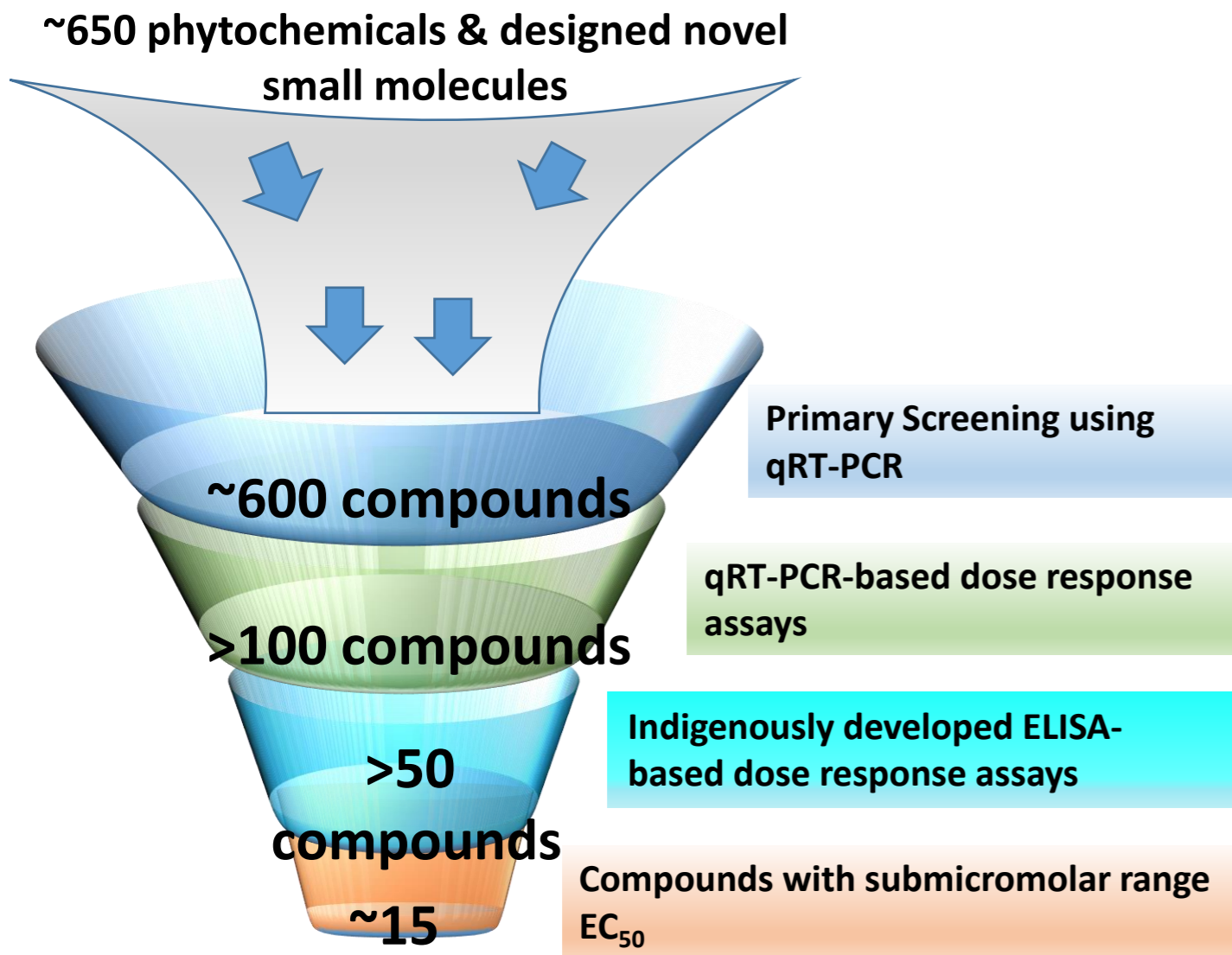


CSIR-IMTECH

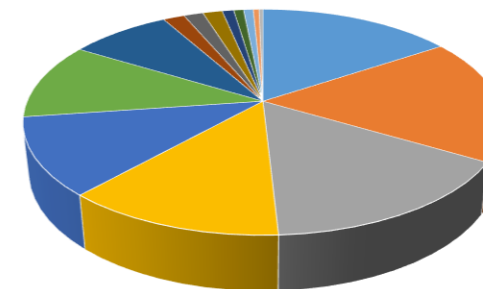
Latest Notable achievements/initiatives

Major outcomes of the Anti-SARS-CoV-2 screening efforts at CSIR-IMTECH



Final outcome so far:
4-5 leads for preclinical studies
More leads are expected in the due course of time

