



# ***International Center for Chemical and Biological Sciences (Established in 1966)***

**UNESCO, TWAS, WHO, OIC , and COMSATS Center of  
Excellence**

***Excellence and Leadership in Research and  
Higher Education***

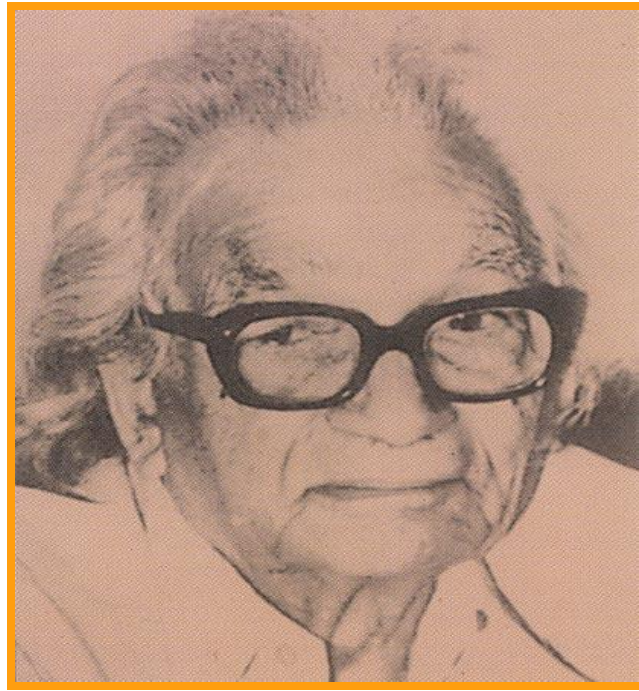
**(H. E. J. Research Institute of Chemistry, and  
Dr. Panjwani Center for Molecular Medicine and Drug Research)**

**University of Karachi, Karachi-75270**



# Genesis

- ① **Post-graduate Institute of Chemistry (PGIC) was established in three small laboratories of the Chemistry Department (1966).**
- ① **PGIC was moved in to the new building “Husein Ebrahim Jamal Research Institute of Chemistry” in 1978 (Donated by Husein Ebrahim Jamal Foundation).**
- ① **Designated as the International Center for Chemical Sciences (ICCS) by the TWAS in 1987.**
- ① **Dr. Panjwani Center for Molecular Medicine and Drug Research established in 2004 (Donated by Dr. Panjwani Memorial Trust).**
- ① **Center was renamed as the International Center for Chemical and Biological Science (ICCBS) in 2004.**



**Late Prof. Dr. Salim-uz-zaman Siddiqui, *H.I.,  
F.R.S.***  
**Founding Director (1966-87)**







**PROF. DR. ATTA-UR-RAHMAN, *FRS, NI, HI, SI, TI***  
**(Director 1987-2008)**  
**Patron-in-Chief**







**Late Mr. Latif Ebrahim Jamal, *H.I.*  
Chairman  
Husein Ebrahim Jamal Foundation**





**Ms. Nadira Panjwani, *H.I., S.I.*  
*Chairperson*  
Dr. Panjwani Memorial Trust**





**Prof. Dr. M. Iqbal Choudhary *H. I., S. I., T.I.***  
**Current Director ICCBS**





# ***ICCBS- Unique Distinctions***

- ① **Only OIC Center of Excellence in chemical sciences**
- ① **UNESCO Category II Center**
- ① **WHO Center for Pesticide Analysis**
- ① **Only institution which has received the Islamic Development Bank Prize for Best Science Institution (twice 2004 and 2010).**
- ① **TWAS Center of Excellence for training of scholars from Africa**



# **HIGHEST RESEARCH OUTPUT (2001-2017)**

- ★ **Research publications in top international journals:** **Over 6,000**
- Patents (national and international)** **205**
- ★ **Books published internationally (over 150 by Prof. Atta-ur-Rahman FRS):** **225**
- ★ **Total scientific impact factor:** **Over 8,000**
- ★ **Total Ph.D.'s/M. Phil./M. Sc. produced:** **Over 1,000**
- ★ **Total Citations** **Over 70,000**



# ***DISTINGUISHED FACULTY***

- ❖ Out of ten (10) most productive scientists of Pakistan, three (3) are from the H. E. J. Research Institute of Chemistry, International Center for Chemical Sciences.  
(PCST Document, *Productive Scientists of Pakistan*, 2014)
- ❖ **Internationally Recognized Faculty. All Senior Professors with the D.Sc. degrees from various universities.**
- ❖ **Only Pakistani Institution with Two FRS (Fellows of Royal Society, London).**
- ❖ **Majority of the academic staff are the authors of internationally published science books or editors of science journals.**





# **MOST DECORATED ACADEMIC SCIENCE INSTITUTION**

❖	<b>Fellow of Royal Society (<i>FRS</i>)</b>	<b>2</b>
❖	<b>UNESCO Science Prize</b>	<b>1</b>
❖	<b>Nishan-e-Imtiaz</b>	<b>1</b>
❖	<b>Hilal-e-Imtiaz</b>	<b>4</b>
❖	<b>Sitara-e-Imtiaz</b>	<b>13</b>
❖	<b>Pride of Performance</b>	<b>1</b>
❖	<b>Tamgha-e-Imtiaz</b>	<b>8</b>
❖	<b>D. Sc.</b>	<b>10</b>
❖	<b>Khawarizmi International Award</b>	<b>5</b>
❖	<b>ECO Award and Prize</b>	<b>3</b>



# ***ICCBS***

## ***INSTITUTIONAL EXCELLENCE***



# ***INTERNATIONAL GRANTS***

## **I. International grants worth over \$ 50 million were won:**

<b>(a)</b>	<b>Germany</b>	<b>DM 5.7 million</b>
<b>(b)</b>	<b>USA</b>	<b>\$ 2.0 million</b>
<b>(c)</b>	<b>UK</b>	<b>£ 1.0 million</b>
<b>(d)</b>	<b>Japan</b>	<b>\$ 23.0 million</b>
<b>(e)</b>	<b>Others</b>	<b>\$ 3.0 million</b>

## **2. Research projects worth another \$ 12.5 million from the WHO, OPCW, USAID, ONR, NSF (USA), and British Council have been completed.**





