Title: Designing of nanomaterials for the extraction and identification of novel coronavirus

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Category: Testing Kit

Duration time: 6 to 12 months

Budget: 15 lacs (Recurring grant: 7 lacs and Non-recurring grant: 8 lacs)

Expected outcomes:

The proposed project may provide facile sample procedures for the extraction of viral RNA. Development of visual readers for the rapid and accurate identification of target proteins (N, S, M and E) in the novel coronavirus, which may facilitative to establish a rapid tool for the diagnosis of COVID-19. The designed nanomaterials may show high affinity to bind with the target proteins in the novel coronavirus, which may offer to detect novel coronavirus with simple spectrophotometric methods and visual changes could be noticed with naked-eye.

Objective of the proposal

As on 17th April 2020, 2019 novel coronavirus (2019-nCoV) is drastically affecting 210 countries by causing server pneumonia, which results to lockdown of several countries to stop local transmission. In view of this, rapid screening and accurate detection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; 2019-nCoV) play an essential role in the diagnosis of 2019-nCoV disease, which minimize the local transmission and prevents epidemics. Thus, there is an urgent need to establish user friendly protocols and diagnostic tools for rapid screening of 2019-nCoV.

Designing of nanomaterials with unique specific ligands to bind directly with target proteins of novel coronavirus.

The aim of this proposed project is to establish functional nanomaterials integrated analytical methods for the rapid identification of novel coronavirus.

Isolation of target proteins using functionalized nanomaterials and their integration with analytical tools for the diagnosis of COVID-19.