NATIONAL INSTITUTE OF PHARMACEUTICAL EDUCATION AND RESEARCH
राष्ट्रीय औषधीय शिक्षा एवं अनुसंधान संस्थान
औषधीः शर्म यच्छन्त्वाभृताः
NIPER GUWAHATI

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Department of Pharmaceuticals

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Content

Newsletter Editorial Team

Central Instrumentation Facility

Chemical Science (CIF-CS)

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The central instrumentation facility at NIPER Guwahati was established with some major sophisticated instruments to pursue research in science and technology, especially in pharmaceutical education and research, and take it to a higher level. It is maintained by a group of recognized scientists with expertise in various characterization techniques used in analysis and data collection. The centre also hopes to expand the facility each year, making it a core facility in the country's Northeast region. A core value at NIPER-G is providing the instrumentation and affiliated infrastructure needed to conduct cutting-edge research in the field of pharmaceutical education. To fulfill this mission, NIPER-G manages various central facilities, all of which are supported by faculties, scientists, and technical personnel.

In 2023, CIF expanded with new sophisticated instruments. This expansion has increased the core facility units with the addition of NMR, SEM, XRD, etc. It has provided the opportunity to offer a larger assortment of equipment to the students, faculty, and researchers at large.

SEM (Carl Zeiss)

The Carl Zeiss GeminiSEM 360 scanning electron microscope (SEM) uses a focused beam of electrons to create a magnified image of a sample. The electron beam is scanned in a regular pattern across the surface of the sample, and the electrons that come out of the sample are used to create the image. Electrons are negatively charged particles within the atom. In a light microscope, light photons are focused by glass lenses. In an electron microscope, electromagnets are used to focus the electrons. The electron beam's interaction with the sample's surface affects the images we achieve. The SEM is a tool for creating images of the otherwise invisible worlds of microspace (1 micrometer = 10-6m) and nanospace (1 nanometre = 10^{-9}m). SEMs can magnify an object from about 10 times up to 300,000 times.

Detectors on SEMs can routinely capture two different types of SEM images: a secondary electron image or a backscattered electron image. The shades of grey in a secondary electron image are created by the topography of the sample. The shades of grey in a backscattered electron image stem from the atomic weight of the constituent elements in the sample and can be used to visualize this information.

XRD (Malvern Panalytical)

X-ray diffraction (XRD) is a technique that uses X-rays to study the crystalline nature of materials. It does this by measuring the diffraction of X-rays from the planes of atoms within the material. This method is sensitive to the type and relative position of atoms in the material and the length scale over which the crystalline order persists. In simpler terms, it can be used to measure the crystalline content of materials, identify the crystalline phases present, determine the spacing between lattice planes and the length scales over which they persist, and study preferential ordering and epitaxial growth of crystallites. It covers length scales from approximately sub-angstroms to a few nm and is sensitive to ordering over tens of nanometres.

NMR

Nuclear Magnetic Resonance (NMR) spectroscopy is the most versatile technique with a wide range of applications to reveal hidden information in various disciplines of scientific research, from a simple chemical reaction in chemistry to extremely complex biochemical reaction mechanisms in biology. NMR is a phenomenon that provides atomic-level information about biomolecules (natural compounds, proteins, carbohydrates & nucleic acids) structure, dynamics, reaction state, and chemical environment. It is a non-invasive tool in which the molecules can be characterized near physiological conditions without introducing any chemical modifications required for other techniques. Likewise, NMR is instrumental in discovering biomarkers in metabolomics to monitor various diseases and in drug development. NMR is the only technique that can be used to study the conformation of insoluble/fibrillar structures

such as amyloids (solid-state NMR). NMR analysis provides structural parameters such as hydrogen bonds, dihedral angle information, and stereochemistry of molecules, etc. At NIPER Guwahati, the 600 MHz and 400 MHz Bruker NMR spectrometers are available under one roof. These spectrometers are equipped with two probes: an inverse (i) probe (400 MHz & 600 MHz) and a Triple-resonance Broadband (TBI) probe (600 MHz). This setup has proven to be a game-changer for researchers from various disciplines, empowering them with the information they need to resolve their research issues effectively.