# **ICCBS ORGANOGRAM**

## **ICCBS**

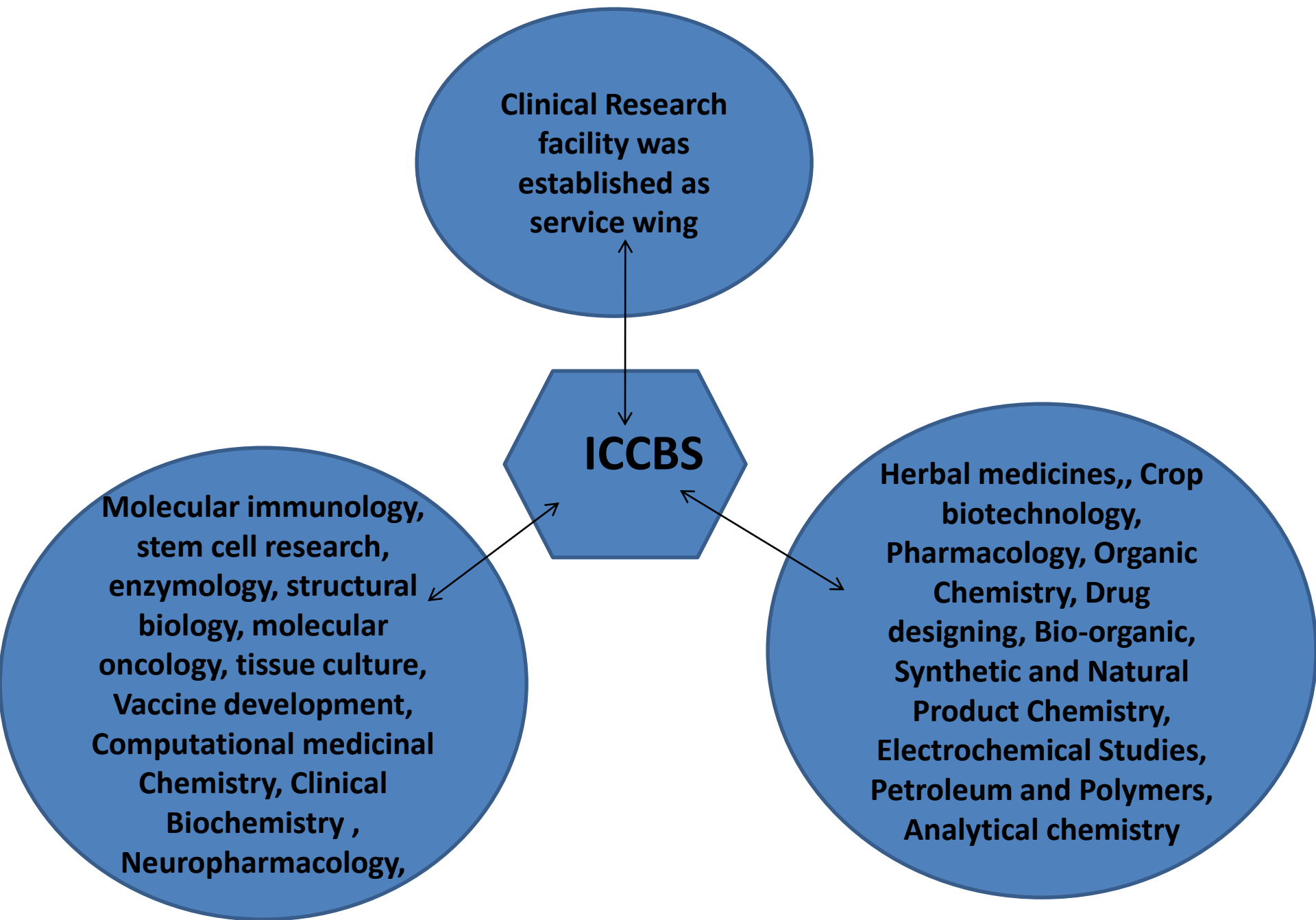
### **HEJRIC**

### **PCMD**

AURL IAC BTP LEJNRC LEJNSC

Genome Center CBSCR Diagnostic Center IRCTRD Animal Houses

HEJRIC	Husein Ebrahim Jamal Research Institute of Chemistry
PCMD	Dr. Panjwani Center for Molecular Medicine and Drug Research
AURL	Prof. Dr. Atta-ur-Rahman Laboratories
LEJNSC	Latif Ebrahim Jamal National Science Information Center
IAC	Industrial Analytical Center
BTP	Biotechnology Park
Diagnostic Center	Diagnostic and Clinical Research Facility
CBSCR	Center for Bioequivalence Studies and Clinical Research
Genome Center	Jamil-ur-Rahman Center for Genome Research
IRCTRD	International Research Center for Tropical and Regional Diseases
LEJNRC	L. E. J. Nanochemistry Research Center



# **Chemical Sciences**



# Chemical Sciences

- H. E. J. Research Institute of Chemistry
- L. E. J. Nanochemistry Research Center
- Latif Ebrahim Jamal National Science Information Center
- Biotechnology Unit
- Technology Incubation/Industrial Park
- Industrial Analytical Center
- Medicinal Plant Processing Unit, Murree Expressway
- Marine Collection Center
- Textile Research Laboratory



**H. E. J. RESEARCH INSTITUTE OF CHEMISTRY (CONSTRUCTED IN 1978 WITH A GRANT FROM HUSEIN EBRAHIM FOUNDATION)**





**PROF. ATTA-UR-RAHMAN LABORATORIES**  
**THIRD WORLD CENTER FOR CHEMICAL SCIENCES**  
**(HEJRIC)**



**LATIF EBRAHIM JAMAL NATIONAL SCIENCE INFORMATION CENTER**  
**One of the Largest Paperless Libraries with 31,000 On-line Journals**  
**(HEJRIC)**



# L.E.J. Nanotechnology Center (HEJRIC)



# Prof. Wolfgang Voelter Laboratory Complex (HEJRIC)



**Prof. Dr. Dr. Wolfgang Voelter, S.P., H.P.**  
**Tubingen University, Germany**



**Prof. Wolfgang Voelter Laboratories Complex**  
**International Center for Chemical and Biological Sciences**







**INDUSTRIAL ANALYTICAL CENTER (IAC)**  
***An ISO 9001, 17025 and 1400 Facility***  
***(HEJRIC)***



**TECHNOLOGY INCUBATOR**





## **TISSUE CULTURE TECHNOLOGY PARK (HEJRIC)**



**NEW MURREE MEDICINAL PLANT RESEARCH CENTER  
(HEJRIC)**





**MARINE CHEMISTRY CENTER, AND COLLECTION FACILITY  
(HEJRIC)**

# **Biological Sciences**



# Biological/Biomedical Sciences

- Dr. Panjwani Center for Molecular Medicine and Drug Research
- Jamil-ur-Rahman Center for Genomics
- Center for Bioequivalence Studies and Clinical Research (CBSCR)
- Virology Research Center (Under-construction)
- Diagnostic Center Network
- Animal Houses
- National Facility for Laboratory Animal Research (NFLAR)



**DR. PANJWANI CENTER FOR MOLECULAR MEDICINE  
AND DRUG RESEARCH**



**Center for Bioequivalence Studies and Bioassay Research**  
*WHO and MoH Certified First Clinical Trial Facility in Pakistan*  
*(PCMD)*





**Jamil-ur-Rahman Center for Genome Research  
(PCMD)**





**New Animal House Facility  
PCMD)**



**Gene Knockout  
unit-1**



**New Animal House Facility**

# **International Collaboration**



# ***International Visitors and Events***

- ★ **Over 200 visiting scientists annually from different countries.**
- ★ **Only institution in the developing world in which advanced countries are sending students for training- 20 German students annually, over 130 German students have already been trained.**
- ★ **Over 120 major International Conferences, Symposia and workshops organized including the 19th IUPAC Symposium (1994), EURASIA Conference (2002), IBRO School (2006), ASOMPS (December, 2013), IUCr (2014), 16-EURASIA (2016) and IChO-2016.**



