



NATIONAL INSTITUTE OF BIOLOGICALS

NEWSLETTER

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One-day meeting of domain experts held on 6th March, 2025, focused on strengthening quality control testing and capacity building programmes at NIB



The beginning of 2025 has been marked by strategic consultations, and significant advancements at National Institute of Biologicals (NIB). One of the noteworthy initiatives was the One-Day Meeting of Domain Experts on 6th March, 2025 which brought together a wide spectrum of stakeholders from academia, healthcare professionals, and industry leaders to representatives of regulatory authorities like CDSCO and IPC. This meeting was pivotal in shaping the roadmap for strengthening our quality control testing framework. Thoughtful discussions were held on ongoing quality control activities, centralized laboratory infrastructure, and the challenges and opportunities ahead. I am particularly encouraged by the proactive inputs received during the deliberations and the strong consensus around developing targeted training programs for internal teams and external stakeholders alike.



It also brings me great pride to highlight the continued recognition and participation of our scientists in national and international platforms. Our scientists have actively contributed as resource persons and committee members in key scientific discussions. From presenting research at international conferences to being nominated to expert working groups and advisory panels, the impact of their contributions is far-reaching.

Furthering our mandate of capacity building, NIB conducted technical training programmes for professionals in various sectors and skill development sessions for postgraduate students this quarter.

This issue also features an article highlighting the evolution of immunoassay technologies from Radioimmunoassay (RIA) to Chemiluminescence Immunoassay (CLIA) underscoring key advancements in diagnostic precision and quality control practices.

We look forward to continued collaboration with our partners and stakeholders in advancing the national mission of ensuring safe, effective, and high-quality biological products.

Let us carry this momentum forward as we collectively work towards excellence in public health through science, innovation, and regulatory rigor.

Warm regards
Dr. Neelima Mishra

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Advancements in Immunoassay Technology: From RIA to CLIA

Dr. Richa Baranwal is working as Scientist Grade- III in Immunodiagnostic Kit Laboratory. She has more than 15 years of experience in Quality control testing of various Biologicals like Recombinant products, Enzymes & Hormones and in-vitro diagnostic & Molecular diagnostic kits. Currently she is working on various QC aspects of Rapid, ELISA, ELFA & CLIA Kits of HIV, HCV, HBsAg & syphilis. She was actively involved in establishment of Covid-19 sample testing Laboratory during COVID -19 pandemic and Protocol preparation & testing of clinical specimens on fully automated, high-throughput, molecular diagnostic platform.



In-vitro Diagnostics tests and their methods have evolved significantly over the past decades reflecting a continuous voyage towards innovation, with each advancement bringing more accurate, efficient and accessible diagnostics.

In the Immunology, the second largest segment after clinical chemistry, this advancement included a transitioning from Radio Immuno Assay (RIA) to Enzyme-linked immunosorbent Assay (ELISA) and Chemiluminescence Immunoassay (CLIA) technologies, offering safer and more sensitive quantitative determinations.

The immunology methods in 1980's were the latex based agglutination tests wherein the results were read manually with the naked eye. Latex agglutination slide tests for the detection of Hepatitis B surface Antigen (HBsAg), human Chorionic Gonadotropin (hCG), and Rotavirus etc. are few examples. This method yields false negative and positive results and lacked the desired sensitivity and specificity and further limited by lack of precision.

In the 1990s, the development of immunochromatography and the introduction of immunoassays based on colloidal gold technology represented significant advancements in terms of sensitivity and specificity, allowing for rapid, point-of-care testing.

RIA was first described in 1959 for the measurement of endogenous plasma insulin by Solomon Berson and Rosalyn Yalow who later on received Nobel Prize in 1977. The assay revolutionized the field of diagnostics by enabling the measurement of hormones, drugs, and other substances in blood and other body fluids with high sensitivity and specificity. The method required specially trained personnel for test performance. Due to the need for radio-labelled reagents that could pose a radiation hazard, the method suffered various disadvantages. Additionally, the laboratories required a special license to store, handle and dispose-off the radioactive material.

ELISA emerged as a popular alternative to RIA due to its simplicity, speed, and safety. This method used enzymes and substrates to measure the intensity of antigen and antibody reactions, using a photometer for microwells-the ELISA reader. The first ELISA test was introduced in the 1970s however the method gained momentum after the first ELISA assay for HIV-1 became available for the screening of blood and blood products in 1985. The ELISA method proved to be very sensitive and specific specially for qualitative determinations and has been one of the most extensively deployed immunoassays. ELISA is still the only approved method by the Govt. of India, for the screening of Human Immunodeficiency Virus (HIV 1&2), Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) in the blood banks.

