

MEMORANDUM OF UNDERSTANDING (MOU)

Between



CENTRAL UNIVERSITY OF KARNATAKA

Central University of Karnataka (CUK), Kalaburagi

&



FNDR

**Foundation for Neglected
Disease Research (FNDR), Bangalore**

**MEMORANDUM OF
UNDERSTANDING BETWEEN
FOUNDATION FOR NEGLECTED DISEASE RESEARCH
AND
CENTRAL UNIVERSITY OF KARNATAKA,
KALABURGI**

This Memorandum of Understanding (MoU) is intended to develop research/academic cooperation between the Foundation for Neglected Disease Research (FNDR), Bangalore and the Central University of Karnataka (CUK), Kalaburgi on a research work/Cooperation/Collaboration titled "Synthesis of novel molecules and their biological evaluation against the infectious diseases".

The Central University of Karnataka is assigned as the First party and the Foundation for Neglected Disease Research, Bangalore assigned as the Second party.

1. PREAMBLE

The Central University of Karnataka has been established by an Act of Parliament (No. 3 of 2009) at Kalaburagi, Karnataka and the main objective of this University is to integrate teaching, learning, training, research, innovation, and skill development with an aspiration to *excel* in undergraduate, postgraduate, and doctoral studies for rendering excellent educational, technological, and knowledge services to society.

Foundation for Neglected Disease Research, a not-for-profit Section 8 Company under the Companies Act 2013 (India), with registered office

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To

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reference

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at Plot No. 20A, KIADB Industrial Area, Veerapura, Doddaballapur, Bangalore - 561203, Karnataka, India and herein referred to as "FNDR" and shall and means its successors and assigns.

2. PURPOSE

This MoU establishes research/academic cooperation between Foundation for Neglected Disease Research, Bangalore and the Central University of Karnataka, Kalaburgi. Under this MOU, both institutions will extend their cooperation in the research work titled "Synthesis of novel molecules and their biological evaluation against the infectious diseases" with the following scopes and purpose. To explore the opportunity for enriching the existing studies and proposals pertaining to Chemicals, Synthesis and their analysis. In this respect FNDR and CUK intends to expend its activities in their respective field of specialization in India.

3. AREAS OF COOPERATION

- i. Taking into account that CUK's Chemistry Department promotes chemical research studies with thrust areas in Chemical Analysis, Organic Synthesis, Synthetic methodology, Synthesis of Active Pharmaceutical Ingredients, Organometallics and Peptides.
- ii. Taking into account that FNDR is dedicated to discovery and development of drugs, diagnostics and devices for infectious diseases that have a high socio-economic impact.

Foundation for Neglected Disease Research, Bangalore and Central University of Karnataka, Kalaburagi, or their authorized representatives, agree to explore the possibility of engaging in the following collaborative activities in academic and research areas of mutual interest.

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4. Details of the proposed research/ academic cooperation:

a. Objective:

The parties wish to enter into a collaborative relationship for the general purpose of research and cooperation to promote cutting-edge research; impart skill-oriented training, to improve the employability of the students of CUK; joint research and academic activities leading to academic excellence; new knowledge generation; innovative technology development; and many such synergies of cutting-edge research through collaboration and networking of CUK and FNDR.

b. Introduction

In an ever-evolving battle against infectious diseases that threaten global health, the development of novel molecules and their subsequent biological evaluation stands at the forefront of scientific innovation. This dynamic field, at the intersection of chemistry and biology, has ushered in a new era of hope and promise. The synthesis of innovative molecules, carefully designed to combat infectious agents, presents a critical front in the ongoing struggle against pathogens that challenge our well-being.

c. National and international status of the proposed problem of cooperation:

Challenges in addressing infectious diseases include drug resistance, vaccine hesitancy, disparities in healthcare access, climate change impacts on disease distribution, and the potential for emerging infectious diseases to cause pandemics. The infectious diseases with resistance, specifically antimicrobial resistance (AMR), was a significant global health concern.

India faced a complex and dynamic landscape of infectious diseases. The country has historically grappled with a range of infectious

Neelam *To* *For* *Dr.* *Shridh*

diseases, including tuberculosis, malaria, dengue, and HIV/AIDS, among others. The COVID-19 pandemic had a significant impact on India, with surges in cases, particularly in 2020 and early 2021. The government implemented various measures such as lockdowns, testing, vaccination campaigns, and healthcare infrastructure expansion to combat the virus. However, challenges such as limited healthcare resources, disparities in access to healthcare, and vaccine distribution gaps existed. India also faces ongoing concerns related to antimicrobial resistance, vaccine-preventable diseases, and vector-borne illnesses. Many countries had established national action plans to combat infectious disease. These plans typically include strategies to improve surveillance, promote responsible antibiotic use, strengthen healthcare infrastructure, and support research and development of new antibiotics. Various countries were working on regulations to restrict the use of antibiotics in agriculture and animal husbandry, as the overuse of antibiotics in these sectors can contribute to AMR. Surveillance systems were in place in many countries to monitor the prevalence and spread of drug-resistant infections.

The World Health Organization (WHO) had been leading international efforts to combat AMR. In 2015, the WHO released a global action plan on AMR, which outlined key objectives for countries to address this issue. International organizations like the World Bank and the United Nations were also involved in addressing AMR, recognizing it as a threat to global health and economic development. Global initiatives aimed to promote research and development of new antibiotics, as the pipeline for new drugs had been relatively stagnant for many years. International collaborations were ongoing to share data and best practices in the fight against AMR. The COVID-19 pandemic had highlighted the importance of

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antimicrobials in healthcare, leading to increased awareness of the need to preserve their effectiveness.

d. Methodology/ Execution details

Addressing infectious diseases and drug resistance through drug discovery is a complex and multidisciplinary process that involves various stages, from target identification to clinical trials.