~650 Compounds Received



- 1 CSIR-IHBT
- 2 CSIR-IICT
- 3 CSIR-IMTech
- 4 CSIR-IIIM
- 5 CSIR-NCL
- 6 CSIR-IICB
- 7 CSIR-NIIST
- 8 CSIR-CDRI
- 9 CSIR-CIMAP
- 10 IISER Mohali
- 11 IISc
- 12 NABI
- 13 CSIR-IGIB
- 14 CIAB
- 15 Bose Institute

Publications:

Sarkar et al., *Virus Res* 315 (2022) 198768
Ahmed et al., *Front Immunol* 12 (2021) 765211
Jain et al., *J Indian Soc Periodontol* 25 (2021) 86-88
Khatri et al., *Nat Chem Biol* (2022)
Kumar et al., *Comput Struct Biotechnol J* 19 (2021) 424-438
Malladi et al., *ACS Infect Dis* 7 (2021) 2546-2564
Naushin et al., *Elife* (2021). 10:e66537

Patents filed for anti-SARS-CoV-2 compounds

1. Patent application no. 202211044091
2. Patent Internal reference No.: 0129NF2022

Patents covering design of air purifying devices

1. Indian Patent Appl. No. 202111016274
2. Design Registration Filed, 2021, No. 006DN2022

Assisting industry and academia in their efforts to combat the COVID-19 pandemic

Technical services provided to the industrial partners

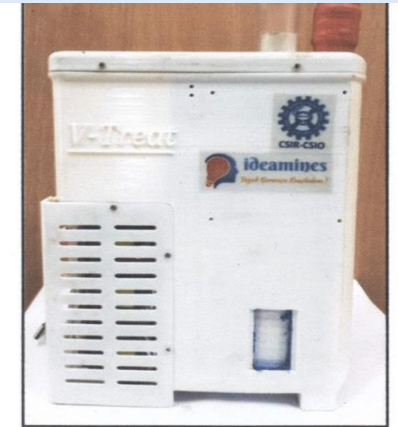


Products in the market tested at CSIR-IMTECH



- ✓ Completed 24 industry projects generating ECF of ~1.54 Cr
- ✓ Even during ongoing pandemic, projects were completed in time helping industry bring products to the market to mitigate COVID-19 pandemic.
- ✓ Several products/devices tested at CSIR-IMTECH are in the market
- ✓ Testing of devices and products required custom design of SOPs which made these projects challenging and hence required innovation

Assisting academic partners



The assay platform was used to test UVC Air disinfection devices developed by CSIR-CSIO and CSIR-NPL

- ❖ Air disinfection device designed by CSIR-CSIO for HVAC systems and tested at CSIR-IMTECH have already been installed in the parliament building and in hospitals.
- ❖ These devices can also be used in public transport system like railways as well.

Lead identification, optimization, and candidate selection of novel anti-tuberculosis compounds

Zy+us



Objectives accomplished

- Screening of ~ 180 NCEs for activity against *M. tuberculosis*
- Cell viability studies
- Dose response curves for active compounds
- Biochemical assays to identify mechanism of action
- Cytotoxicity of active compounds
- Generation of resistant strains
- “Frequency of resistance” assay
- Dormancy assay
- *In vivo* profiling
- ~ 4-5 NCEs identified with anti-TB activity

Synergy studies

**kill kinetics
&
kill curve
analyses**



***Project completed
successfully***

Developing economically feasible technology for α -amylase production

Bioprocess development and fermentation

IFB
AGRO

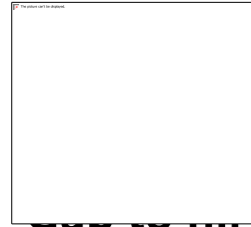


- Majority of the enzymes are imported from China
- Developing a process will promote indigenous enzyme production thus enabling Indian industries to compete in the global market

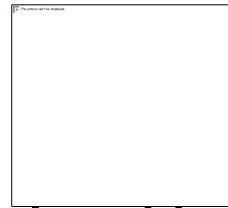
- Developing process for α -amylase production which can compete with global benchmarks using wild type and recombinant strains

