INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

Technologies and Expertise available at IITB w.r.t COVID-19

Areas of expertise

Antiviral drug/molecule synthesis

a. Prof. S. Kotha:

- Interested in preparing cage amines and test for covid-19 as potential antivirals, since adamentane amine is known as anti-viral.

b. Prof. Suvarn S. Kulkarni:

- Lab is specialized in chemical synthesis of complex glycans which are present on the surfaces of bacteria and viruses. These glycans can be conjugated with proteins for vaccine development.
- For this approach, one needs to know the specific structures of the glycans. Small sugar based molecules can be synthesised, to be tested as virus entry inhibitors, if the details about the nature of host-virus interaction at molecular level are available.

c. Prof. Santosh J. Gharpure:

- His research expertise is related to synthesis and such expertise can be extended for addressing various needs.

d. Prof. Ravindra Gudi

- Look at standardizing and developing a chemical synthesis protocol for the anti-viral drug (Prof. Gudi ravigudi@iitb.ac.in, Prof. Mahajani sanjaym@che.iitb.ac.in, Prof. Wangikar wangikar@iitb.ac.in)

e. Prof. Santosh Noronha

- Analyze effective downstream processing for drug isolation, design formulations.(Prof. Noronha noronha@iitb.ac.in)

f. Prof. I. N. N. Namboothiri:

- We can participate in the synthesis of anti-viral agents. Also we can provide structures of large number of compounds which can be subjected to virtual screening by computational methods to identify the lead compounds (I had a joint MSc project with Prof Prasenjit Bhowmik of BSBE) on similar approach.

- We can also supply available compounds in good quantities if someone is interested in screening directly by experimental methods.

g. Prof. Ruchi Anand:

- Our lab can help with diagnostic as well as drug development 3D structure and drug pocket evolution as well as assay development.

h. Prof. Debabrata Maiti:

- We are interested in synthesising anti-viral agents. New chemicals can be prepared by our methods and known anti-viral agents can be prepared in large scale. We can design and synthesize new anti-viral agents.
- In collaboration with other research groups, we are interested in contributing generation and testing of various anti-viral agents which will be effective against COVID-19.
- Our strength is to prepare new chemical entities in large numbers and quantities. We will be happy to write a proposal or can be part of a larger mission.

i. Prof. Rodney A. Fernandes:

- We can join with expertise in organic synthesis of compounds that can be tested. We have some compounds that worked well as anti-bacterials but not tested for antiviral. These can be tried for antiviral activity.

j. Prof. Rahul Purwar:

- Handles many types of virus including HIV (of course mutated ones).
- The main research interest in quantifying the immune response in population to understand the responders and non-responders.
- This expertise can help industry, academia and government in multiple ways. For example:

  i) The team will be identifying the people, who have developed immunity after infection or vaccine candidates,

  ii) The team can help diagnostic companies and can them developing ELiSa assays for antibody/ antigen quantification.

k. Prof Kiran Kondabagil:

- Have experience in all aspects of virology, from culture to cultivation to understanding their biology/evolution, detection of viruses, and therapy development.