The collaboration between FNDR and CUK primarily focus on the following two methods.

Target based approach: Identify specific molecular targets within the infectious agent (e.g., bacteria, viruses, fungi, parasites) that are essential for its survival or replication and engage those targets for the desired efficacy.

Synthesis, Phenotypic Screening and Hit Identification: Conduct high-throughput screening (HTS) of synthesized compound libraries or natural products against the pathogens and optimize the hits as leads.

e. Expected outcome

FNDR and CUK together work for projects where, FNDR is primarily responsible for compounds design, schemes preparation, screening, and any other required studies while the CUK is responsible for only synthesis, reporting the purity and characterization via NMR. The CUK will deliver a minimum of thirty compounds on the 25 mg scale in a year.

f. Utilization of the outcome

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Joint publications allowed with mutual consent along with FNDR scientists, Prof. Venkata Ramana Doddi. Coordinator, CUK and his scholars will be authors of publication from CUK.

5. Duration of Collaboration/ or cooperation:

Initially, this MoU will be valid for 5 years and FNDR will collaborate with the organic synthesis faculty Dr. Venkata Ramana Doddi (VRD) of CUK.

6. Terms and conditions:

• **Financial Liability:**

- i. The Central University of Karnataka shall not provide any financial support for the project under MoU.
- ii. FNDR will pay for actual chemicals, solvents and analysis cost of the projects. In addition, FNDR will pay Rs 1,00,000 (Rupees One Lakh) per annum as consultancy fees.
- iii. The consultancy fee will be transferred to Central University of Karnataka account no. 5109101000003 of Canara Bank Kadganchi branch, IFSC code CNRB0005109, MICR Code 585015520.

The consultancy funds will be allocated as follows:

- a. 60% for the Coordinator
- b. 20% for the University
- c. 20% for the Department

• **Intellectual Property:**

- i. Joint publications allowed with mutual consent along with FNDR scientists, Prof. Venkata Ramana Doddi. Coordinator, CUK and his scholars will be authors of publication from CUK.



- ii. CUK parties will be listed as a Co-inventor on patents and only FNDR owns the intellectual property rights arising out of this project.

- **Non-exclusivity of the MoU:**

- i. This MoU is a non-binding expression of the current intentions of the Parties.
- ii. This MoU will be reviewed from time to time and may be amended at any time by the mutual consent and agreement of the parties confirmed in writing.
- iii. The term 'Partnership' in this MoU does not imply the creation of a legal partnership, joint venture or any other kind of legal entity between FNDR and CUK in order to implement the proposed objective.
- iv. This MoU shall be understood as the expression of good faith for the collaboration.

- **Rights for modifications:** The contents of the MoU may be modified or changed by mutual agreement of the parties hereto in writing. It shall then be effective from the date of modification with the approval of competent authorities.
- **Confidentiality:** Party I and Party II shall maintain the confidentiality of the data. Patient-related data shall be kept confidential. The identity of the patient/person shall be always kept confidential by both **Parties I & II** and can be made public or put on disclosure with mutual consent if necessary.
- **Disagreements/ Differences:** Any disagreements/ differences of opinion/ disputes regarding the interpretations of the provisions of the MoU shall be resolved by mutual consultation of the signatories.
- **Governing Laws:** The research undertaken under this MoU will be governed by the Laws of the Republic of India.

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- **Renewal:** Unless chosen otherwise by either of the parties to the MoU, tenure shall be renewed for another five years from the date of expiry of the first tenure depending on suggestion of the standing committee.
- **Ethical Clearance:** In case of animal/human trials or any equivalent procedure the ethical clearance shall be duly obtained from appropriate bodies of both the institution.
- **Report:** A duly signed detailed report shall be submitted with outcome and recommendations at the end of the tenure as well as yearly for evaluation.

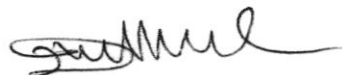
7. Declaration:

Two official versions of this agreement, executed in English, are signed by the representatives, with one copy to be retained at each party. The parties will designate scientific representatives who will develop and coordinate specific programs or activities between them.

8. Hosting department and representative: Prof. Venkata Ramana Doddi, Department of Chemistry holding the responsibility of executing the MoU at Central University of Karnataka (CUK) and Chairman, CEO at FNDR, Bangalore.

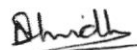
This MoU is being signed by the scientific representatives

Representative 1 (Party 1)



Prof. Venkata Ramana Doddi, Department of Chemistry, Central University of Karnataka

Representative 2 (Party 2)



Dr. Shridhar Narayanan, Chairman and CEO, FNDR, CUK



Signature of Authorities (To be signed by Vice chancellor/ director or equivalent)

Party I

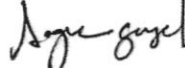

21/11/23
कुलसचिव / REGISTRAR
कर्नाटक केन्द्रीय विश्वविद्यालय
Central University of Karnataka
कलबुरगि / KALABURAGI
Registrar, CUK

Party II Dr. Shridhar Narayanan
Chairman and Chief Executive Officer
Foundation for Neglected Disease Research
Bengaluru - 561203.


Chairman, CEO, FNDR

This MoU has been duly signed as on date in presence of the of

Witness Party I 

Witness Party I 

Date: 05/12/2023