- Isolation and screening of strains suitable for α -amylase production
- Development of recombinant strain for over-expression of enzyme
- Process development based on submerged fermentation using low cost raw material
- Assessment of quality parameters
- Feasibility analysis of future process scale up and technology development

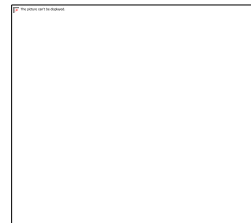
- Developed a bench scale technology for α -amylase production



Current status



Target to follow



Strategy for action



Achievement





Microbial Type Culture Collection and Gene Bank (MTCC)

National Facility & International Depository Authority (IDA)

Vision

To be the **pioneering microbial resource centre** providing state of art facilities in microbiology



Mission

To **conserve and harness** the potential of **microbial resource** and to provide excellent services



Development of Microbial Resource/ Consortia for Biodegradation of Ammonium Perchlorate (AP)
Two microbial consortia identified and developed, both capable of "Degradation of AP from 7000 ppm in 24 hrs"

IDAs world-wide



MTCC-IDA, for national MICROBIAL BIOSECURITY and MICROBIAL RESEARCH



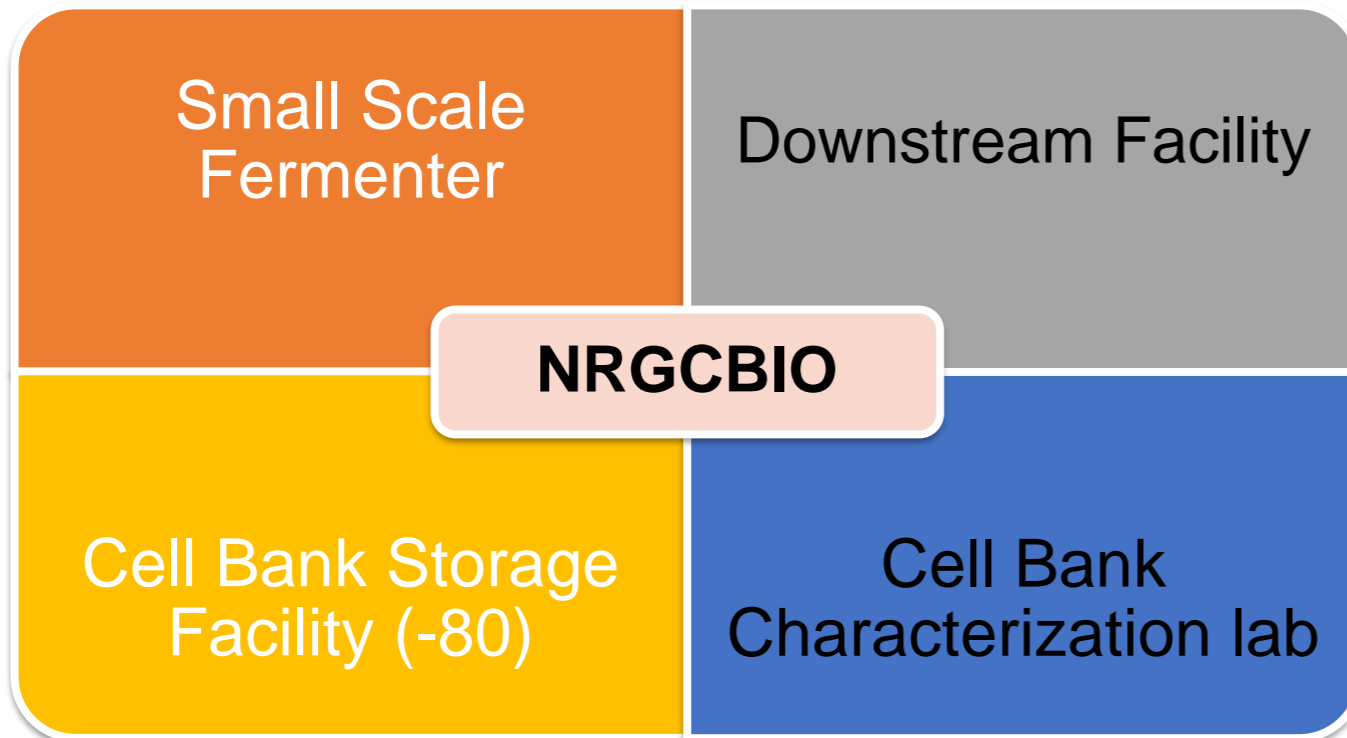
GMP FACILITY

NRGC 



NATIONAL REPOSITORY OF MICROBIAL CELL BANKS
FOR BIOPHARMACEUTICAL PRODUCTS

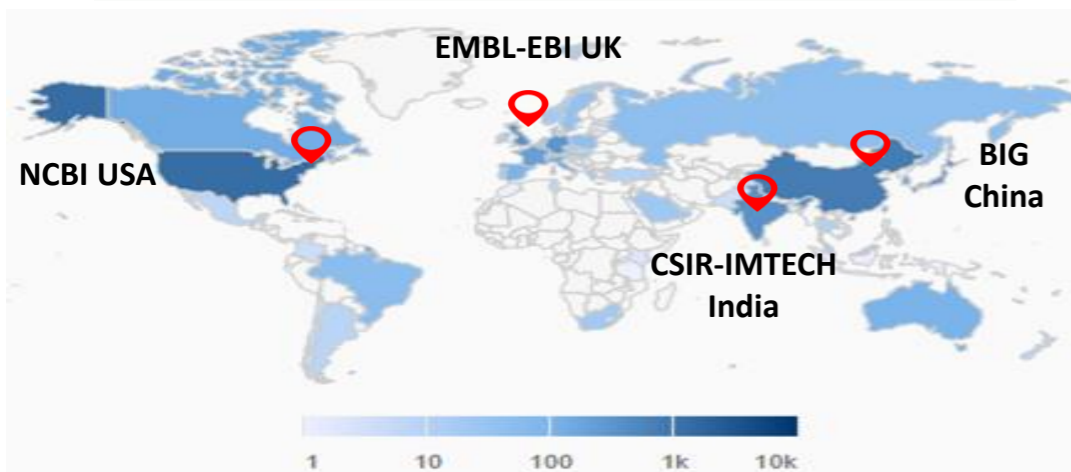
बायोफार्मास्यूटिकल उत्पादों के लिए माइक्रोबियल सेल बैंकों का राष्ट्रीय भंडार
CSIR-INSTITUTE OF MICROBIAL TECHNOLOGY, CHANDIGARH



International Recognition of CSIR-IMTECH in Database Development for Biological Applications



Worldwide biological databases



(26th November, 2023)