# ***Role in Global Capacity Building in S&T***

- ★ Joint supervision of MS/Ph. D. scholars with Jordan, Kazakhstan, Cameroon, Nigeria, Iran, Turkey, Malaysia, Saudi Arabia, Nepal, Bangladesh, Sri Lanka, Sudan, Egypt, Australia, etc.
- ★ Training of over 500 young scholars from countries of South.
- ★ Over 50 scholarships for African scholars.
- ★ Some 10 capacity building workshops every year./ technician trainings.
- ★ Active MoUs and Agreements with over 60 institutions world



# ***Knowledge Sharing***

- ★ **Binational and Regional Conferences with France, Malaysia, Bangladesh, Nepal, Iran, and Central Asia.**
- ★ **Major international conferences and symposia.**
- ★ **Iej4learning (i-MOOCs)**
- ★ **Interactive courses and lectures/Webinars**
- ★ **Library services/Literature support.**





# ***Joint Research***

- ★ **Joint research projects on understanding the molecular basis of regional and tropical diseases (Leishmaniasis, Diabetes, Hepatitis, etc).**
- ★ **Drug discovery and development against common tropical diseases.**



# ***Scholarships/ Schemes Offered by the ICCBS***

**Joint NAM S&T Centre-ICCBS Karachi (Pakistan) Fellowship**

**[www.namstct.org](http://www.namstct.org)**

**TWAS Fellowship Program**

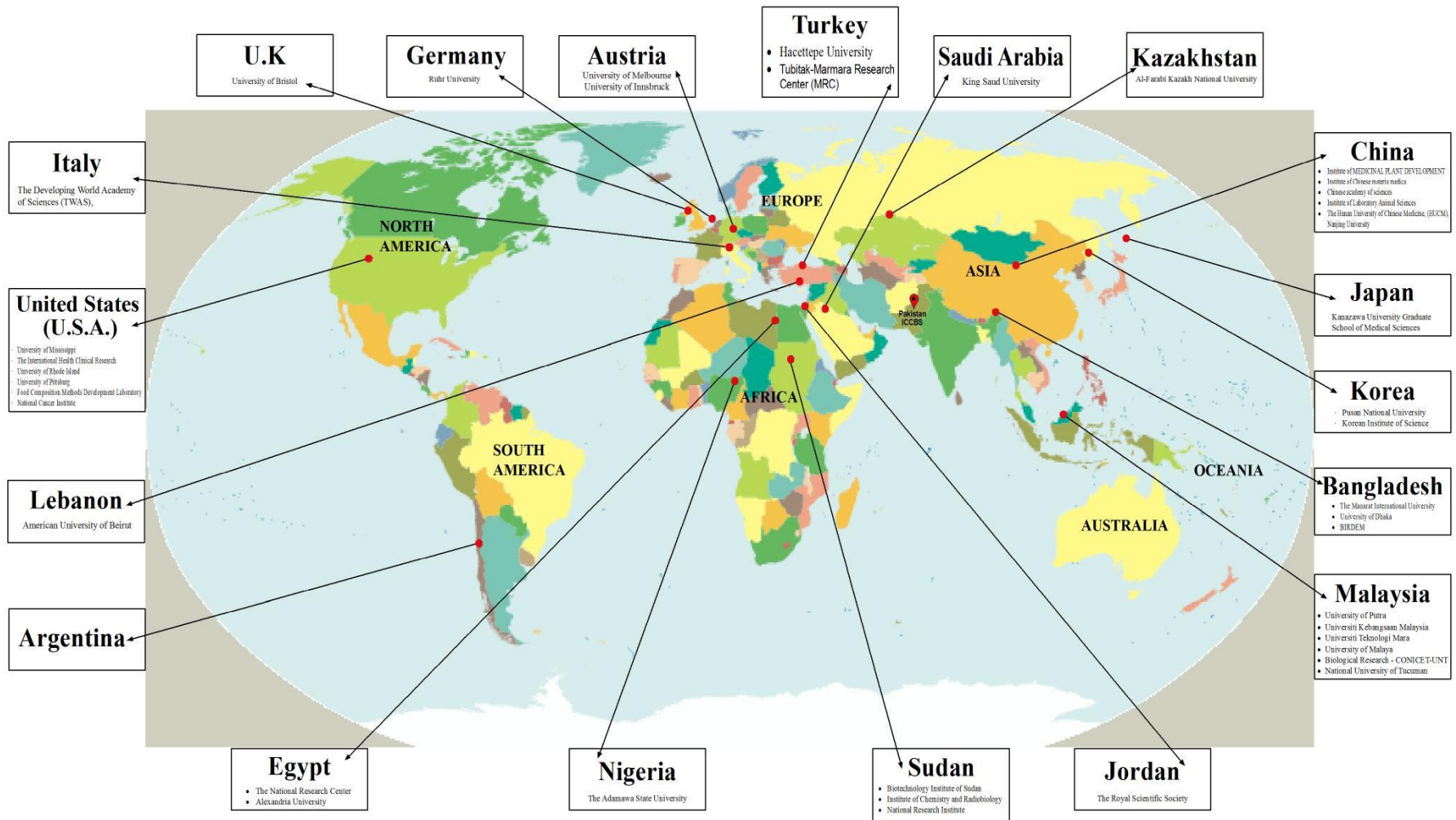
**<http://www.iccs.edu/twas.php>**

**COMSTECH Visiting Scientists Program**

**<http://www.comstech.org/Programs>**

**Others (UNESCO, IFS, ISESCO, COMSATS, IDB, etc)**

# INTERNATIONAL LINKAGES OF ICCBS





**ICCBS 2025**

# ***ICCBS by 2025***

- ① **Over 1,200 Ph. D. Students, including 200 foreign students**
- ① **150 Post-doctoral Scholars, and 80 Research Officers**
- ① **Over 200 Ph. D. annually**
- ① **Over 1000 research papers in top international journals including top tier journals., and over 100 international patents**
- ① **Technology incubator with 100 companies, and five industrial support unit**
- ① **30% of the budget by self generation (Royalties, and services)**

# ***PHASING OF EMERGING PROJECTS (2006 – 2025)***

Institution	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
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1. Industrial Linkages-  
Technology and  
Technology Incubator



2. Development of 50 Acre  
of additional



3. Food and Nutritional  
Science Institute



4. Bioequivalence and  
Biology Study Center



5. Strengthening of PCMD



6. National Imaging  
Facility



7. Center for  
Nanochemistry Research



8. Strengthening of IAC





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# ***ICCBS- UNIQUE FEATURES***

- ★ **Role of leadership (Internationally renowned leader, Prof. Atta-ur-Rahman *FRS*).**
- ★ **Role of visionary and most generous philanthropists.**
- ★ **Contractual appointment of faculty members. International evaluation of research productivity. Faculty must have external funding**
- ★ **Good salaries and grades to engineering staff.**
- ★ **Strong international linkages.**

# ***ICCBS- UNIQUE FEATURES***

- ★ **Well subscribed library system, and digital information sources.**
- ★ **More funds for R&D (70% of the annual budget).**
- ★ **Scholarships for all PhD students**
- ★ **External review every five year by top academicians of the world.**



# ***IN BRIEF***

- ① **An institution which demonstrates that it is possible to build world-class science institutions in Pakistan.**
- ① **An institution which has served the nation in many ways.**
- ① **An institutional model for others to follow.**
- ① **An institution with global vision.**

# Activities 2016

- Received UNESCO Cat. II status, and Pasteur Institute Collaborating Center status.
- Trained 125 young scholars from 27 countries
- Organized *EURASIA Chemical Congress* with participation of over 1,100 participants (76 countries)
- Organized 23 workshops, and training courses for international participants.
- Organized over 2,000 lectures/courses through VEPP (Virtual Education Program of Pakistan)

# Activities 2016

- Islamic Development Bank funded reverse linkage program with Kazakh Al-Faribi National University (KAZNU) (US \$ 180,000 for the first year).



