

Centre for Drug Design Discovery and Development (C4D)



In view of the magnitude of neglected and emerging diseases (such as bacterial, viral and parasitic diseases), a drug discovery centre is established at SRM University, Delhi-NCR, Sonapat, Haryana. Now, it is proposed to take the initiative to establish the more infrastructural facilities for drug discovery, developing diagnostic kits and antimicrobial resistance and initiate the drug discovery projects with national and international collaborations.

Objectives:

1. Discovery of new drugs against neglected and emerging infectious diseases (**Tuberculosis, dengue, chikungunya, kala azar, malaria, meningitis, diarrheal diseases** and other neglected caused by parasites, virus and Gram-negative pathogens).
2. Synergy studies with existing drugs and formulation development as well as using nanotechnology to overcome toxicity issues.
3. Exploring natural products (marine and soil actinomycetes, etc.) as a source of antibiotics, and plant/ herbal extracts as source of treatment.
4. Discovering new chemical entities by using focused chemical library and Fragment Based Drug Discovery.
5. Repurposing of drugs for the improvement of treatment against Visceral Leishmaniasis with the aim of averting the emergence of PKDL.
6. New chemical entities/Biological entities to prevent/treat infectious diseases.
7. Surveillance of antimicrobial resistance (AMR) to monitor the emergence of multi-drug resistance in pathogens causing serious infections.

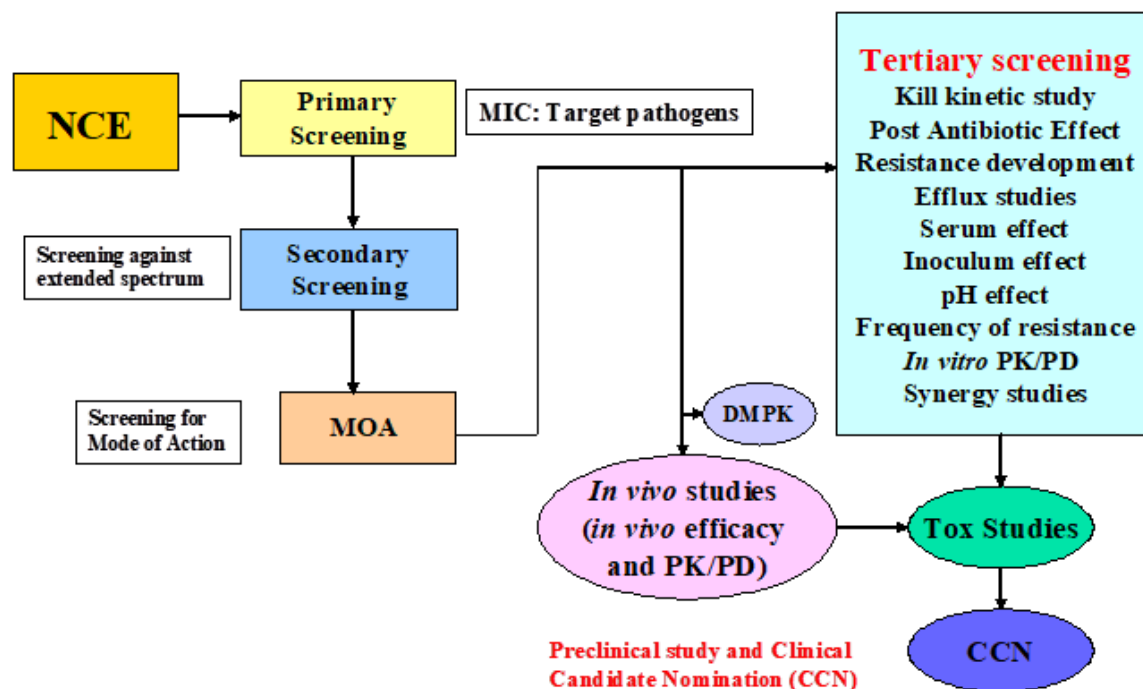


Prof. V. Samuel Raj, Director C4D with **Prof. Ada Yonath**, the Nobel Laureate and **Prof. Sir Tom Blundell**

The Director, Prof. V. Samuel Raj, has vast R&D experience in 2 major pharmaceutical industries Ranbaxy and Daiichi Sankyo for more than 10 years. He has completed many new drug discovery projects to tackle the AMR. He has established the drug discovery laboratory at SRM University, Delhi-NCR with the aim of tackling the AMR. He is an active researcher in the field of Antimicrobial resistance since 2005. He is an invited speaker for UK-India workshops/meetings on AMR. He is the invited mentor & peer reviewer for AMR Sandpit meeting organized by DBT-UKRI and reviewer of the projects on AMR (Indo-UK projects) and ICMR-Norway projects on AMR. He regularly organizes international events on AMR. He organized 2 major International Conferences on AMR and many world-renowned scientists including the Nobel Laureate participated and delivered lectures. He is one of the pioneers in the AMR research in India. He is the first scientist to report the ciprofloxacin resistance in the *N. meningitidis* in Delhi outbreak in 2005.

Activities:

Flow Chart for new drug discovery process



Ongoing Research Projects:

1. Genomics driven Dissection of Susceptibility and Drug Resistance to Pulmonary tuberculosis with a Geographical focus on NER.

Funding Department: Department of Bio Technology

Total Project Cost (In Rs.): 82,128,980.00

2. Management of multidrug resistant (MDR) pathogens causing Urinary Tract Infection

Funding Department: Indian Council of Medical Research (ICMR)

Total Project Cost (In Rs.): 4,960,000.00

3. Re-purposing of drugs and nanoparticle approaches for the improvement of treatment against Visceral Leishmaniasis with the aim of averting the emergence of PKDL.

Funding Department: Indian Council of Medical Research (ICMR)

Total Project Cost (In Rs.): 8,400,000.00

International Conferences:

- Two major international Conferences are organized through the Center for Drug Design Discovery & Development (C4D) in 2015 and 2019.
- **Prof. Ada Yonath, the Nobel Laureate** from Weizmann Institute, Israel was the Chief Guest and delivered the keynote address in 2019.
- **Prof. Sir Tom Blundell**, Director of Research from the University of Cambridge was one of the keynote speakers.
- Speakers from more than 10 countries participated and delivered the special lectures.
- The conferences resulted in the international collaborations and student exchange programs.

International Collaboration:

- University of Oxford, UK
- University of Cambridge, UK
- The London School of Hygiene and Tropical Medicine, UK
- University of Southampton, UK
- University of Birmingham, UK
- Heriot-Watt University, UK
- University of Edinburgh, UK
- INSERM France
- Harvard University, USA
- Johns Hopkins University, USA
- University of Sao Paulo, Brazil
- Skolkovo Institute of Science and Technology, Russia
- Chinese Academy of Agricultural Sciences, China
- University of Marburg, Germany
- Universidade Estadual de Maringá Paraná, Brazil
- Chang Gung University, Taiwan
- Chiba University, Japan
- University of KwaZulu-Natal, South Africa
- Yangzhou University, Yangzhou, Jiangsu, China
- Weizmann Institute of Science, Israel (Prof. Ada Yonath, The Nobel Laureate)