**Department of Research & Development (Research Wing)**

The Department of Research & Development (Research Wing) was established in 2020 and is a central facility with state-of-the-art equipment to support clinical research and promote basic, clinical, and translation research.

The department aims to promote laboratory-based investigation in multidisciplinary areas, assist clinicians and researchers in pursuing their interests in research, and provide technical and scientific manpower through collaborative projects.

**Vision & Mission Statement**

**Our Vision:**

**“To emerge as the Global center of excellence encompassing the fundamental, interdisciplinary, and clinical approach, generating refutative research and offering effective and affordable health care for the benefit of mankind”**

**Mission:**

* Fostering fundamental, interdisciplinary, and clinical research
* Advancing medical knowledge through research to improve healthcare
* Advancing healthcare delivery through rigorous research
* Collaborative partnerships for research

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| **S.No.** | **Name of the Department** | **Department of Research & Development** |
| 1. | Department Email | rdgimsgnoida@gmail.com |
| 2. | Date of Establishment | 2020 |
| 3. | Name of the Head of Department | Dr. Vivek Gupta |
| 4. | Phone No. | +91- |

**FACULTY & STAFF MEMBERS**

1. **Faculty Members at Research Wing**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No** | **Faculty Photo** | **Name, Qualification, Appointment** | **Research Field** | **Date of Joining** |
| 1. |  | Dr. (Brig) Rakesh Gupta  MD(Pead), M Phil (HHSM),  Director, GIMS | * Neonatology * HIV | 21.07.2018 |
| 2. |  | Dr. Saurabh Srivastava  Professor & Head, Dept. of Medicine and CMS  MRU Nodal Officer | * Diabetes * Obesity * Metabolic disorders | 28.12.2018 |
| 3. | A person wearing a suit and glasses  Description automatically generated | Dr. Vivek Gupta  MD (Pathology), PhD, DHR-ICMR Fellowship from, USA  HoD, Dept. of Research & Development  Associate Professor, Dept. of Pathology | * Molecular Genetic Pathology * Hematological Malignancies * Solid tumors * Infectious diseases | 26.02.2020 |
| 4. |  | Dr. Rupali Mathur  MDS (Periodontics)  Associate Professor, Dept. of Dentistry |  | 01.10.2022 |
| 4. |  | Dr. Varun Goel  MD (Microbiology)  VRDL Nodal Officer | Microbiology | 20.02.2020 |

1. **Scientific Staff at the Research Wing**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No.** | **Scientific Staff photo** | **Name, Qualification, Appointment** | **Research Field** | **Date of Joining** |
| 1. | A person in a suit and tie  Description automatically generated | Dr. Ravi Kumar Chaudhary  MTech (Genetic Eng.), PhD (Biotechnology)  Senior Principal Scientist | Nanomolecular diagnostics  Regenerative Medicine | 21.11.2023 |
| 2. | C:\Users\research02\Downloads\IMG-20240705-WA0013.jpg | Dr. Mohd Kaushar Neyaz  PhD  Senior Scientist | HPV and Cancer | 2020 |
| 3. | A person with a beard  Description automatically generated | Dr. Varun Chauhan  PhD Parasitology  Scientist-C | Microbiology  Immuno informatics | 12.04.2023 |
| 4. | C:\Users\research01\Downloads\Asiya.jpg | Dr. Asiya Khan  PhD Biotechnology  Scientist-B | Molecular Diagnostics  Cancer biology  Immune makers | 1.07.2024 |
| 5. | A person in a white shirt  Description automatically generated | Dr. Kirti Devi  PhD Biotechnology  Scientist-B | Metabolic health and prebiotic | 04.04.2023 |
| 6. | A person wearing glasses and a black shirt  Description automatically generated | Dr. Ambika  PhD Life Sciences  Scientist-B | Molecular and Microbial Genetics | 03.10.2023 |
| 7. | A person with dark hair and a pink shirt  Description automatically generated | Mrs. Neetu Singh  MTech Biotechnology  Research Assistant | Genetic Engineering | 14.06.2024 |

1. **Non-Teaching Staff of Research Wing**: Lab technician 04, Lab attendant 02, Data entry operator 01

**Departmental Information**

The   following laboratories are under the research wing:

1. ***Molecular Diagnostics and Research Laboratory***
2. ***Multi-disciplinary research unit***
3. ***Viral Research and Diagnostics Laboratory***
4. ***Genome Sequencing facility***
5. **Cell culture laboratory with BSL2+ facility**
6. ***Molecular Diagnostics and Research Laboratory (MDRL)***

* Molecular Diagnostics and Research Laboratory (MDRL) was established on 13th April 2020, inaugurated by Mr. Alok Tandon, IAS Commissioner Infrastructure and Industrial Development, Brig. Dr. Rakesh Gupta (Director, GIMS), Dr. Rajneesh Dube (Principal Secretary Medical Education), and Dr. Vivek Gupta, Incharge of Lab. The lab's vision is to serve patients with molecular testing and research facilities at the hospital and adjoining districts.
* The laboratory initially started with molecular testing of SARS CoV2 by real-time PCR and has tested more than 1650562 RT PCR test with 56852 positive tests reported to date. It has a capacity of testing 12000 RT PCR tests per day. The testing facility is accredited by ICMR, Delhi, ICMR-NIV, Pune, and is also qualified for the WHO standards.
* The laboratory was subsequently recognized as a validation center by the Department of Health Research – Indian Council of Medical Research for Antigen kits for COVID-19.