# What we can offer to COMSATS network?

- 10 Scholarships annually for the researchers (Bench fee, on campus accommodation, and monthly stipend).
- Joint research projects in the fields of natural products, spectroscopy, nanotechnology, stem cell research, biomarkers identification, etc.
- Free registration in international conferences/symposia/workshops, organized by the ICCBS.
- Kindly visit [www.iccs.edu](http://www.iccs.edu) for more information.

# Sustainable collaboration for sustainable development

- Network institutions are invited to identify areas in which they need help (research collaboration, training of personnel, etc). The ICCBS will be happy to provide help.
- The ICCBS too needs help in areas, such animal house management, genomics, climate and health, structural biology, virology, etc.

***ICCBS***  
***IN***  
***PHOTOGRAPHS***





**ONE OF THE MANY INTERNATIONAL GUEST HOUSES**





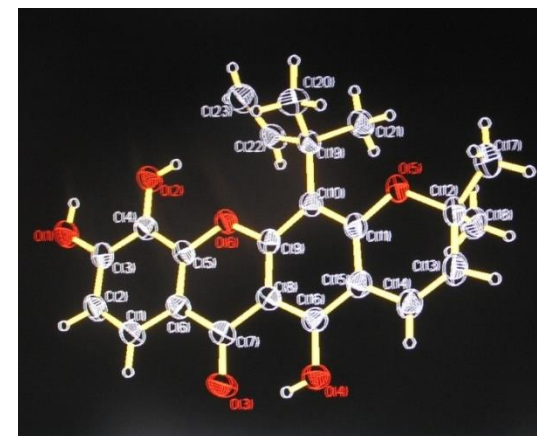
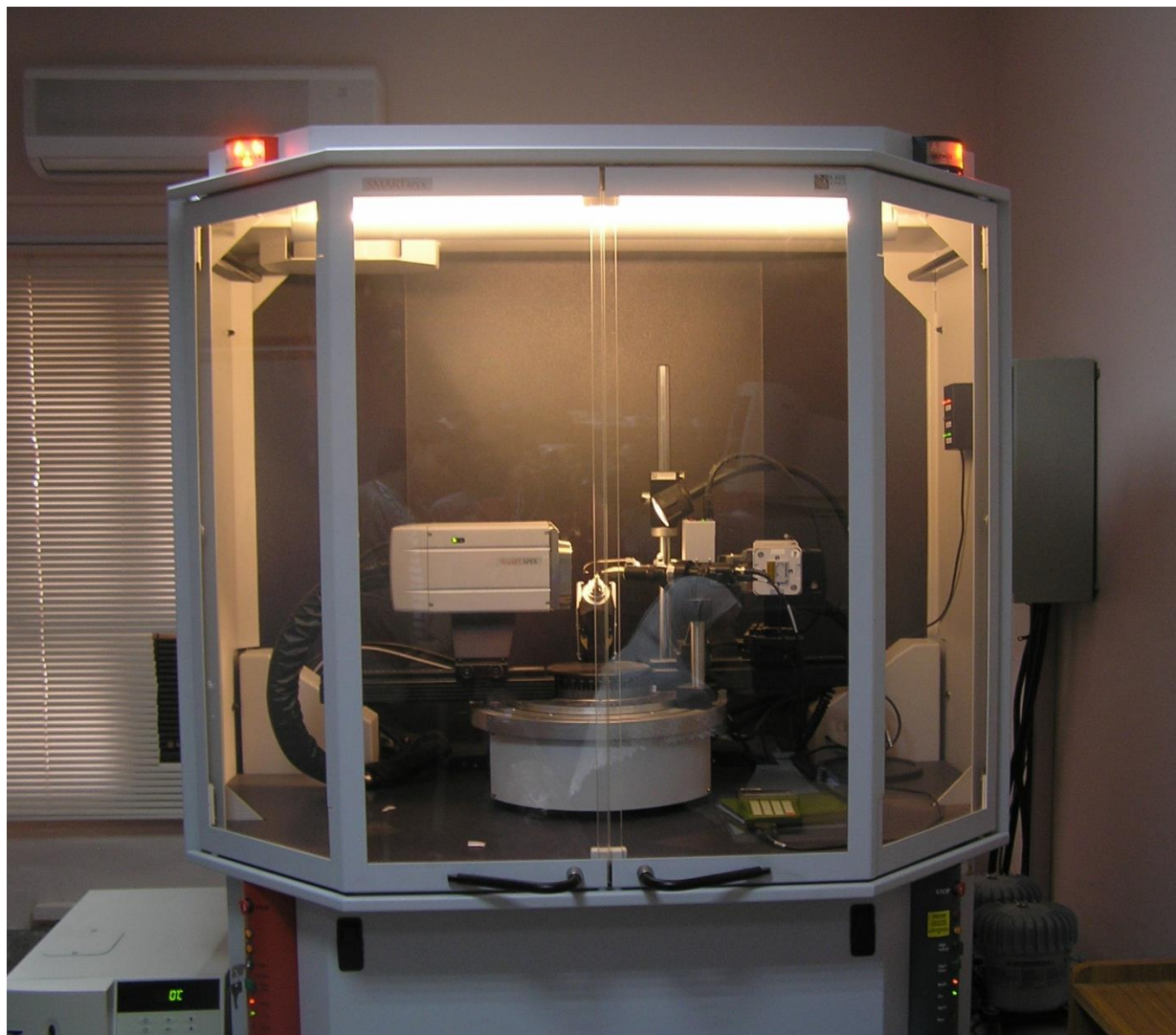
**INSIDE VIEW OF THE INTERNATIONAL GUEST HOUSES**