The ELISA however, lacked the desired sensitivity and reliability for the quantitative determinations for hormones, vitamins, drugs etc. This further necessitated the development of Enzyme Linked Fluorescent Assays (ELFA) and more CLIA, in the early 2000s.

Currently CLIA is the most advanced and powerful immunoassay technology and has evolved significantly improving assay sensitivity, specificity, and automation. The assay combines highly specific immune reactions with highly sensitive chemiluminescent detection. This technology has become increasingly popular in clinical diagnostics for measuring infectious agents, hormones, vitamins, tumor and other biomarkers.

In CLIA the luminescence is produced by a chemical reaction that induces the transition of an electron from its ground state to an excited electronic state. The Chemiluminescence emission occurs at different wavelengths when the excited molecule decays to its ground state, which is further measured by a luminometer. These assays use a luxogenic (light generating) substrate in place of a chromogenic (color generating) substrate.

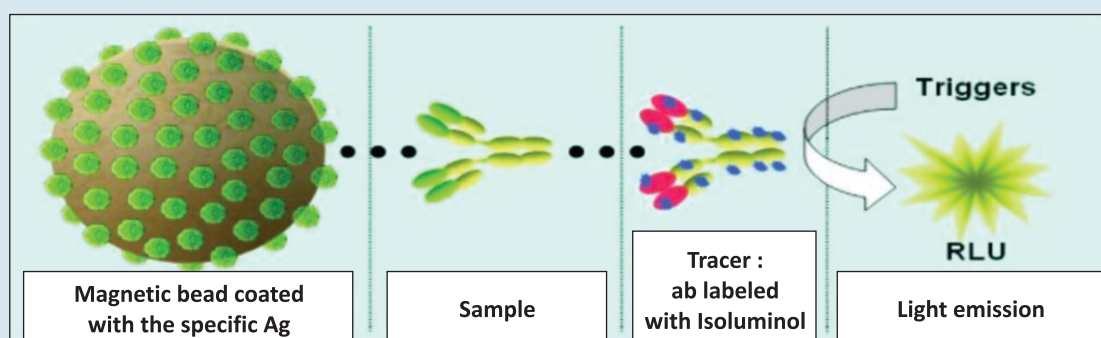


Fig 1. CLIA Assay (Cinquanta, 2017)

Compared to ELISA (absorbance-based assays), chemiluminescence assays have a lower background signal (High signal to noise ratio) resulting in higher sensitivity. The sensitivity of a CLIA assay is estimated to be ten times higher than that of an ELISA assay.

CLIA has a lower limit for detecting low-abundant proteins or early-stage disease, wide range of detection, higher linearity, reduced assay time, no protein quenching problem, automation for high-throughput processing, and a lower cost for large-scale testing. These benefits make CLIA a practical choice for high-throughput applications.

CLIA can be classified into microplate and microparticle formats depending on the type of solid phase. Nowadays, microparticle-based chemiluminescence immunoassay technology is predominant.

Direct Chemiluminescence Immunoassay (CLIA), Chemiluminescent Enzyme Immunoassay (CLEIA) and Electrochemiluminescence Immunoassay (ECLIA) are three common CLIA methods. In direct CLIA, luminescence is induced by an alkaline solution, and the luminescent intensity is determined to quantitatively analyze trace amounts of substances. The detection of small molecule antigens in this method often employs competitive techniques, while the detection of large molecule antigens commonly uses sandwich methods.

CLIA is a detection method in which enzymes labeled on antigens or antibodies interact with luminescent substrates to produce photon signals. Horseradish peroxidase (HRP) and Alkaline Phosphatase (AP) are the two most common enzyme markers in CLEIA. They have corresponding luminescent substrates, with luminol for HRP and adamantyl 1, 2-dioxetane aryl phosphate (AMPPD) for AP.

In Electrochemiluminescence Immunoassay (ECLIA), antigens or antibodies labeled with the chemiluminescent agent tris(bipyridine)ruthenium(II), and tripropylamine (TPA) serves as the electron donor. Chemical luminescence is generated through electron transfer in an electric field. ECLIA is suitable for detecting small sample volumes, is less prone to interference from hemolysis or turbid precipitates in samples, and is easily automated.