The Central Instrumentation Facility (Chemical Science) at NIPER Guwahati stands as a beacon of scientific advancement and collaborative research. Equipped with state-of-the-art instruments and open to both academia and industry, it fosters an environment where innovation thrives. The facility not only supports the intricate research needs of NIPER's own scholars but also extends its capabilities to the wider scientific community, embodying the spirit of progress and the relentless pursuit of knowledge.

As NIPER Guwahati continues to grow and contribute to the pharmaceutical sciences, the Central Instrumentation Facility will undoubtedly play a pivotal role in shaping the future of pharmaceutical research and development in India and beyond.

(More information on the CIF-CS can be accessed at https://niperguwahati.ac.in/cif.html)

Seminars & Workshops

Talk on 3D Printed Drug & Gene Delivery Systems

Dr. Jaidev Chakka, University of Mississippi, USA, delivered a talk on 24th January 2024 elaborating on the cutting-edge 3D printing technologies and 3D printing related R&D currently being pursued at University of Mississippi, USA. He also elaborated on the gene and biological macromolecules delivery through 3D bioprinting approach.

Online Talk on Micro CT Software Applications with Emphasis on Imaging of Lung Fibrosis in Mice

Dr. Kurt Augustine, Senior Technical Expert from Analyze Direct, North Carolina, USA, delivered an online talk on applications of Imaging techniques in the lung fibrosis on 25th January 2024. Nearly 100 participants attended the online talk and learnt various imaging techniques.

Workshop on World Hindi Day

Dr. Sharmila Taye, Assistant Director, Hindi Shikshan Yojana, Maligaon (Guwahati), took a session during a Hindi workshop on 30th January 2024 organized on the occasion of World Hindi Day. Faculty and staff members of NIPER Guwahati took part in the workshop and gained knowledge on implementation of Hindi in office procedures.

Brainstorming Sessions on Enrichment Techniques for Bioactive Phytoconstituents in Herbal Preparations

Dr. CK Katiyar from Emami Ltd. and Dr. MKR Mudiam from IPFT took sessions during a workshop on enrichment techniques for bioactive phytoconstituents in herbal preparations was conducted on 1st & 2nd February 2024. The objectives of the workshop were to populate and educate the participant for isolating, characterizing, and scaling up techniques for therapeutically important bioactive phytoconstituents from herbal extract.

Guest Lecture on Cellulosic Polymer

NIPER Guwahati organized a Guest Lecture session titled “Introduction to Cellulosic Polymer and Its Pharmaceutical Applications" on 6th February 2024. The session featured speakers Mr. Nitin Bhusane, Director, and Ms. Sonam Singh, Assistant Lab Manager, from Shin-Etsu Chemical Tylose India Pvt Ltd. The objective of this guest lecture was to make the students understand the basic polymers, their properties and usefulness in drug delivery.

Seminar on Lab Excellence

Dr. Laxman Rao and Mr. Rohit Ojha from Agilent Limitd attended a seminar on lab excellence on 27th Februry 2024. The objective of the workshop was to educate the participants for the basics of LC-MS/MS method development. Nearly 70 students participated in the seminar.

Advanced Level Training Program on Pharmacovigilance for Healthcare Professionals of Northeast India

Department of Pharmacy Practice, NIPER Guwahati organized a two-day “Advanced Level Training Program on Pharmacovigilance for Healthcare Professionals of Northeast India” on 1st & 2nd March 2024. The training program aimed to develop the skills among healthcare professionals working in Northeast India in all aspects of Pharmacovigilance activities related to academia, industry, and regulatory perspectives. It was organized in association with the International Society of Pharmacovigilance (ISoP) South Asia Chapter and was sponsored by the Department of Pharmaceuticals (DoP), Ministry of Chemicals & Fertilizers, Govt. of India under its Pharmaceutical & Medical Devices Promotion and Development Scheme (PMPDS).