The laboratory has core projects and has published more than 25 papers on COVID-19. It also envisions expanding its diagnostic facilities to other molecular markers for viral diseases and cancer.

* A total of 29 equipment available in the laboratory are including 7 real time PCR (Quant Studio 5 & 6, Aria Mix 96 well, Biorad CFX 96 well plate), 06 automated RNA extraction system (King fisher flex 96 well), Eppendorf centrifuge 5910RG, -80 Deep freezers nos 3, -20 Deep Freezers 04, Biosafety cabinets class 2A and 2B, thermal shaker and mixers and other complete equipment facilities.

1. ***Multi-disciplinary Research Unit (MRU)***

* MRU is mainly related to promoting, coordinating, and developing basic applied and clinical research. Setting benchmark and record-breaking performance in research, diagnostics, and patient care management through diagnostics in MDRL, the Government of India Ministry of Health sanctioned Multi-Disciplinary Research Unit and Family Welfare Department of Health and Research to our Institute on 1th October 2021 vide letter no F.No.R.130/07/2020- HR with a grant of 1.25 cr was sanctioned for its establishment in the first phase and subsequently for supporting it for research staff and contingency.
* A total of 29 equipment available in the laboratory are including thermal cycler, electrophoresis units, gel documentation systems, MultiSkan spectrophotometer, tissue lyser, adjustable pipettes, electronic weighing balance, water purification system, pH meter and other minor equipment.

1. ***Viral Research and Diagnostics Laboratory (VRDL)***

* The Viral Research and diagnostic research laboratory was sanctioned by the Government of India Ministry of Health and Family Welfare Department of Health and Research to our Institute on 4th October 2021 vide letter no F.No.R.15012/04/2021- HR-VRDL with a grant of 1,50,70,000/- was sanctioned for its infrastructure and equipment. Further 46,40,000/- was sanctioned for consumables, contingency, staff salary and travel. Subsequently another contingency of 1500000/- was received in 27th Feb 2024.
* VRDL Government Institute of Medical Sciences became functional on March 20th, 2022, under Dr. Vivek Gupta (Principal Investigator, VRDL till May 2024). Since then, it has been performing among the top VRDL labs in India. It has been doing molecular testing for the ZIKA virus and serological testing for Hepatitis B and hepatitis C viruses.
* VRDL GIMS has got permission and support for doing SARS CoV2 Sequencing from the National Institute of Virology, Pune, under the Department of Health and Research (DHR-ICMR), VRDL network scheme of a network of Laboratories for managing epidemics and Natural Calamities at India.
* *The PI of VRDL is now Dr. Varun Goel (Assistant Professor, Microbiology Department) from May 2024.*
* A total of 03 equipment is procured in laboratory and include InVitrogen Microscope (Pathological and Research) XL Core and other cell culture equipment

1. ***Genome Sequencing facility***

* The genome sequencing facility is a state-of-the-art facility developed by the Uttar Pradesh state Government. It was established by GIMS and inaugurated by the chief secretary of state on 19/06/2022. The facility works as an adjunct facility for the Molecular Diagnostics and Research Laboratory and performs DNA sequencing whenever required for enhanced testing.
* The genome sequencing facility is recognized in INSACOG, Department of Biotechnology, Govt. of India, for COVID-19 sequencing and has also done Beta globin gene disorders (thalassemia and sickle cell) projects.
* A fully furnished genomic sequencing facility with total of 29 key equipment including MiniSeq Illumina platform, fragment analyzer, gel documentation, electrophoresis, veriti PCR, refrigerators, -20 Deep fridges, ice flaking machine, centrifuges etc and all equipment required for library preparation and estimation.

