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EDITED AND REVIEWED BY
Heike Wulff,
University of California, Davis,
United States

*CORRESPONDENCE

Paola Patrignani,
✉ ppatrignani@unich.it
Paolo Montuschi,
✉ p.montuschi@imperial.ac.uk

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Editorial: Coronavirus disease (COVID-19): mechanistic basic, translational, and clinical research aimed at identification of effective preventive and therapeutic strategies

Paolo Montuschi^{1,2*}, Fatih M. Uckun³, Alastair George Stewart⁴ and Paola Patrignani^{5*}

¹Faculty of Medicine, Imperial College London, National Heart and Lung Institute, London, United Kingdom, ²Pharmacology, Faculty of Medicine, Catholic University of the Sacred Heart, Roma, Italy, ³Ares Pharmaceuticals, LLC, St. Paul, MN, United States, ⁴Department of Pharmacology and Therapeutics, University of Melbourne, Parkville, VIC, Australia, ⁵Department of Neuroscience, Imaging and Clinical Sciences and CAST, "G. d'Annunzio" University, Chieti, Italy

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Editorial on the Research Topic

[Coronavirus disease \(COVID-19\): mechanistic basic, translational, and clinical research aimed at identification of effective preventive and therapeutic strategies](#)

The coronavirus disease 2019 (COVID-19) is a significant global health concern affecting society and the economy. Although our understanding of the risks associated with COVID-19 has improved, there are still medical challenges to overcome, and effective treatments for severe disease are not yet available. This Research Topic aimed to showcase recent discoveries and ongoing research efforts to help speed up recovery from COVID-19 and prevent life-threatening complications. It comprises four papers.

Based on the experience of the Health Center Grude (Bosnia and Herzegovina) in treating COVID-19 patients Vukoja et al. reported on work scheme, therapeutic approach, and management techniques, which have proven beneficial. They presented a case series showing how even severely ill patients can be treated entirely in primary care settings. The management is based on the timely and rational use of dexamethasone and various other pharmacological and nonpharmacological treatments. This approach might be particularly useful when tertiary care centers and academic institutions are overwhelmed.

The systemic inflammatory response in critical patients with COVID-19 is associated with alterations in blood lipid profiles. A significant reduction in the serum levels of apolipoprotein-A-I (ApoA-I), i.e., the major protein component of high-density lipoprotein (HDL), has been detected. This protein has many important functions, such as reducing systemic and lung inflammation, regulating the immune system, and preventing endothelial dysfunction and blood coagulation. In four immunocompromised patients with severe

COVID-19 with cytokine release syndrome (CRS), also known as “cytokine storm,” that progressed despite standard-of-care therapy, [Faguer et al.](#) provided initial safety assessment and proof of concept for repeated infusions of CER-001, an ApoA-I-containing HDL mimetic, which was well-tolerated with no serious adverse events. These preliminary results are promising, but randomized controlled trials are required to assess the therapeutic potential of ApoA-I-containing HDL mimetics in these patients.

Using network pharmacology (NP), [Jiang et al.](#) explored potential endotypes and specific targets common to COVID-19 and rheumatoid arthritis (RA), ankylosing spondylitis (AS), and gouty arthritis (GA). They sought to elucidate the mechanism of action of Cepharranthine (CEP) as a potential treatment for COVID-19. CEP, a monomer component of traditional Chinese medicine primarily used to treat leukopenia, has shown promising therapeutic effects on COVID-19, but its specific molecular mechanism remains unclear. This study showed common potential targets, including tumor necrosis factor (TNF), interleukin (IL)-6 and IL-1 β , and signaling pathways of IL-17 and TNF, with potential implications for cross-disease biomarker discovery and targeted therapies. This study provided new insights regarding the clinical potential of CEP in treating COVID-19 and its molecular mode of action.

The paper by [Remuzzi et al.](#) reported the work of the COVID-19 Committee of the Lincoi Academy, which has reviewed the scientific evidence supporting the efficacy and safety of existing and new drugs/biologics for the preventing and treating of COVID-19 and its complications. This report provides an overview of the available evidence on drugs and biologics recommended by health authorities and experts, pointing out drugs that are not recommended or lack

sufficient evidence for or against their use. Additionally, they discussed the safety of drugs used to treat COVID-19 comorbidities. Particular attention was paid to further understanding COVID-19 pathophysiology to expedite the development and repurposing of safe and effective treatments.

Author contributions

PP and PM wrote the manuscript. AS and FU revised the manuscript. All authors contributed to the article and approved the submitted version.

Conflict of interest

Author FU was employed by Ares Pharmaceuticals, LLC. Author AS is a CSO and Director of Tianli Biotech Pty Ltd.

The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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