Interaction with Medical Devices experts from Biomedical Technology wing, SCTIMST Trivandrum

Dr. Roy Joseph & Dr. Harikrishna Varma P. R. from Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Trivandrum interacted with the students on 5th March 2024 that covered multiple phases of product-based research, testing, regulatory requirements, technology transfer, importance of IP/ICP and manufacturing challenges including clinician requirements.

Online Pitch Session of Women Support Fund

Atal Incubation Centre, NIPER Guwahati Foundation organized a Women Support Fund program on 11th March 2024 through online mode to support pre-incubation. Nine shortlisted participants presented their ideas to the jury, three of which were selected as winners and will get a pre-incubation support of Rs. 1 Lakh from Atal Incubation Centre (AIC) NIPER-Guwahati Foundation. Women Support Fund program was designed to offer recognition and financial support to women innovators and entrepreneurs who have been working in the bio-business sector or facilitate a promising technology idea that can be converted into a handy business in a defined time limit.

Virtual Events on MSME Support Fund

Atal Incubation Centre, NIPER Guwahati Foundation organized an MSME Support Fund program through online mode on 19th March 2024 to support pre-incubation. Ten shortlisted participants presented their ideas in front of the jury, five of them were selected as winner and will get pre-incubation support of Rs. 1 Lakh from Atal Incubation Centre (AIC) NIPER-Guwahati Foundation. MSME Support Fund program was designed to offer recognition and financial support to innovators and entrepreneurs.

Campus Events

Dedication of NIPER Guwahati to the Nation

Dr. Mansukh Mandaviya, Hon'ble Union Minister of Chemicals & Fertilizers virtually dedicated NIPER Guwahati to the nation through a grand programme organized on 12th January 2024. Shri Bhagwanth Khuba, Hon'ble Union Minister of State (Chemicals & Fertilizers) and Dr. Himanta Biswa Sarma, Hon'ble Chief Minister of Assam, along with a number of dignitaries from both the central and state governments were also present at the programme. During the programme, a series of health infrastructure projects for Assam were also inaugurated by the ministers.

75th Republic Day Celebration

Dr. USN Murty, Director, NIPER Guwahati, unfurled the tricolour on the occasion of the 75th Republic Day of India during a programme organized at the campus on 26th January 2024. In his speech, Dr. Murty recalled the contributions of the pioneers of the constitution which formed the basis of the strong, sovereign, and democratic republic of India.

Annual Sports Week

The Annual Sports Week was inaugurated on 20th February 2024 by Dr. USN Murty, Director, NIPER Guwahati. Over the course of the week, the academic departments participated in various outdoor sports, such as football, volleyball, cricket etc. and won prizes. Indoor games under individual category were also conducted.

International Women's Day Celebration

NIPER Guwahati celebrated International Women's Day on 8th March 2024 at its campus on the theme 'Inspire Inclusion'. The Guests of Honour for the event were Smt. Laya Madduri, IAS, Secretary to the Government of Assam and Smt. Keerthi Jalli, IAS, District Commissioner, Kamrup. Their speech encouraged the students and staff members, especially the women, to break barriers and stereotypes and to go out in the society and make a formidable space in it.

Yoga Camp for Students and Staff

Students under their social activity curriculum attended yoga sessions at the campus organized from 8th to 10th March 2024. Ms. Mridula Lahkar, a certified yoga teacher affiliated to Yoga Vidya Gurukul, Nashik, deliberated the yoga sessions for the students. Staff members also actively participated in the event.

Lecture on Spiritual Conditioning for Success

Swami Bodhamayananda, Head of Ramakrishna Math, Hyderabad, delivered a lecture on the topic "Shraddha – Swami Vivekananda's open secrets of personal conviction" on 18th March 2024 to the faculty, staff, and students. Dr. USN Murty, Director, NIPER Guwahati, welcomed swami ji and expressed his gratitude for inspiring the participants with his speech.