A list of scientific research

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**Department Training**

* Research conclave at GIMS- A research conclave was organized to bring together researchers, scholars, academicians, and professionals from various disciplines to present their research findings, share knowledge, exchange ideas, and collaborate on future projects.
* The Department holds regular research activities, training, workshops, and journal clubs. Every 2nd Tuesday of the month research promotion activity is held and is open for all the neighboring colleges and universities to join and participate.
* Training is offered in molecular techniques to: Undergraduate students (MBBS), MSc students, PhD and Post-doctoral fellows, Biotechnology students

**Research Projects under research and development wing: Total 24 (Completed 15; Ongoing 09)**

**List of ongoing extramural projects:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Principle Investigator** | **Department** | **Title of the Research Proposal** | **Funding  Agency** | **Year of Sanction** | **Progress / completion Status** |
| **1** | **2** | **3** | **4** | **5** | **7** | **8** |
|  | Dr. Rambha Pathak | Community medicine | Prevalence and risk factors of Autism Spectrum disorders in  preschool children in western Uttar Pradesh: A community based study | ICMR | 2022 | Ongoing |
|  | Dr. Rambha Pathak | Community medicine | An Epidemiological Study of Sleep related Disorders and its association with cardiovascular risk factors in Adult Population of Western Uttar Pradesh | ICMR | 2022 | Ongoing |
|  | Dr. Shalini Bahadur | Pathology | Validation of blood bags delivered by drones compared to conventional method of transportation | ICMR | 2022 | Ongoing |
|  | Dr. Saurabh srivastava | Medicine | To assess the beneficial effect of adjuvant growth hormone therapy in elderly individuals with chronic congestive heart failure | ICMR | 2023 | Ongoing |
|  | Dr. Rashmi Upadhyay | Pulmonary Medicine | Effect of COVID-19 vaccine on thrombotic events among 18-45 year old population in India 2022 : Multicentric hospital-based matched case-control study 4 months | ICMR | 2023 | Under process |
|  | Dr. Rashmi Upadhyay | Pulmonary Medicine | Factors associated with sudden deaths among adults aged-18-45 years, India: Multicentric matched case-control study . | ICMR | 2023 | Ongoing |
|  | Dr. Rupali Kalsi | Dentistry | Genetic Variations in Immunomodulatory genes and their functional role in oral Carcinoma | ICMR | 2023 | Ongoing |
|  | Dr. Shivani Kalhan | Pathology | Al based tool for detection of breast and oral cancer | ICMR | 2023 | Ongoing |
|  | Dr. Vivek Gupta | Pathology | Pan India Surveillance for Respiratory Viruses through DHR-ICMR VRDL | ICMR | 2024 | Ongoing |

* **Short term studentship (STS) ICMR Projects: Total 17**
* **Intramural Projects of Research Wing: Total: 176**
* **Publications of Research Wing: >400**

**CME/Workshop Organized By The Department: 03**

|  |  |
| --- | --- |
| **Date** | **Topic** |
| 3rd & 4th Nov 2022 | Basic Molecular Diagnostic Techniques Jointly Organized by Molecular Diagnostics and Research Laboratory, Government Institute of Medical Sciences, Greater Noida & Molecular Pathology Association of India |
| 16th Jan 2024 | First MRU Conclave: Research Promotions for Research Projects & Funding Opportunities |

* **Departmental WorkloadA graph of a test

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* **Departmental Achievements:**
* Testing of RT PCR in COVID: 1650562
* Genome sequencing for COVID samples 96
* Genome sequencing for thalassemia and sickle cell patients 58
* Total no of research promotion activities 06

**Key Equipment Research Wing**

**A collage of several different machines

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**List of Key Equipment in Research wing**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Equipment Name** | **Make** |
| 1 | Illumina Miniseq System | Illumina |
| 2 | Agilent 2100 Bioanalyzer | Bioshake |
| 3 | Qubit 4 Flurometer | Thermo fisher Scientific |
| 4 | Centrifuge Minispin R Plus | Eppendorf |
| 5 | Thermomixer C | Eppendorf |
| 6 | Eppendorf Centrifuge 5420 R & 5420 | Eppendorf |
| 7 | Bioshake Iq | Bioshake |
| 8 | Hybex Microsample Incubator | Scigene |
| 9 | Dark Reader Transilluminator | Clare chemical research |
| 10 | Icematic (Ice Flaker) | Spectrum associates |
| 11 | (-80 Deep Freezer) | Eppendorf |
| 12 | Thermal Mixture | Thermo mixture |
| 13 | Centrifuge 5910rg | Eppendorf |
| 14 | Real Time PCR QUANTSTUIDO 5 | Applied biosystem |
| 15 | Real Time PCR QUANTSTUIDO 6 | Thermofisher flex |
| 16 | Automated Nucliec Acid Extractor | Thermofisher |
| 17 | Real Time PCR BIORAD CFX96 | Biorad |
| 18 | Nucleic Acid Extractor | Thermofisher |
| 19 | Water Purification System | Thermofisher |
| 20 | Thermal Cycler | Eppendorf And Thermofisher |
| 21 | Multiskan Spectrophotometer | Thermo Scientific |
| 22 | Gel Electrophoresis System | Biorad |
| 23 | Tissue Lyser | Qiagen |
| 24 | Mini Cold Lab | Blue Star |
| 25 | Co2 Incubator | Thermofisher |
| 26 | Elisa Plate Washer | Tulip |
| 27 | Invitrogen Micorscope | Invitrogen |