

# Projects initiated by IIT Bombay for COVID-19 mitigation (updated 09 05 20)

Areas of work:

## **A. Antiviral drug / molecule synthesis**

### **1. Antibody based capture of 2019-nCoV and its inactivation using lipid based in-situ gel**

- Prof. Kiran Kondabagil, Department of Biosciences and Bioengineering
- Prof. Rinti Banerjee, Department of Biosciences and Bioengineering
- Prof. Shamik Sen, Department of Biosciences and Bioengineering
- Prof. Ashutosh Kumar, Department of Biosciences and Bioengineering

Remarks: Project funded by DST, GoI

### **2. Identification of global metabolite biomarkers in COVID-19 infected patients for targeted therapy**

- Prof. Sanjeeva Srivastava, Department of Biosciences and Bioengineering
- Collaborators: Dr. Om Shrivastav, Jaslok Hospital Dr. Jayanthi S. Shastri, (T N Medical College & Nair Hospital) Specialist at Kasturba, Nair & Jaslok Hospitals

Remarks: Project funded by DST, GoI

### **3. Plasma Proteomic Analysis of COVID-19 patients to identify the potential biomarkers and therapeutic targets: A pilot study**

- Prof. Sanjeeva Srivastava, Department of Biosciences and Bioengineering
- Collaborators: Dr. Om Shrivastav, Jaslok Hospital Dr. Jayanthi S. Shastri, (T N Medical College & Nair Hospital) Specialist at Kasturba, Nair & Jaslok Hospitals

## **B. Sanitization approaches**

### **1. Development of incineration device for safe disposal of masks/gloves in hospitals and quarantine centres**

- Prof. Sandeep Kumar, Department of Energy Science and Engineering
- Prof. Sanjay Mahajani, Department of Chemical Engineering

### **2. Technology for portable / wheeled UVC germicidal unit / station for disinfection**

- Prof. Ambarish Kunwar, Department of Biosciences and Bioengineering
- Prof. Kiran Kondabagil, Department of Biosciences and Bioengineering

#### **Product design:**

- Prof. P. Kumaresan IDC School of Design
- Prof. Purba Joshi, IDC School of Design

### **3. Surface spray for decontamination and antiviral action**

- Prof. Soumyo Mukherji, Department of Bioscience and Bioengineering
- Prof. Suparna Mukherji, Centre for Environmental Sciences and Engineering

Remarks: Funded by AMAT

### **4. Sanitisation solution for hands for Institute personnel**

- Prof. Soumyo Mukherji, Department of Bioscience and Bioengineering

### **5. ECORSANI: Phytoformulations for walk through sanitizers**

- Prof. Rinti Banerjee, Department of Biosciences and Bioengineering

Remarks: Project with Thermax

## **C. Medical Devices**

### **1. Respiratory support devices for COVID19: CPAP Helmet, Mechanized Ambu-bag & Advanced Ventilator**

- Prof. Ramesh Singh, Department of Mechanical Engineering
  - Prof. Soham Mujumdar, Department of Mechanical Engineering
  - Prof. Ankit Jain, Department of Mechanical Engineering
  - Prof. Ashutosh Gupta, Department of Computer Science and Engineering
- Remarks: CPAP Helmet project funded by Thermax

### **2. BETIC VI-SVAS: Ventilator for India**

- Prof. B. Ravi, Department of Mechanical Engineering
- Remarks: Funded by IITPL - Innovations Imaging Technologies, Bangalore

## **D. Personal Protection**

### **1. Design and development of PPE solutions: Face masks; Low-cost face shields; Aerosol Box for hospitals; and Washable PPE coverall suit**

- Prof. R. Kumaresan, IDC School of Design
- Prof. Purba Joshi, IDC School of Design
- Prof. B.K. Chakravarthy, IDC School of Design

### **2. Antiviral gel spray for coating cloth masks to make them safe against COVID19**

- Prof. Rohit Srivastava, Department of Bioscience and Bioengineering
  - Prof. Kiran Kondabagil, Department of Biosciences and Bioengineering
- Remarks: Funded by BIRAC, DBT

## **E. Surveillance**

### **1. Use of "SAFE" app for quarantine adherence (<http://safe.cse.iitb.ac.in/>)**

- Prof. Bhaskaran Raman, Department of Computer Sciences and Engineering
- Prof. Kameswari Chebrolu, Department of Computer Sciences and Engineering

### **2. Privacy preserving contact tracing**

- Prof. Bhaskaran Raman, Department of Computer Sciences and Engineering

### **3. CORONTINE: Tracking and tracing of asymptomatic carriers during pandemic**

- Prof. Ganesh Ramakrishnan, Department of Computer Science and Engineering
- Prof. Manjesh K. Hanawal, Industrial Engineering and Operations Research

### **4. Contactless (video) surveillance at COVID-19 quarantine facilities**

- Prof. Ganesh Ramakrishnan, Department of Computer Science and Engineering

## **F. IT Solutions**

### **1. World Wide Help: IT solution for user-friendly, cost effective and customized information access on any topic and in any domain with humans-in-the-loop**

- Prof. Kameswari Chebrolu, Department of Computer Sciences and Engineering  
[https://www.facebook.com/permalink.php?id=301908303167310&story\\_fbid=3129807277044051](https://www.facebook.com/permalink.php?id=301908303167310&story_fbid=3129807277044051)

**2. E-token and online ordering system**

- Prof. Bhaskaran Raman, Department of Computer Sciences and Engineering

**3. Short-term projection of COVID-19 medical resources and inventory**

- Prof. P. Sunthar, Department of Chemical Engineering