Awards & Achievements

- Dr. Subham Banerjee, Associate Professor, Dept. of Pharmaceutics has recently received Outstanding Early Career Scientists recognitions from Prestigious Journal of Pharmaceutical Sciences, Elsevier.

- Dr. Saurabh Kumar, Assistant Professor, Dept. of Medical Devices, co-chaired a session on "Medical Diagnostics Device Development and Fabrication" at the National Conference on Emerging Trends in Implants and Diagnostics (ETID) at NIPER Ahmedabad, India from 1st -2nd February, 2024.

- Dr. Saurabh Kumar, Assistant Professor, Dept. of Medical Devices, and his team authored a book chapter titled "Emerging Microfluidics Devices for Microbial Studies" (Chapter 12) in the book 'Applications of Nanotechnology in Microbiology '. This chapter delves into the latest advancements in microfluidics devices and their applications in microbial studies, providing valuable insights to the academic community. The book is published by Springer Nature Switzerland AG, ISBN: 978-3-031-49932-6, with a publication date of February 2024

- Mr. Purushottam Suryavanshi, a PhD student, became Royal Society of Chemistry (RSC) Invited Associate Member, January 2024

- Mr. Intikhab Alam, a second-year master's student under the supervision of Dr. Saurabh Kumar, Assistant Professor, received the "Best Poster Presentation" award at the "National Conference on Emerging Trends in Implants and Diagnostics" (ETID-2024). The conference took place in Ahmedabad on 1st-2nd February 2024, and was conducted by the Department of Medical Devices (CoE), NIPER Ahmedabad

MoU

- An MoU was signed with North East Development Finance Corporation Ltd. (NEDFi) to mutually collaborate to work for promotion of start-ups from Northeastern Region. Dr. USN Murty, Director, NIPER Guwahati, and Shri PVSLN Murty, Chairman & Managing Director, NEDFi, signed the MoU on 16th February 2024 at NIPER Guwahati.

- NIPER Guwahati signed an MoU with Guwahati-based company M/s Chemsus Technologies Pvt. Ltd. for the Development of Technology for Calcium Levulinate Formulations. Dr. USN Murty, Director NIPER Guwahati, and Dr. Nageswar Rao Peela, Director of M/s Chemsus Technologies Pvt. Ltd. and a Professor at IIT Guwahati, signed the MoU at NIPER Guwahati on 15th March 2024.

EMR

SN	NAME OF PROJECT	PI	FUNDING AGENCY	DURATION	AMOUNT
1	Design and evaluation of multicomponent coamorphous drug delivery systems for the effective delivery of herbal bio-actives to improve the hepato-protective activity	Dr. Naveen Chella	ICMR	3 years	56 Lakh
2	Exploring the collagen synthesis and cross-linking by targeting lysyl oxidase like-2 (LOXL2)-TGFβ axis in mitigating alcoholic liver diseases: Preclinical development of Phytotherapeutics	Dr. Bidya Dhar Sahu	ICMR	2 years	52 Lakh

Campus Visits

Visit of delegation from French Embassy in India

A delegation from the French Embassy in India consisting of Mr. Aymeric Vo Quang, Project Manager - Scientific & University Cooperation, and Dr. Meenakshi Singh, Scientific Coordinator, visited the campus on 20th February 2024 to discuss the scopes of Academic and Research Collaboration between NIPER Guwahati and French institutions. Dr. USN Murty, Director NIPER Guwahati, extended a traditional welcome to the delegates. During their visit, the French delegates also visited the laboratories and facilities at NIPER Guwahati.

Visit of US Consul General in Kolkata

The US Consul General in Kolkata, Ms. Melinda Pavek, graced our campus with her presence on 8th March 2024. During her visit, Ms. Pavek engaged with the students, addressing their inquiries regarding student visas and other related matters. She also took the time to tour our laboratories and meet with the innovative minds at the BioNEST Incubation Centre.
It was a pleasure to host such a distinguished guest who took a keen interest in our academic and entrepreneurial endeavours.

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