrived & installed)
  - Bead beater
  - Gel documentation System
The objectives of the study is to assess the efficacy of Nutritional support for lactating women and Azithromycin for infants to improve growth outcomes in the peri-urban slums of Karachi, Pakistan – a Randomized Controlled Trial.
Bench no. B-14

Dr. Shahid Pervez
Professor
Pathology & Lab Medicine,
The Aga Khan University,
Pakistan

Dec, 2015 – Sep, 2020

EFGR Signalling Pathway Analysis:
in Oral Squamous Cell Carcinoma.
(Ph.D. study).

Core Equipment

- Refrigerated Centrifuge
- Under counter & Walk-In Fridge
- Ultra Low Temp. Freezers
- Vortex
- Water Bath
- Thermal Cycler
- Gel Documentation System
- Desktop PC
Dr. Zahra Hasan
Professor
Pathology & Lab
Medicine, The Aga Khan University, Pakistan

Aug, 2020 – Aug, 2021

Phylo- and immuno- dynamics of SARS-CoV-2 infection in Pakistan: relating COVID 19 disease severity in with viral diversity

Bench no. B-15

Core Equipment

- Refrigerated Centrifuge
- Under counter & Walk- In Fridge
- Ultra Low Temp. Freezers
- Vortex
- Water Bath
- Thermal Cycler
- Gel Documentation System
- Desktop PC
- MiSeq. NGS
Benches Reserved for Future Projects (N=15)

A-10
A-11
A-16
A-17
A-18
A-20
A-21
A-27

A-28
B-2
B-4
B-5
B-6
B-7
B-8
Benches Occupied for core equipment/staff (N=5)

<table>
<thead>
<tr>
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