

CENTRE FOR INNOVATION IN INFECTIOUS DISEASE RESEARCH, EDUCATION, AND TRAINING (CIIDRET)

Annual Report 2019-20

Major Activities and Achievements

Centre for Innovation in Infectious Disease Research, Education, and Training (CIIDRET) was established under the ordinance XV-A of the University of Delhi in October 2015. As per its mandate, besides carrying out path-breaking Innovation-driven research, CIIDRET has been carrying out several outreach activities, which include interaction with college students of science stream to inspire them to take up research and Innovation as their career. CIIDRET has organized Public Lectures by international and national scientists who are leaders in their field in different areas of scientific research. has organized Industry-Academia Interaction through 'Entrepreneurship Guest Public Lecture Series', which includes lectures by Entrepreneurs and the facilitators of Innovation. CIIDRET has been providing state-of-the-art Proteomic and Genomic analytical facilities along with expert advice to scientists from both academia and Industry, and offers consultancy to the Biotech Industry. CIIDRET organizes Hands-on training courses covering different aspects of Genomics and Proteomics in collaboration with Industry Experts under the scheme 'Continuing Education and Skill Enhancement for Innovation in Biotechnology (CIIDRET-CESEIB). These courses are attended by college students, graduate students, research scholars, scientists and teachers from colleges and universities.

Honors/Distinctions

Prof. Vijay K. Chaudhary Director, CIIDRET:

- Is Co-Chairman of the DBT Task Force on "Infectious Disease Biology."
- Is Co-Chairman of the DBT NER Technical Expert Committee (TEC) Medical Biotechnology-II.
- Is Member of Scientific & Technical Appraisal & Advisory Group (*STAG*), Medical Biotechnology, DBT.
- Is Member, DBT Expert Group on Technology Transfer Organization (TTO).
- Is a Mentor, Nexus @ American Center, New Delhi. (<https://startupnexus.net/mentors>).

Dr. Amita Gupta is Joint-Secretary of the Society for Bacteriophage Research and Therapy (SBRT).

Awards

"DBT-Biotech Product, Process Development and Commercialization Award 2019" to Vijay K. Chaudhary, Amita Gupta, Vaishali Verma for "A Phage-Displayed Naïve Human Antibody Library for the discovery of therapeutic antibodies". This award carries a cash prize of Rs. 2 lacs and a plaque.

Publications/ Patents / provisional patents / technology transfers

Publications:

- Expression, purification and functional characterization of recombinant hypervariable region (HVR) of Chikungunya virus nsP3 protein, I. Nandi, A. Gupta, V. K. Chaudhary, V. Gupta, R. Gabrani and S. Gupta, 3 Biotech, (2019), 9, 235.

- In silico study of chikungunya polymerase, a potential target for inhibitors, R. Ghildiyal, S. Gupta, R. Gabrani, G. Joshi, A. Gupta, V. K. Chaudhary and V. Gupta, *Virusdisease*, (2019), 30, 394.
- Virtual screening of inhibitors against Envelope glycoprotein of Chikungunya Virus: a drug repositioning approach, G. Agarwal, S. Gupta, R. Gabrani, A. Gupta, V. K. Chaudhary and V. Gupta, *Bioinformation*, (2019), 15, 439.

Patents granted/ published:

- An antibody fragment library, and uses thereof; Vijay K. Chaudhary, Amita Gupta, Vaishali Verma. Indian Patent no. 320566 granted on 16th September 2019.
- An antibody fragment library, and uses thereof; PCT application no. PCT/IN2018/050802. Publication No. WO/2019/106694 (06.06.2019)
- A process for immobilizing polypeptides; PCT no. PCT/IN2018/050722; Publication No: WO/2019/092742 (16.05 2019).
- Process for purifying emulsion PCR mixture, and implementations thereof; Vaishali Verma, Amita Gupta Vijay K. Chaudhary. PCT application no. PCT/IN2019/050742, (07.10.2019)

Posters/Oral presentations:

