

NII Research Activities on SARS-CoV-2 virus

National Institute of Immunology has the following research plans on SARS-CoV-2 virus:

1. Design and evaluation of conjugate vaccine against Corona virus

This involves expression of RBD protein in *E. coli* and its conjugation to CRM-197 or Pneumococcal protein. The idea is to develop a protein based candidate vaccine which will elicit neutralizing Ab titer against spike protein.

2. Novel Vaccine evaluation platform

This involves development of SARS-CoV-2 psuedovirus expressing spike protein and mouse infection model to evaluate the efficacies of candidate vaccines.

3. Use delivery and adjuvant system form improving the immunogenicity of candidate vaccine

Over the years NII has patented vaccine delivery and novel adjuvant systems for improving the immunogenicity of candidate vaccine. We will use or collaborate with Industry having candidate vaccine to generate high neutralizing antibody titer.

4. Development of transgenic mouse model for SARS-CoV-2 virus

To support vaccine research and evaluate the efficacies of vaccine and therapeutics, NII, NIAB and RCB will work together to develop Transgenic Black/6 mice expressing human ACE2. In the meanwhile same mouse strains have been ordered from Jackson laboratory. It is expected to arrive in June 2020.

5. Development of antiviral against SARS-CoV-2 virus

This is a mega joint research proposal between RCB, THSTI and NII involving more than 15 scientists. The objective is to develop antiviral compounds using all modern methods of biology, chemistry and drug design.

6. Antibody based therapeutic Platform

This involves isolation of Ab from convalescent plasma and its characterization with an aim to clone and express Ab for therapeutic application.

7. Diagnostic Platform

Development of easy and rapid diagnosis of Corona virus.