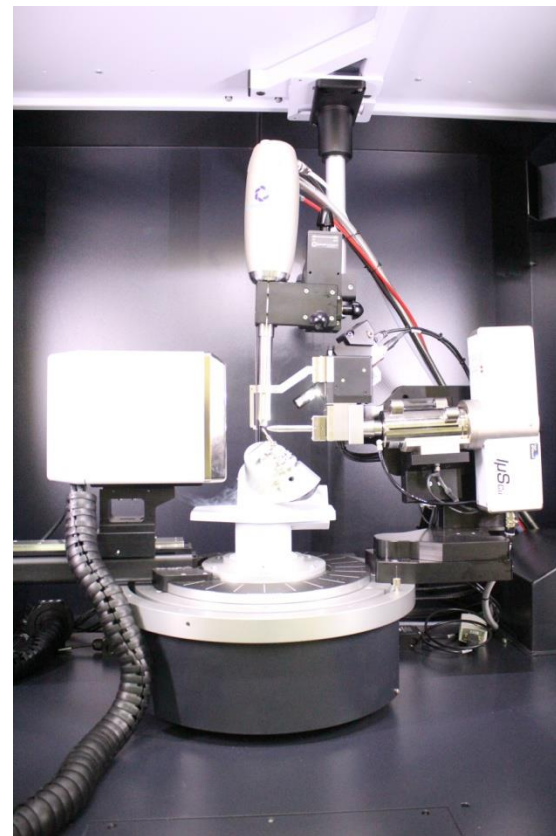
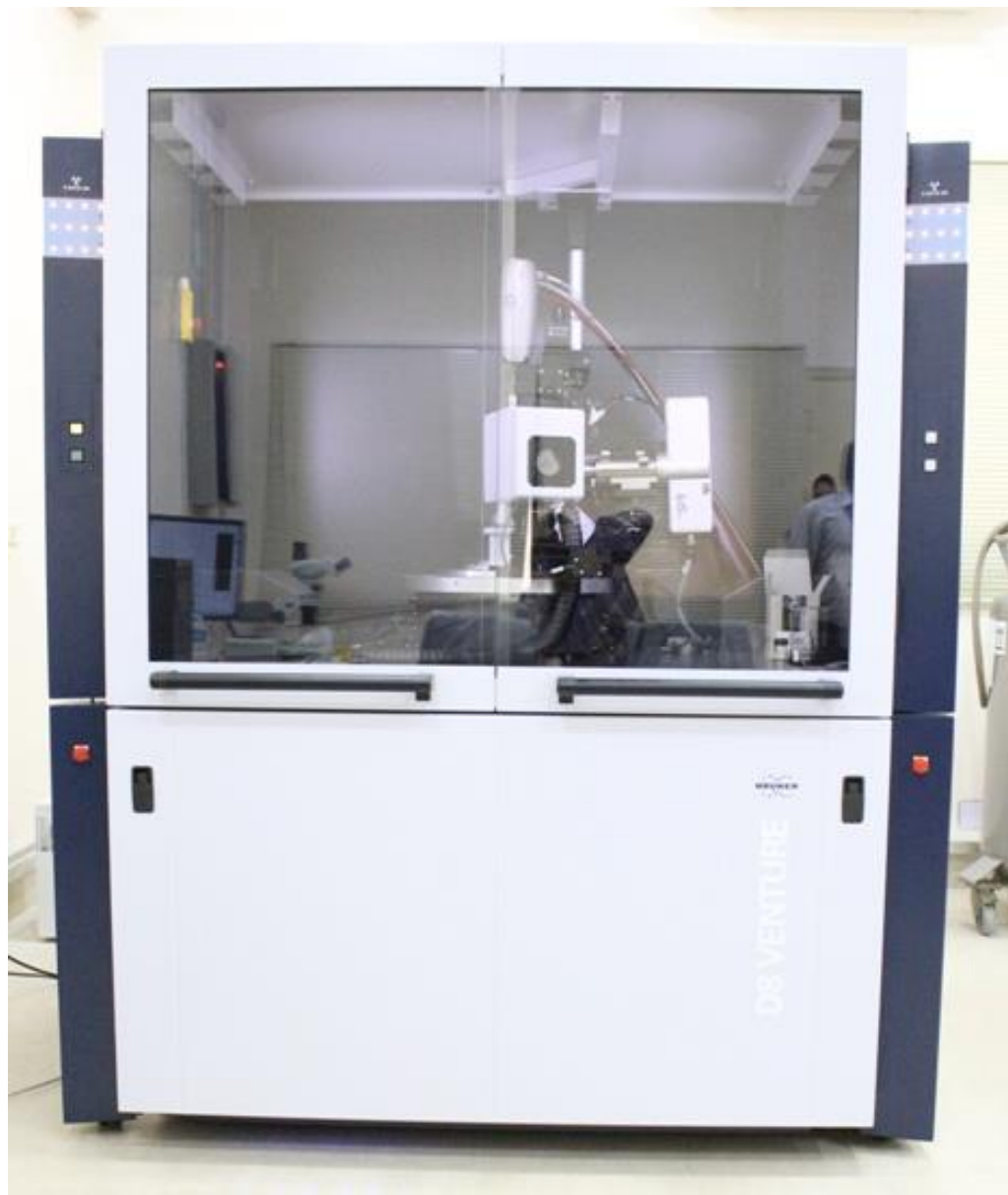