- NGS based characterization of nucleotide polymorphism in Mycobacterium tuberculosis H37Rv. Bhalla, N., Joshi, G., Das, S., Chaudhary, V.K., Gupta, A. at National Science Day Symposium held from 27-28 February 2020 at University of Delhi South Campus, New Delhi.
- Phage-Displayed Human Antibody Library - A resource for discovery of next-generation therapeutics. Verma, V., Gupta, A., Chaudhary, V.K. at Global Bio-India 2019 held from 21-23 November 2019 at Aerocity, New Delhi. This Poster was awarded judged as the “Best Poster” with certificate signed by the Secretary, DBT, Govt. of India.

Conference/Workshop/Lectures Organized

- Organized Students Winter Workshop on “Expression of Recombinant proteins” from December 17-21, 2019 at University of Delhi South Campus, New Delhi. In this, theory lectures covering expression of recombinant proteins and their applications were held. Hands-on training was provided for recombinant protein expression and SDS-PAGE. Western Blotting was demonstrated.
- Organized lecture by Dr MalathiLakshmikumaran, Executive Director and Practice Head of Patents, Lakshmikumaran and Sridharan Attorneys, New Delhi titled “Inventions and Intellectual Property Protection: India and Abroad” on 15 July 2019, at 3.00 P.M at UDSC.
- Organised One-day Science Communication Workshop on 15 July 2019 at University of Delhi South Campus along with Wellcome Trust DBT India Alliance.
- Organized Teachers Summer Workshop on “Recombinant proteins: Expression, Purification, Characterization” from July 2-16, 2019 at University of Delhi South Campus, New Delhi. In this, theory lectures covering cloning, expression and purification of recombinant proteins, their applications, methods to study protein-protein interactions and protein characterization were held. Hands-on training

was provided for recombinant protein expression, protein purification and characterization using SPR Technology on Biacore 3000.

- Organized Summer Workshop on “Techniques for manipulation of nucleic acids for applications in Genomics”, from June 10-22, 2019 at University of Delhi South Campus, New Delhi. In this, Hands-on training was provided for isolation and purification of Chromosomal and plasmid DNA, and Automated Capillary based Sanger Sequencing

Presentation in Conferences

- Prof. Vijay K. Chaudhary Delivered Science Day Lecture “Antibodies, Ek Naam, AnekKaam” at UDSC on 28th February 2020.
- Prof. Vijay K. Chaudhary Chaired a session at National Symposium on Challenges in Snakebite management held at University of Mysore, Karnataka, December 16-17, 2019.
- Prof. Vijay K. Chaudhary Delivered a lecture on “Recombinant Antibodies for Snakebite Treatment” at National Symposium on Challenges in Snakebite management held at University of Mysore, Karnataka, December 16-17, 2019
- Prof. Vijay K. Chaudhary Chaired a session at Guha Research Conference-2019 (GRC-2019) held at Jaisalmer, Rajasthan, December 6-10, 2019.
- Prof. Vijay K. Chaudhary Delivered Lecture “Phage Display- Based Technologies for Human Health” at INDO-US VACCINE ACTION PROGRAM (VAP), JOINT WORKING GROUP (JWG), Thirty First Meeting, November 15-16, 2019, New Delhi.
- Prof. Vijay K. Chaudhary Delivered Foundation Day Lecture “Antibodies, Ek Naam, AnekKaam” at Institute of Advanced Study in Science and Technology (IASST), Guwahati, Assam on 3rd November 2019.
- Prof. Vijay K. Chaudhary Delivered Plenary Lecture “Antibodies, Ek Naam, AnekKaam” at AMITY University Campus, Manesar, 4th September, 2019.
- Prof. Vijay K. Chaudhary Delivered a Lecture “AN INDIGENOUS PHAGE-DISPLAYED NAÏVE HUMAN ANTIBODY (scFv) LIBRARY... A potential source of recombinant antibody-based therapeutics for human diseases including AMR, Sepsis and snake bite treatment!” at Cadila Zydus Ltd., Ahmedabad.