CLIA Analyzers vary in size, automation level, and application. The Benchtop Analyzers are found in central laboratories and can handle a high volume of tests. The Fully Automated Analyzers perform most steps without manual intervention and are ideal for high-throughput settings like large hospitals. Further, Point-of-Care (POC) Analyzers are portable and deliver rapid results closer to patients, often in clinics.

CLIA analyzers have random access with varied throughput ranges of 100 to 200 to 400 to 900 tests per hour. Reagent packs are available with varied pack sizes starting from 30 to 500 tests per pack thus suits low to high-customer segments.

Immunodiagnostic Kit Laboratory (IDKL) has been conducting Quality Control testing of indigenously manufactured and imported kits viz. Rapid, ELISA, ELFA & CLIA for HIV, HCV, HBsAg & syphilis intended to be used for blood donor screening for Human Immunodeficiency virus (HIV), Hepatitis-B virus and Hepatitis-C virus.

The Laboratory is evaluating CLIA kits (Table 1) received under Form MD-13, MD-17 & MD-15 on the various automated CLIA equipments.

Table 1: Markers evaluated on Automated CLIA equipments in IDKL :

HIV 1 &/2 Ab HIV 1 &/2 Ag Ab	HCV Ab	HBsAg Anti HBs, HBc Total, HBeAg, Anti HBe, etc.)	Syphilis Ab
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The future of CLIA testing looks promising as CLIA technology continues to evolve and improve. The role of CLIA in QC will remain critical to delivering consistent and trustworthy results that ultimately impact patient care. The development of new reagents and improved instrumentation has led to more sensitive and specific assays, which can detect lower levels of analytes in a sample. With ongoing advancements in technology, CLIA systems are becoming more automated, efficient and integrated, thus further improving the reliability.

References

1. Cinquanta, L., et al., Chemiluminescent immunoassay technology: what does it change in autoantibody detection? Auto Immune Highlights, 2017, 8(1): 9.
2. Qin Xiao, Chunxia Xu, Research progress on chemiluminescence immunoassay combined with novel technologies, Trends in Analytical Chemistry, 2020, Volume 124, 115780.
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Awards

Ms. Rashmi Shrivastava, Scientist Grade - III, received first prize in स्वरचित हिन्दी काव्य पाठ प्रतियोगिता organized by Nagar Rajbhasa Karyanvyan Samiti for the year 2024-2025 on 29th January, 2025 at राष्ट्रीय मुक्त विद्यालयी शिक्षा संस्थान, सेक्टर-62 नोएडा।



EQAS (External Quality Assessment Scheme) for distribution of HIV proficiency test panel

One day workshop under EQAS (External Quality Assessment Scheme) for distribution of HIV proficiency test panel for HIV serology (Round 2, 2024-25) to state Reference Laboratories of Uttar Pradesh and Uttarakhand by NACO-NRL, NIB was held on 20th February, 2025. Laboratory Technicians and Technical Officer of SRLs participated in the program which was presided by Head - IDKL and NRL In-charge.

Extramural project grant

Dr. Gauri Misra, Scientist Grade - I secured the following extramural project grant of Rs. 3.0 Crore (funded by ICMR, New Delhi) in collaboration with Tata Memorial Centre (TMC), Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), Kharghar, Navi-Mumbai.

Title : Identification and validation of new “potential protein biomarker panel” for head and neck squamous cell carcinoma using translational proteomics. ID: IIRPIG-2024-01-00541. **Tenure :** 2025-2027

Subject Expert meeting held on 6th March, 2025

National Institute of Biologicals (NIB) organized a one-day meeting of domain experts on 6th March, 2025 focused on strengthening quality control testing and capacity building programmes at NIB. The meeting brought together experts from academia, healthcare professionals, industry experts, and representatives from CDSCO and IPC. Sessions covered the institute's ongoing quality control activities, centralized facilities, key challenges, and training programmes. The event concluded with actionable recommendations and felicitation of the experts for their valuable contributions.