**INSIDE VIEW OF ONE OF THE ROOM IN THE  
INTERNATIONAL GUEST HOUSE**





# SINGLE-CRYSTAL X-RAY DIFFRACTION LABORATORY

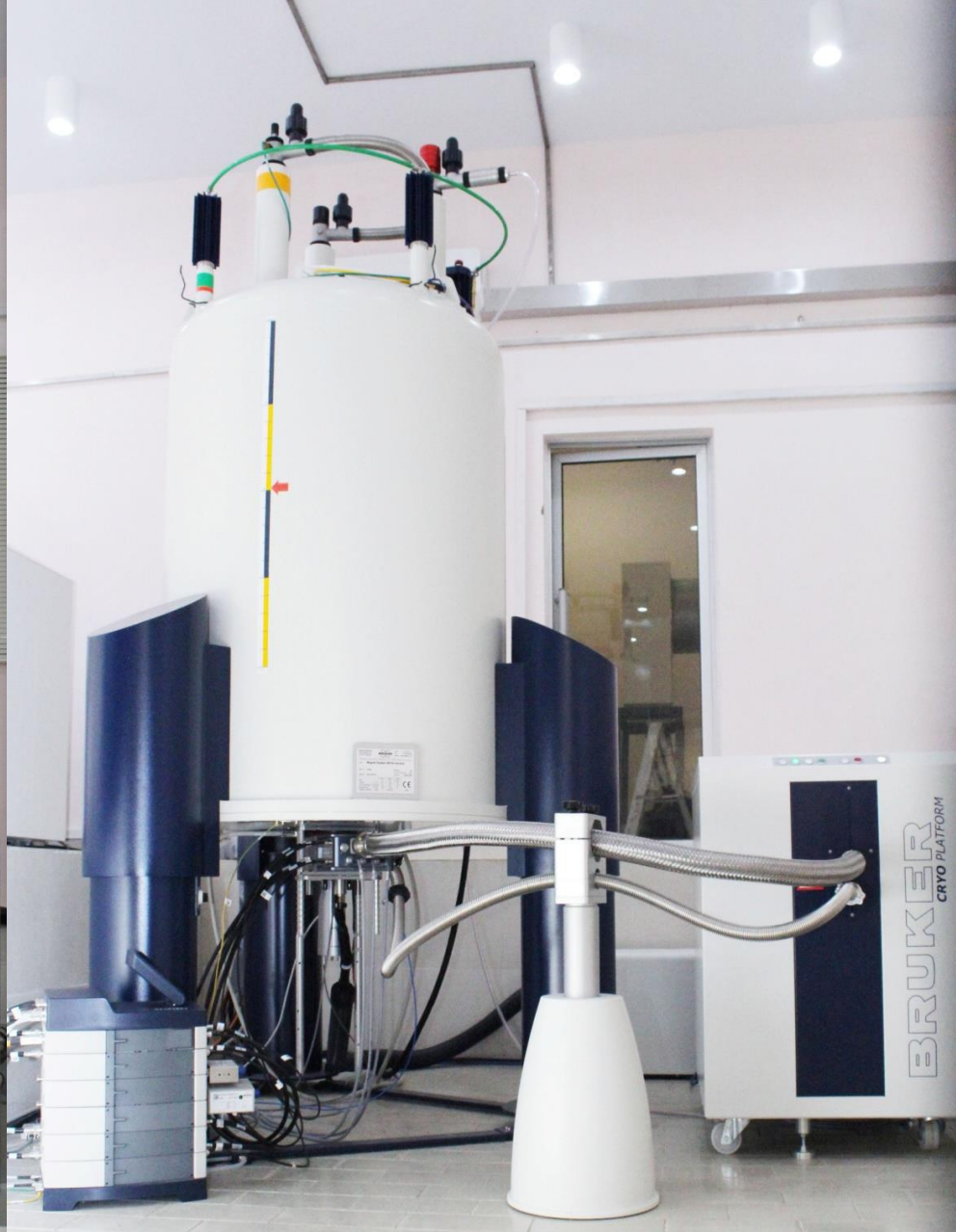


**BRUKER D8 VENTURE**

***Small chemicals and  
Biomolecules***

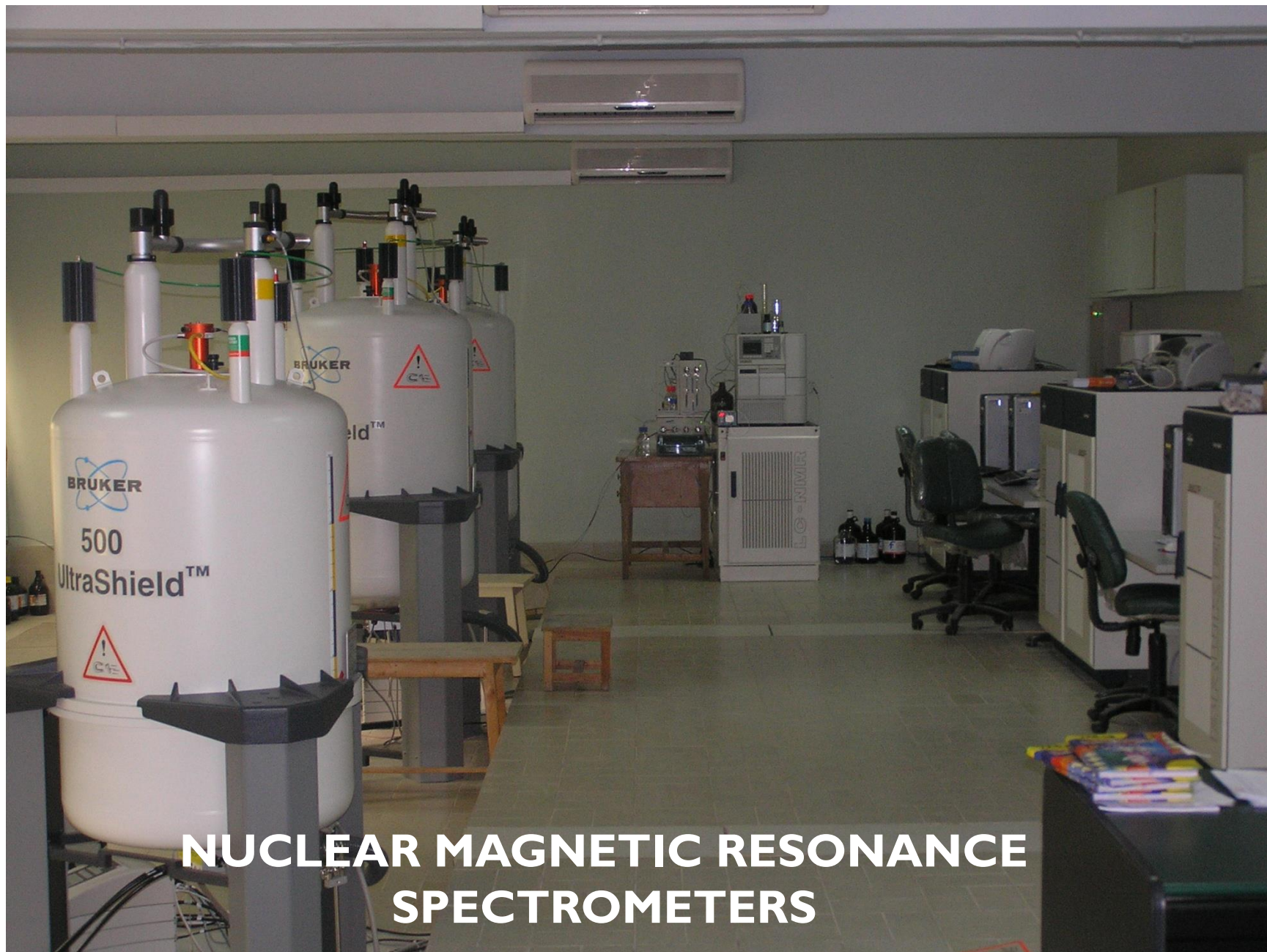
**SINGLE-CRYSTAL X-RAY DIFFRACTION LABORATORY**