6380
DATABASES

13
CATEGORIES

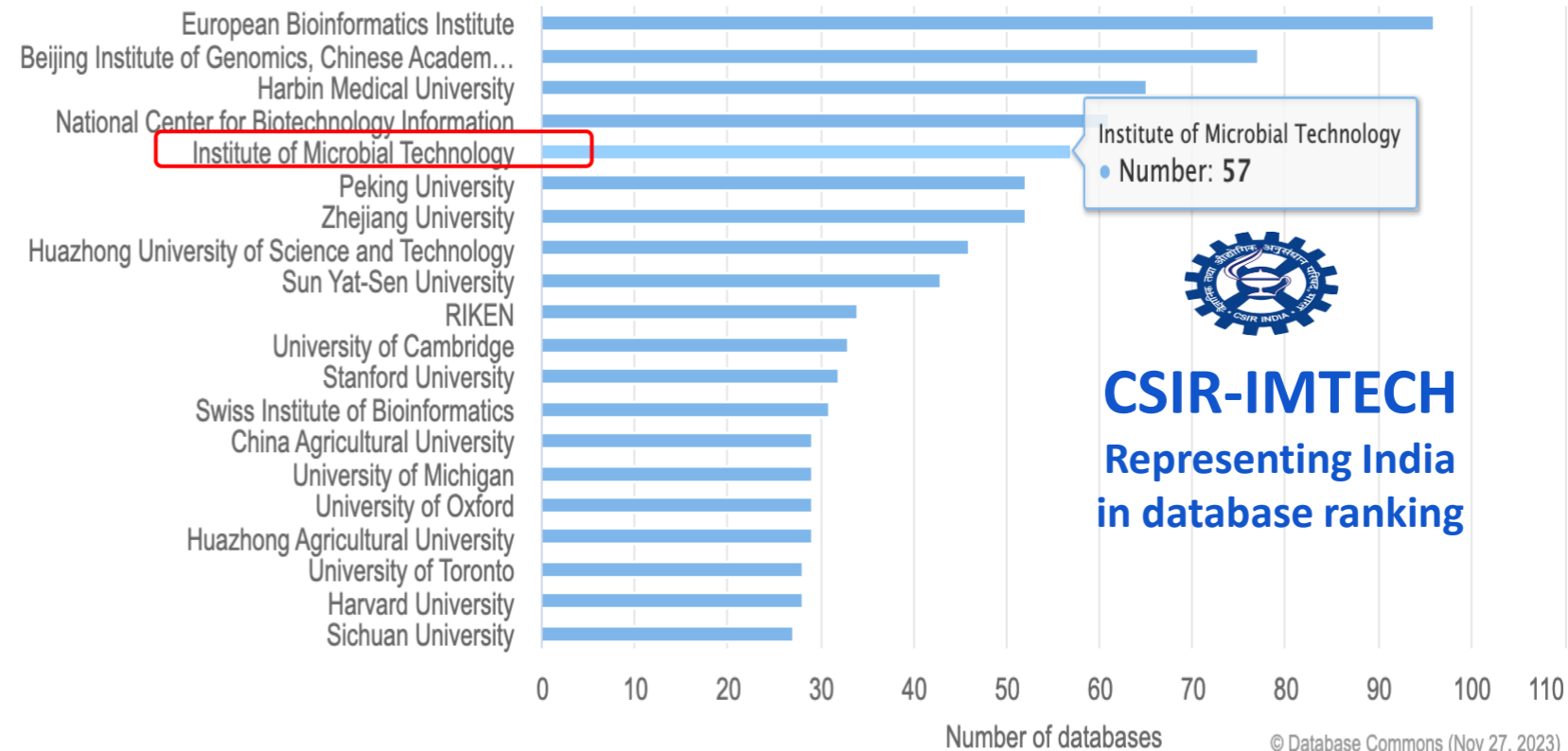
1644
SPECIES

9853
PUBLICATIONS

2142
INSTITUTIONS

76
COUNTRIES / REGIONS

Top 20 institutions by database count



CSIR-IMTECH
Representing India
in database ranking

<https://ngdc.cncb.ac.cn/databasecommons/stat>

CSIR-IMTECH with 57 databases ranked 5th globally next to EMBL-EBI, NCBI-USA and BIG-China.

~3.3% (13 out of 397) computational resources worldwide in viral bioinformatics

Merck-High End Skill Development Centre, CSIR-IMTECH, Chandigarh

Vision

A step towards supporting, enabling and facilitating life science research in India by providing access to state-of-the-art tools and techniques



Inauguration
10th January 2020



Health Minister's Visit
March 2021

Objectives

1 Skill Development

- Industry exposure
- Developing right Skill Sets for early adoption of Technological Advancements
- Integrate work and Research-based learning by providing services to carry out real-time sample analysis

2 Driving Innovation

- Drug Discovery
- Affordable Healthcare
- Fast & Accurate Diagnostics
- Agriculture Biotechnology

