PREFACE

We are facing a global health crisis — one that is killing people, spreading human suffering, and upending people's lives. This is much more than a health crisis. The world is undergoing a process that some have called "covidisation", or the unravelling of the manifold, far-reaching medical, economic, and social impacts of a global health emergency. The epidemic–now pandemic– of the new coronavirus is advancing at a staggering pace. This global challenge of COVID-19 pandemic can only be defeated when research results are rapidly and openly shared and all stakeholders work together – scientists, health workers, publishers, funders, policymakers, and government officials. In the last few months, all facets of society have had to adapt to evolving circumstances owing to the ongoing pandemic. Effects of COVID-19 on academia and social science research have been just as severe as in other sectors and professional areas. Fortunately, the scientific studies and evidence on the virus (SARS-CoV-2) and the disease (COVID-19) are also advancing at great speed.

Latest international multilingual scientific findings and knowledge on COVID-19 are being gathered regularly in all leading journals. Scientific journal Emerging Infectious Diseases has published dozens of studies by researchers studying COVID-19 since the pandemic began. While it may not be exhaustive, new research is added regularly. In this context, *Indian Journal of Biochemistry and Biophysics* (IJBB), a peer-reviewed SCI-indexed journal of repute from the CSIR-National Institute of Science Communication and Information Resources, New Delhi is responding to the COVID-19 pandemic by learning more about how the disease spreads and affects people and communities by bringing out a special issue on the theme "COVID 19: Disease progression to Social Impact". It was a great pleasure in compiling this special issue of IJBB by summarizing the most relevant emerging information on SARS-CoV-2 with 2 review articles, 1 mini review and 6 original research articles.

It is now recognized that in most severe cases of COVID-19, an excessive and uncontrolled inflammatory response exacerbates lung damage and contributes to acute respiratory distress syndrome and respiratory failure. This hyperinflammatory syndrome is characterized by multiple cellular and molecular events. P. S. Ray and B. Goswami discussed on these molecular events in correlation with stages of viral infection and disease progression on their article, "COVID-19 and hyperinflammatory Syndrome".

It is also evident that SARS-CoV-2 requires a host enzyme Furin to activate receptor binding domain (RBD) of its S protein, This RBD binds to host cell membrane-bound Angiotensin Convertase Enzyme 2 (ACE2) and facilitating the entry of virus in the host cell. Evidence suggests that hypoxia-inducible factor 1-α (HIF-1α) is one of the factors regulating the expression of Furin. It is also well documented that the interior of solid tumours, which grow very fast, leads to the hypoxic tumour microenvironment, resulting in overexpression and release of HIF-1α. Rajandeep Kaur and others discussed on the role of HIF-1α in SARS-CoV-2 infections to understand its pathogenesis, with special emphasis on cancer patients and associated tumour biology.

Selenium, a micronutrient is reported to play a very important role in fighting bacterial and viral infections. Amit Kunwar and K Indira Priyadarsini examined the role of selenium as a game-changer in one's ability to fight coronavirus disease (COVID-19).

Hydroxychloroquine, an antimalarial, has been recommended for prophylaxis of COVID-19 by the ICMR for asymptomatic healthcare workers. A study by Dalai and others have indicated that the prophylactic weekly single dose of hydroxychloroquine is not associated with any serious adverse effects within 1-7 weeks of initiation.

Understanding the histopathological changes of lung injury due to COVID-19 from autopsy becomes essential for formulating future management protocols. The collection of potentially contaminated tissues during the autopsy and further processing of them in histopathology laboratory with proper maintenance of safety

protocol is of immense importance. Shouvanik Adhya reviewed the available scientific articles and showed the diffuse alveolar damage and microvascular thrombi are common observation in lung tissues of patients who died due to COVID-19.

Various types of sanitizers are being used for hand and instrument disinfection by laboratory personnel. The use of sanitizers in the clinical laboratory is causing derangement in quality control values of lipase and triglycerides analytes. Anjali Sharma and others have concluded that the isopropyl alcohol (70%) should be preferred over glycerol containing sanitizers to reduce pre-analytical errors for lipase and TG estimation.

SARS-CoV-2 infection in pregnancy and its adverse outcome on the mother as well on the fetus is emerging as an important concern. Mriganka Mouli Saha and others have concluded that neonates are mostly protected from disease transmission due to immune modulation during pregnancy. There is no increased risk of severe disease to the fetus during pregnancy, and newborn remain disease-free. They have advised that the infected mother has to be isolated from the new-born until the mother recovers from the disease. A separate isolation room should be available for the new-born.

Pediatric Inflammatory Multisystem Syndrome temporarily associated with SARS-CoV-2 (PIMS-TS) or Multisystem Inflammatory Syndrome in Children (MIS-C) is a post COVID-19 multisystem inflammatory syndrome in children and adolescents <21 years of age. It is emerging with clinical features overlapping with Kawasaki Disease (KD) and Toxic Shock Syndrome (TSS). Surupa Basu and others have reported that PIMS-TS cases had high inflammatory markers, such as, CRP, ferritin, and IL-6. Other distinct features were lymphopenia, hypoalbuminemia, and hyponatremia. Laboratory features of PIMS-TS present a unique pattern of intense inflammation, and cardiac involvement that is different from features of pre COVID-19 KD. CRP remains a useful, inexpensive marker for PIMS-TS diagnosis and clinical progression. In another study, Neha Saini and others have reported that the incidence of GGT elevation was found to be more pronounced in males and elderly patients with COVID-19. The male population displayed higher GGT levels with 52% having raised levels compared to females where only 21.6% had elevated GGT levels.

I sincerely hope that this special issue which showcases developments in the area of “COVID-19”, will serve as an important source of information in coronavirus disease progression and control. Eminent scientists and clinicians have extended their support as reviewers to bring out this special number. I acknowledge all the authors and reviewers for their support. I also express my sincere thanks to the Hon’ble Vice Chancellor of the West Bengal University of Health Sciences and the Principal of College of Medicine & JNM Hospital, The West Bengal University of Health Sciences for guiding this wonderful outcome. Further I extend my gratitude to the Director, Dr Ranjana Agarwal, CSIR-NISCAIR, New Delhi and Shri RS Jayasomu, Editor, IJEB for encouraging this publication. Last but not least, I appreciate the support and extensive work done by the Editor Dr NK Prasanna Kumari and Interns of Indian Journal of Biochemistry and Biophysics, in bringing out this excellent issue.

Prof. Subir Kumar Das
Guest Editor
Professor & Head
Department of Biochemistry
College of Medicine & Jawaharlal Nehru Memorial Hospital
The West Bengal University of Health Sciences
Kalyani, Nadia-741 235, West Bengal, India
E-mail: drsubirkdas@ gmail.com