**800 MHz Nuclear Magnetic Resonance (NMR) Spectrometer**





# NUCLEAR MAGNETIC RESONANCE SPECTROMETERS





**MALDI-TOF (Ultra-flex-III)**



**MASS SPECTROMETER (ELECTRON BOMBARDMENT SYSTEM)**





**MASS SPECTROMETER (ELECTROSPRAY IONIZATION)**





**UPLC**



**ONE OF THE ICCBS LIBRARIES**  
***One of the Finest in the Field of Chemical Sciences***



**ONE OF THE GREEN HOUSES FOR VIRUS-FREE  
BANANA VARIETIES**



**BIOTECHNOLOGY DIVISION**





## ***PLANT BIOTECHNOLOGY DIVISION***





**PILOT PLANT**



**MOLECULAR BANK AT THE PCMD**  
**Over 14,000 Fully Characterized Compounds**

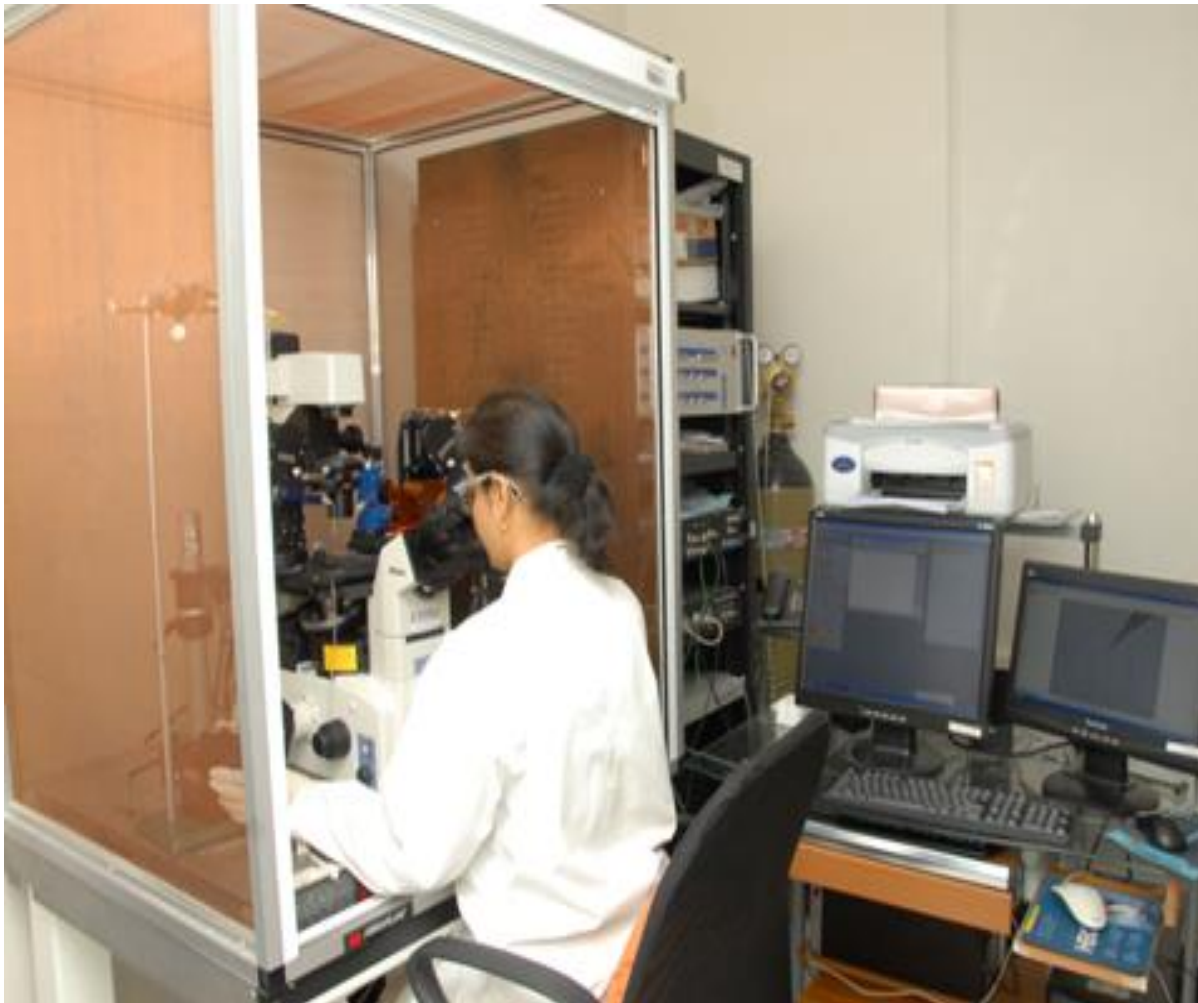




**MOLECULAR BANK AT THE PCMD**



**DIAGNOSTIC LABORATORY AT THE PCMD**

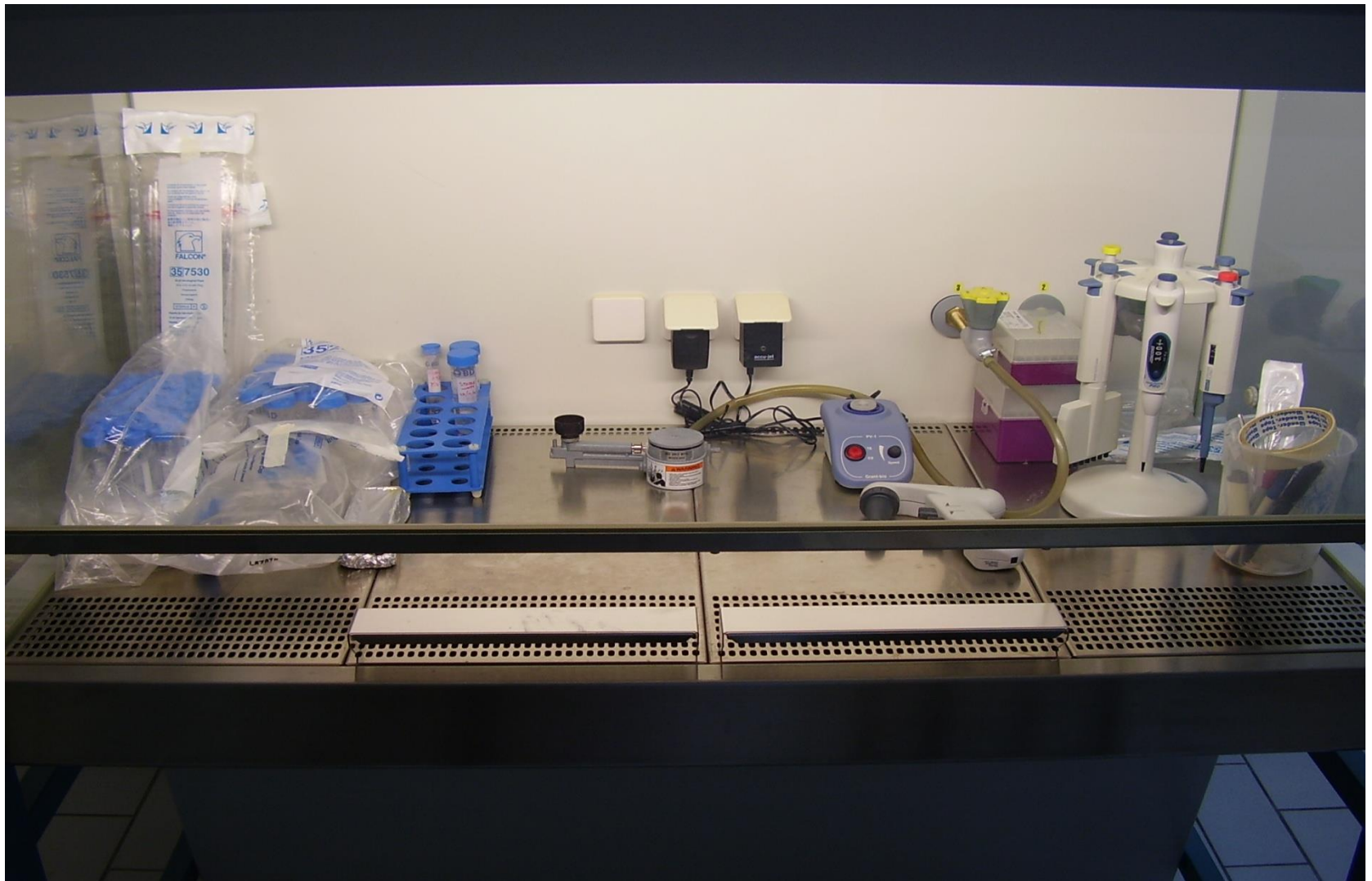


***PATCH CLAMP FACILITY AT PCMD***





**TISSUE CULTURE FACILITY AT THE PCMD**



**CANCER CELL LINES AT PCMD**





**FLORESCENCE MICROSCOPIC LABORATORY**





## COMPUTATIONAL CHEMISTRY LABORATORY



**IMMUNOLOGY LABORATORY**





# NEUROPHARMACOLOGY LABORATORY





**PHARMACOLOGY LABORATORY**



**STEM CELL RESEARCH LABORATORY**





**DATABASE SEARCHING FACILITY OF THE  
LATIF EBRAHIM JAMAL NATIONAL SCIENCE CENTER**