Quality Assurance/ Quality Control of Bio-Therapeutics, Prophylactics & In-Vitro Diagnostics

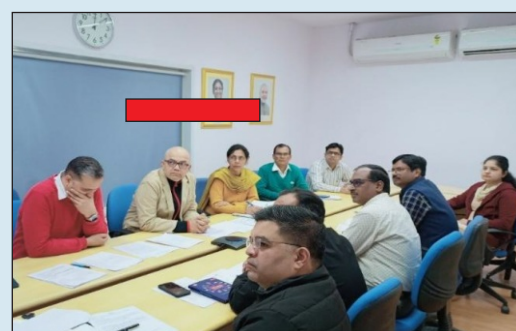
1. Biochemical Kit Laboratory is currently enrolled in the External Quality Assessment Scheme (EQAS) for Chemistry II, covering Glucose, Cholesterol, Triglycerides, Creatinine, Uric Acid, and Albumin. This scheme is conducted by the Department of Clinical Biochemistry, Christian Medical College (CMC), Vellore. For the assessment period January to March, 2025 the laboratory achieved a Z-score of $\leq \pm 1.0$ (Excellent) for all six parameters, reflecting high analytical performance and quality assurance.
2. Two officials from M/s Indian Immunologicals Ltd., Hyderabad visited NIB on 4th February, 2025 for technical discussion with Vaccine & Antisera Lab, NIB on QC testing of indigenously manufactured CCRV batches. NIB has initiated the testing of Rabies vaccine received from Indian Immunologicals Ltd., Hyderabad
3. Proposal for amendment in Human Prothrombin Complex Monograph for Addition of Solubility Test parameter under “Tests” in Indian Pharmacopeia has been submitted by Blood Products laboratory to IPC, Ghaziabad on 14th February, 2025.
4. Proposal for amendment in Albumin Monograph for addition of alternative method i.e. Method-III under “Assay” For Total Protein in Indian Pharmacopeia has been submitted by Blood Products laboratory to IPC, Ghaziabad on 19th February, 2025.
5. Recombinant Products Laboratory participated in PT study with IPC, Ghaziabad for “Chromatographic Purity by HPLC” and the results have been communicated to IPC.
6. Recombinant Products Laboratory participated in Interlaboratory comparison (ILC) study for Teriparatide for Assay Parameter conducted by Indian Pharmacopoeia Commission, Ghaziabad.

Nomination/ Participation of NIB Scientists in various Meetings/ Workshops

1. Dr. Gauri Misra, Scientist Grade - I, attended the meeting “committee of legal advice” to sign MOU for the Institute with other Institutes/organization on various projects and legal advice for audit paras on 6th January, 2025 at National Institute of Biologicals.
2. Vaccine & Antisera Laboratory, NIB participated in the 14th Meeting of the Expert Working Group (EWG) on Vaccines & Immunosera for Human Use constituted by the Indian Pharmacopoeia Commission (IPC), Ghaziabad held on 7th January, 2025.
3. NIB scientists attended “Genomics Data Conclave” held on 9th January, 2025 at Vigyan Bhavan, New Delhi, organized by DBT, Ministry of Science & Technology.
4. Dr. Ratnesh Kumar Sharma, Scientist Grade – II along with CDSCO officials, participated virtually as a subject expert in a meeting held on 9th January, 2025, for joint inspection related to the grant of permission in Form CT-11 for the manufacture of r-DNA derived drugs for the purpose of examination, test, and analysis at M/s Zydus Research Center, Gujarat, India.