Accomplishments



Scholars Trained
14K



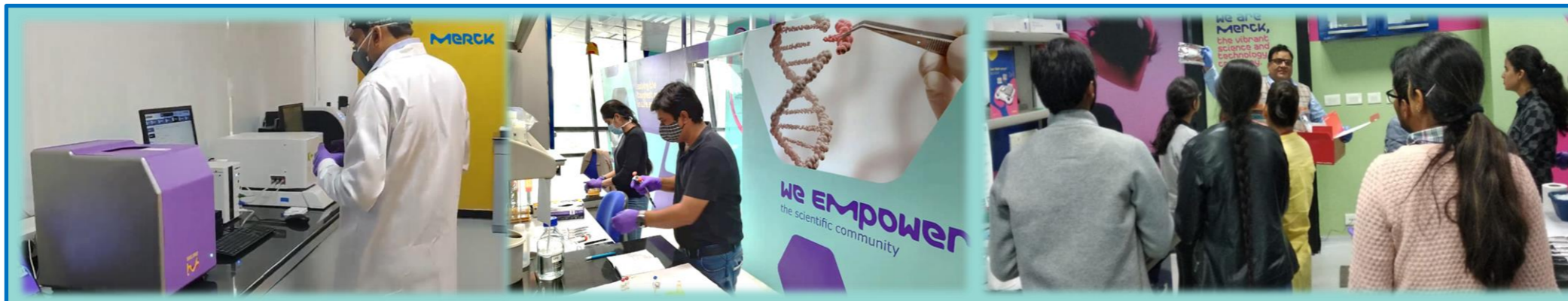
Universities/colleges
1.2K



Webinars/Trainings
90



Integrate Work & Research
25 Institutes

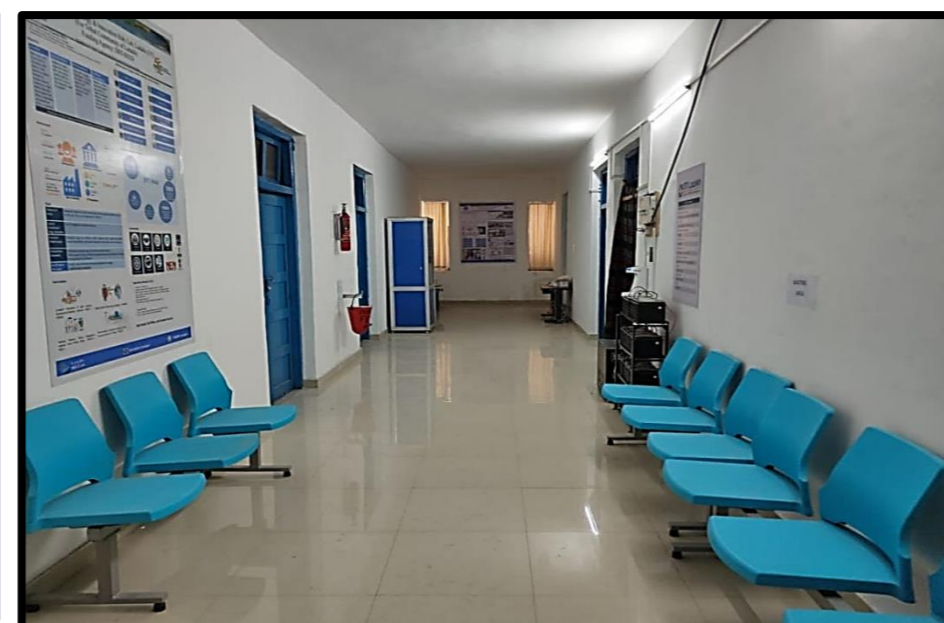


“If you are looking for any training programme which can hone your knowledge and enhance your technical skills you can't get anything better than CSIR- Merck high end skill development centre at imtech.”

[Read More](#)

MoU extended for next 2 years

Science, Technology & Innovation Hub, Leh, Ladakh



Infra @STI Hub Leh Ladakh

STI Hub Leh Ladakh Inauguration



Digital Healthcare @STI Hub Ladakh

Ladakh AgriTech Mela

Industry-Academia-R&D Connect

JIGYASA - SSR@CSIR-IMTECH Activities

Programme	No. of Days	Participants
ATL Activities	8	660 students and 20 teachers
Deaf Inclusive Proteomics Day	1	60 Deaf students and teachers
81st CSIR, India Foundation Day	1	350 students
RSC Global Battery Experiment	1	60 students and 7 teachers
World Youth Skill Day 2022	1	50 students and 5 teachers

Jigyasa
PROMOTING SCIENTIFIC TEMPER THROUGH STUDENT - SCIENTIST CONNECT PROGRAM

NITI Aayog

ATAL INNOVATION MISSION

Take charge
Global battery experiment
ROYAL SOCIETY OF CHEMISTRY

ArMoR
The Game is On!

WYSD WORLD YOUTH SKILLS DAY
15 JULY 2022

CSIR-IMTECH Welcomes You

Get involved with the RSC's global battery experiment and:
22 September
In association with CSIR

- Learn to make coin batteries
- Explore battery science
- Share results with investigators all around the world
- Discover new ways to tackle the climate crisis
- Make a commitment to working towards a brighter energy future

rsc.ll/takecharge

IoT & EMBEDDED SYSTEMS IN HEALTH CARE
PGT, TGT Teachers & ATL Incharge are welcome to register

14-16 MARCH 2022
10:00AM-1:00PM
ONLINE MODE

HIGHLIGHTS

- Lectures by Eminent Speakers
- Hands on Practical Session with Real Hardware
- Exercise, Quiz, Demo and Prototype
- E-certificate
- Free Registration

Link to register:
<https://forms.gle/vVv1Ras8ctulaaPe8>

CSIR - Institute of Microbial Technology
Sector 39A, Chandigarh
Phone : 0172-2880457, Email : shekhar@imtech.res.in
For more details visit website: <https://www.imtech.res.in>