**VIDEO CONFERENCING OF THE  
LATIF EBRAHIM JAMAL NATIONAL SCIENCE CENTER**



**VIDEO LECTURE FACILITY OF THE  
LATIF EBRAHIM JAMAL NATIONAL SCIENCE CENTER**



**IN HOUSE LIQUID NITROGEN SETUP**





**Pictures of visiting Germans students**



***RESEARCH IN NANOPARTICLES***



**CBSBR Bio-analytical Unit**





***FEW STUDENTS OF ICCBS***





**FOREIGN FACULTY AND STUDENTS**



**Director ICCBS, with French Delegates  
NMR Park HEJRIC**





**VISIT OF FACULTY FROM UNIVERSITY OF RHODE ISLAND**





**FOREIGN FACULTY AND STUDENTS**





**FOREIGN FACULTY AND STUDENTS**





**FOREIGN STUDENTS**





**FOREIGN STUDENTS**





***ICCBS Group Photograph, 2015***



# Pakistan

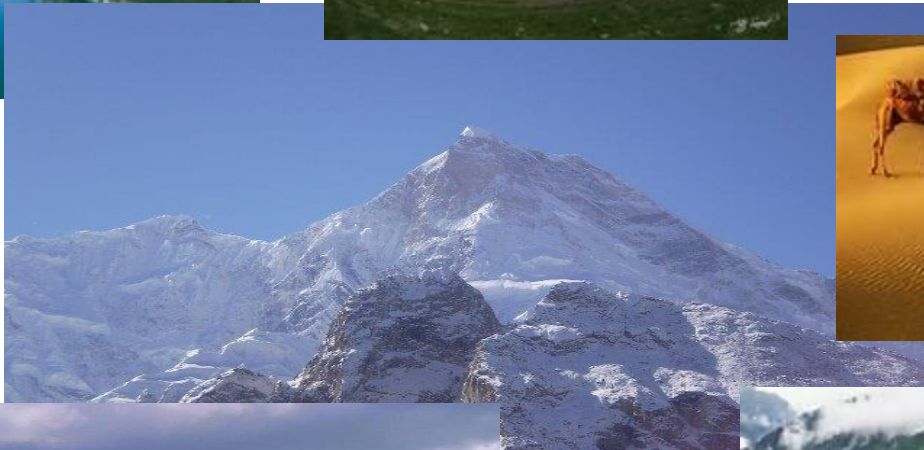
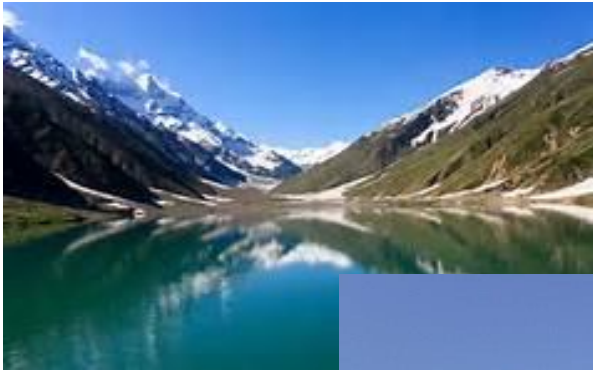




# People

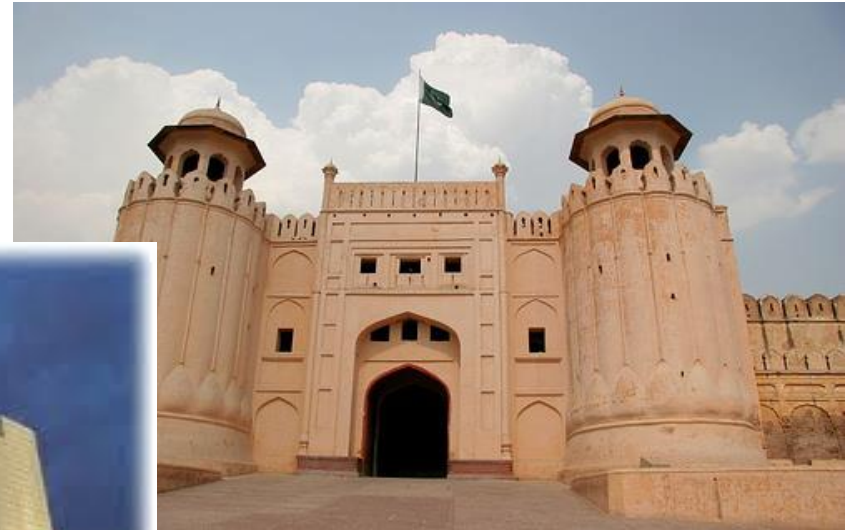
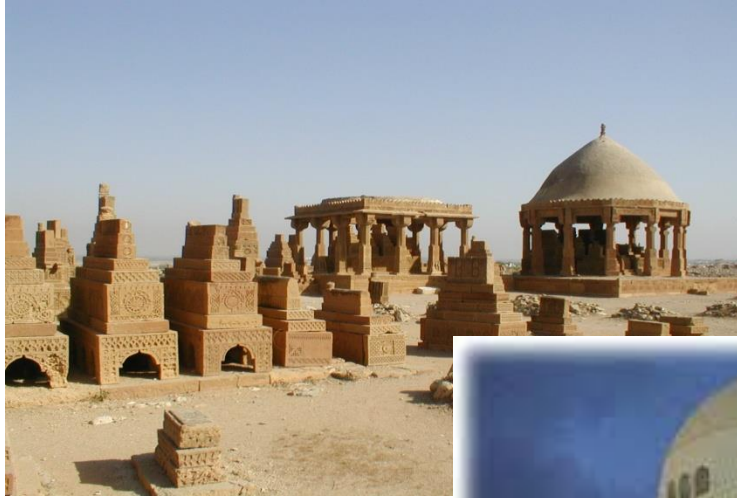


# Landscape





# History





# Cuisines



**THANK YOU VERY MUCH**