5. Dr. Gauri Misra, Scientist Grade - I, was invited as a special guest and expert speaker to deliver a talk, share insight and experience in GBRC (Gujarat Biotechnology Research Centre) Gandhinagar, Gujarat on account of their monthly event "PRABODU" (Promoting Research Awareness in Biotechnology for the Development of Human Resources) on 18th January, 2025.
6. Dr. Shikha Yadav Scientist Grade - I was invited as Resource Person in "Course on Laboratory Animal Science" at CSIR-IGIB, Delhi to deliver lecture on "Perioperative care and Analgesia" during the course on 19th January, 2025.
7. Dr. Shikha Yadav, Scientist Grade - I nominated as CCSEA nominee in the IAEC of Bio- Med Private Limited, Ghaziabad, UP and attended the IAEC meeting to review and approve research proposals on 20th January, 2025.
8. Dr. Hemant Kumar Verma, Scientist Grade - II attended virtually a meeting chaired by Joint Secretary, Department of Pharmaceuticals on 21st January, 2025 to review the Guidelines issued by Department of Pharmaceuticals for implementing the provisions of Public Procurement (Preference to Make in India).
9. Dr. Gauri Misra, Scientist Grade - I, was invited for an expert talk on "Advancing Molecular Diagnostics: Regulatory insight and research perspectives" at School of applied Sciences and Technology, Gujarat Technological University, Ahmedabad on 23rd January, 2025.
10. Dr. Gauri Misra's PhD Student, Ms. Rashmi has presented a poster on the topic "Development of a Microfluidic CRISPR-CAS 9/12 Based Lateral Assay for Rapid and Economical Identification of Dengue Virus serotype" in 15th Annual Conference of ISMOCD-2025 (Indian Society for malaria & other Communicable Diseases) organized by NIMR-ICMR at the ICMR-NIMR, New Delhi from 31st January to 2nd February, 2025.
11. Ms. Kanchan Ahuja, Scientist Grade-II & Dr. Richa Barnawal Scientist Grade - III attended annual convention for Deans/HODs of academic institution & research organization in health sector held on 31st January, 2025 at NITS, NOIDA.
12. Dr. Gauri Misra, Scientist Grade - I & AcSIR Coordinator virtually attended the coordinator's meet with the Director, AcSIR on 2nd February, 2025.
13. Dr. Richa Baranwal, Scientist Grade – III delivered a talk on "Quality Control Testing of In-vitro Diagnostic Kits" during two days Awareness Workshop held from 3rd – 4th February, 2025 on 'Navigating the Regulatory Landscape in Medtech Sector' at IIT-Kanpur, NOIDA campus, Uttar Pradesh.
14. Ms. Sudha V Gopinath, Scientist Grade - II & Ms. Kanchan Ahuja, Scientist Grade - II, participated in 15th International meeting of World Pharmacopoeia (IMWP) on 5th February, 2025 at Dr. Ambedkar International Centre, Delhi Organized by Indian Pharmacopoeia Commission (IPC).
15. Dr. Shikha Yadav, Scientist Grade - I delivered expert lecture as resource person on "Points for consideration during Inspection of Animal House Facility and Importance of Record Keeping of various forms of CCSEA in the Nominee Training organized by Joint Commissioner (AH) & Member Secretary (CCSEA), Ministry of Fisheries, Animal Husbandry and Dairying, at Amity University, Sector-125, Noida, Uttar Pradesh on 5th to 6th February, 2025.
16. Dr. Charu Mehra Kamal, Scientist Grade - I attended the expert committee meeting, convened by the CDSCO, New Delhi on 07th February, 2025 to examine the sameness of Enoxaparin API and formulation manufactured from an ovine source with respect to a porcine source through video conferencing.
17. Dr. Shikha Yadav, Scientist Grade-I participated as a jury member in the "World Congress on Translational Cancer Research & Immunotherapy [WCTCRI] 2025, jointly organized by the Mahatma Gandhi University of Medical Sciences and Technology (MGUMST) Jaipur, Ichan School of Medicine at Mount Sinai, New York, Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins, Baltimore & The Hormol Institute, Austin, at MGUMST, Jaipur, India from 10th to 12th February, 2025
18. Dr. Charu Mehra Kamal, Scientist Grade - I gave an expert talk on "Assessment of Quality of Biotherapeutics" at Current Global Industry Trends, Innovation and Opportunities for Pharmacy Professionals on 11th February, 2025 at Delhi Pharmaceutical Sciences and Research University (DPSRU)
19. NIB scientists attended 15th Meeting of the IPC Expert Working Group-Biologicals and DNA Products on 13th February, 2025 through video conferencing.
20. Dr. Gauri Misra, Scientist Grade – I attended the 4th Project Review Group Committee Meeting for the review of Adhoc & Fellowship Projects at ICMR Headquarters on 13th February, 2025.
21. Dr. Charu Mehra Kamal, Scientist Grade - I, Ms. Gurminder Bindra, Scientist Grade - III, Dr. Birendra Kumar, Junior Scientist attended 15th Meeting of the Expert Working Group - Biologicals and r DNA Products hosted by Indian Pharmacopoeia Commission on 13th February, 2025.
22. Dr. Gauri Misra, Scientist Grade - I virtually attended technical cum purchase committee meeting held at NIMR-ICMR on 18th February, 2025.



23. Mr. Anirban Mukherjee attended BioMLuminescence India 2025 conference at Ahmedabad, Gujarat on 20th February, 2025 organized by M/s Merck.
24. One Ph.D. Thesis successfully submitted under the Co-supervision of Dr. Gauri Misra, Scientist Grade - I on 21st February, 2025.
25. Mr. Subhash Kumar, Junior Scientist participated in preparing for Pharma industry expectations – Orientation Session for Aspiring Pharma Graduates webinar on 24th February, 2025.
26. Dr. Shikha Yadav, Scientist Grade-I was invited to deliver a talk on “Minimizing pain and distress in laboratory animals” in online mode in DHR-ICMR funded 4 weeks Comprehensive training program on Animal Research and Experimentation & Good Laboratory Practices (CARE-GLP) being organized by CSIR-North East Institute of Science & Technology (CSIR-NEIST) Jorhat, Assam on 27th February, 2025.
27. Dr. Gauri Misra, Scientist Grade - I virtually attended the meeting of committee on contracts regarding implementation of NAT Technology in IRCS, NHQ Blood Centre, New Delhi held on 28th February, 2025.
28. Dr. Shikha Yadav, Scientist Grade - I received invitation from Dr. Montip Gettayacamin, Regional Director for Southeast Asia, AAALAC (Association for Assessment and Accreditation of Laboratory Animal Care) International as an Ad hoc Specialist, for conducting site visit and she assessed one unit in India to evaluate their institutional animal care and use program for accreditation purposes from 3rd to 4th March, 2025.
29. Dr. Suresh Kumar, Scientist Grade - III, attended the Institutional Animal Ethics Committee (IAEC) meeting as a CCSEA nominee “Scientist from outside Institute” to review the research protocols at National Institute of Immunology, New Delhi on 6th March, 2025.
30. Dr. Gauri Misra, Scientist Grade - I, as an expert, virtually attended "The first hub BIRAC meeting" organized by DBT BIRAC on 7th March, 2025.
31. Dr. Gauri Misra, Scientist Grade - I, as an expert virtually attended the 19th Meeting of Medical Biotechnology & Medical Nanotechnology sectional committee MHD-20 organized by BIS on 10th March, 2025.
32. Dr. Gauri Misra, Scientist Grade - I as an expert virtually attended "29th Technical Advisory Committee meeting of MedTech Mitra" organized by ICMR (HQ) on 11th March, 2025.
33. Dr. Meena Kumari, Scientist Grade - II & Ms. Kanchan Ahuja Scientist Grade - II attended meeting of 10th Expert Working Group-Blood and Blood Related Products at Indian Pharmacopoeia Commission, Ghaziabad on 20th March, 2025.
34. Dr. Manoj Kumar, Scientist Grade - II and Dr. Saurabh Sharma, Scientist Grade - III attended a workshop on “Scientific Writing, Research Integrity and Publication Ethics” organized by National Institute of Malaria Research (ICMR) New Delhi on 20th – 21st March, 2025.
35. Ms. Suchitra, Junior Scientist, attended Hindi Scientific Symposium on "Uninterrupted Weather Forecasting and Applications”, organized by National Center for Medium Range Weather Forecasting on 24th March, 2025.
36. Ms. Rashmi Shrivastava, Scientist Grade - III was nominated to attend राष्ट्रीय वैज्ञानिक संगोष्ठी तथा स्थापना दिवस “निबार्ध मौसम पूर्वानुमान प्रणाली तथा अनुप्रयोग” on 24th March, 2025 at राष्ट्रीय मध्यम अवधि मौसम पूर्वानुमान केंद्र, पृथ्वी विज्ञान मंत्रालय, सेक्टर-62, नोएडा.
37. Dr. Gauri Misra, Scientist Grade - I virtually attended the Negotiation Committee Meeting of ICMR-NIMR on 28th March, 2025.



Trainings

1. Two weeks residential National Skill development and Training (NSDT) programme on “Quality Control of Biologicals” for 33 M.Sc. Biotechnology Students from Mizoram University and Nagaland University was held at NIB from 6th – 17th January 2025.
2. Five-days training course on “Application of Reverse Phase High Performance Liquid Chromatography (HPLC) for Identification and Potency Testing of Human Insulin” was held from 13th - 17th January, 2025 in Recombinant Product Laboratory of NIB.
3. Ms. Kanchan Ahuja, Scientist Grade-II attended Bureau of Indian Standards (BIS) webinar on “Strengthening Healthcare Ecosystem through Standards” on 16th January, 2025.
4. Five-days training course on “Quality Control Testing of Immunodiagnostic Kits” was held from 20th - 24th January, 2025 in the Immunodiagnostic Kit Laboratory of NIB.
5. NIB, NOIDA was facilitated for organizing ICMR Funded two-days training workshop on “Public Procurement of Goods and Services through Government e-Marketplace (GeM) portal” for Officers of Administration and Accounts of ICMR Institutes / Centers, held on 24th - 25th January, 2025 at the NIB, NOIDA.



6. NIB staff attended Lecture Session on “Good Laboratory Practices– NGCMA Guidelines and Requirements” followed by discussion session, held on 28th January, 2025 from 11:00 AM to 12:30 PM in the Conference Hall, Ground Floor, Laboratory Building, governed with a special invited talk by Dr. Ekta Kapoor Scientist 'F' & Head National GLP Compliance Monitoring Authority (Dept. of Science and Technology, Ministry of Science and Technology, New Delhi).
7. Ms. Y. Madhu, Scientist Grade - III & Dr. Manoj Kumar, Scientist Grade - III participated in Hindi Noting training at NIB on 12th February, 2025.
8. NIB, NOIDA facilitated for organizing DHR Funded two-days training program on “Public Procurement of Goods and Services through Government e-Marketplace (GeM) portal” for Scientists, officers of Administration and Accounts of MRU, MRHRU & DHR, held on 20th - 21st February, 2025 at NIB, NOIDA.
9. Five-days training course on “Quality Control of Blood Products using Coagulation Analyser (CA) special reference to Human coagulation factor VIII potency assay” was held from 17th – 21st March, 2025 in Blood Products Laboratory of NIB.
10. NIB staff attended Lecture Session on “Drugs and Cosmetic Act and Rules” followed by discussion session, held on 18th March, 2025 from 2:30 pm to 4:00 pm in Conference Hall, Ground Floor, Laboratory Building. The Session was governed with a special invited talk by Dr. Arvind Kukrety Deputy Drugs Controller (I), Central Drugs Standard Control Organization CDSCO, Ministry of Health & Family Welfare, New Delhi.
11. NIB staff attended Lecture Session on “HPLC Data Analysis, Integrity Ensuring Control of Chromatographs, and Results” followed by discussion session, held on 26th March, 2025 from 3:30 pm to 5:00 pm in Conference Hall, Ground Floor, Laboratory Building. The Session was governed with a special invited talk by Sh. Amod Prakash Yadav (Waters India Pvt. Ltd., New Delhi).



Publications

1. Kumar, S., Mukherjee, R., Gaur, P., Leal, É., Lyu, X., Ahmad, S., Puri, P., Chang, C. M., Raj, V. S., & Pandey, R. P. (2025). Unveiling roles of beneficial gut bacteria and optimal diets for health. *Frontiers in microbiology*, 16, 1527755. <https://doi.org/10.3389/fmicb.2025.1527755>
2. Anoop Kumar, Tanya Maheriya, Y. Madhu, K. Neetu, Harish Chander, Meena Kumari, Validation of GF-AAS Method for the Determination of Aluminium Content in Human Albumin Finished Product, *Current Pharmaceutical Analysis*; Volume 20, Issue 8, Year 2024, e15734129319256. DOI: 10.2174/0115734129319256240829053342
3. Advancements on Substitution of In Vivo Method(s) with In Vitro Method(s) for Recombinant Human Erythropoietin Potency Assays” by Dr Nupur Garg and Dr Charu Mehra Kamal in *International Journal of Peptide Research and Therapeutics* (Springer Nature Publications); 31(2), January 2025
4. “Estimation of protein aggregates in Darbepoetin alfa formulations by developing a single validated analytical method” by Nupur Garg, Sanjay Mendiratta, Gurminder Bindra, Sakshi Gehlot, Krutika Goswami, and Charu Mehra Kamal in *Journal of chromatography B*; Volume 1254, March 2025
5. Shubham C. Karpe, Manjula Kiran, Sukhen Majhi, Jaipal Meena, Rajesh Kumar, Harish Chander, Anupkumar R. Anvikar, Harit Kasana. Clotrimazole a new frontier: Drug repurposing and its efficacy in cancer therapy. *Cancer Pathogenesis and Therapy*. Received 30th September 2024, Revised 21st March 2025, Accepted 21st March 2025, Available online 26th March 2025.
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Please feel free to share your valuable thoughts & feedback for the betterment of the edition. We look forward to hear from you!!!