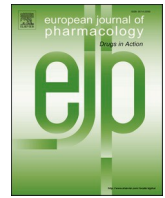




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Full length article

## Science unites a troubled world: Lessons from the pandemic

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## ABSTRACT

European Journal of Pharmacology has published a special issue entitled *Therapeutic targets and pharmacological treatment of COVID-19* that contains more than 30 manuscripts. Scientists from around the world contributed both review articles and original manuscripts that are remarkable in their diversity. Each contribution offers a unique perspective on the current approaches of the discipline called pharmacology. Yet the contributions share an enthusiasm to put forward a fresh viewpoint and make a positive difference by the exchange of ideas during the troubled times of this pandemic. What other enterprise but science can unite so many diverse cultures and nationalities in global uncertainty and discord, and mobilize an effective response against a common enemy. The efforts of science are in stark contrast to those of populism that has introduced division and a self-serving attitude that are not simply ill-matched to tackle the pandemic, but foster its spread and severity. We trust that the readers of European Journal of Pharmacology will discover new ideas and concepts in our special COVID-19 series as members of the scientific community and shared world.

In response to the ongoing pandemic, *European Journal of Pharmacology* has published a special issue entitled *Therapeutic targets and pharmacological treatment of COVID-19*. More than 30 manuscripts appear in the special issue. Submissions were received from all around the world and the breadth of the topics covered is remarkable. Several of the topic areas that the articles discuss are antiviral drugs (Wang and Chen, 2020), drug discovery (Madadlou, 2020; Soni et al., 2020), drug-related adverse events (Paniri et al., 2020), drug repurposing or adjunct therapies (Bibi et al., 2020; Costa et al., 2020; El Tabaa and El Tabaa, 2020; Habibzadeh et al., 2020; Islam et al., 2020; Lopachev et al., 2020; Monji et al., 2020; Omolo et al., 2020; Otreba et al., 2020), immunopharmacology (Booz et al., 2020), inflammatory pathways (Yarmohammadi et al., 2020), involvement of the renin-angiotensin system (Kaur et al., 2020; Sharifkashani et al., 2020; Vitiello and Ferrara, 2020), molecular docking and modeling studies (Deshpande et al., 2020; Vijayakumar et al., 2020), natural product-derived drugs or supplements (Sahebnaasagh et al., 2020; Tang et al., 2020), potential therapeutic targets (Krishna et al., 2020; Sureda et al., 2020), real-world developments and pharmacotherapeutics (Awasthi et al., 2020; Chibber et al., 2020; Khan et al., 2020; Lam et al., 2020; Marcolino et al., 2020; Monpara et al., 2020; Nittari et al., 2020; Samudrala et al., 2020), and targeting oxidative stress (Alamdari et al., 2020). These are not

exclusive and some overlap of course occurs among the articles in the areas that are discussed, but each contribution offers a unique perspective on the current approaches of the discipline called pharmacology.

At the urging on March 13, 2020 of the National Science and Technology Advisors from a dozen countries, including the United States, publishers unselfishly agreed to make their COVID-19 and coronavirus-related publications immediately accessible in PubMed Central (PMC) and other appropriate public repositories. More than 50 publishers responded in ways that facilitate the exchange of ideas among researchers. As of October 10, 2020, there were 62,336 articles referencing COVID-19 in PubMed, which attest to the remarkable mobilization of the scientific world in such a very short span of time. Although a number are criticized as substandard by some, these articles represent a goldmine of thinking and panoply of viewing a problem from different perspectives. Criticism is second nature to science and its underlying driving force for discovery and advancing knowledge. The peer review process is a fundamental pillar of the scientific process, so certainly the growth of preprint publications should be viewed with some concern. Nonetheless, there is strength in dialog and the exchange of ideas. What other enterprise but science can unite so many diverse cultures and nationalities in global uncertainty and discord, and

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mobilize an effective response against a common enemy. It warms the heart to know that there are still those who believe that knowledge is power.

The last several years has seen the growth of populism among many counties in the world, partly as a response to globalization. Unfortunately, a common good is no longer in the national interest; rather, self-interest is now paramount. The alliances and structures that were erected on the hard lessons of the last world war are given short shrift or even cast aside in the name of what is sold as national expediency. It is within that context that the COVID-19 pandemic ought to be viewed.

The pandemic that originated in Wuhan, China is caused by the novel coronavirus, SARS-CoV-2 (Liu et al., 2020). It rapidly spread around the world, causing great distress and death and wreaking havoc on all societies. Ironically, the pandemic has revealed the fallacy and insipid intellectual underpinnings of populism (McKee et al., 2020), as the virus is not deterred by any physical or rhetorical barriers that populism may try to erect, even within the same country. A common enemy has revealed the need to marshal a common response, and no one is safe unless everyone is safe. With that said, science has become the world's common voice with scientists of diverse backgrounds and economic resources, from developed and less developed countries, sharing their thoughts and ideas on tackling this staggering challenge. Unlike populism, science is dependent upon a respectful exchange and critical appraisal of ideas.

We trust that the readers of *European Journal of Pharmacology* will discover new ideas and concepts in our special COVID-19 series. This collection of both review articles and original research exhibits a broad breadth of coverage. Yet, the contributions share an enthusiasm in a desire to put forward a fresh perspective and make a positive difference by the exchange of ideas.

There is no miracle drugs or cures for the pandemic, but rather the promise of drugs or cures that are grounded in the guiding principles of solid scientific effort. That is not to discount the importance of individual faith as a motivating force for some in science, or the lack of faith in others. Unlike populism, science respects our differences, while acknowledging our commonality. Enjoy and learn from our series *Therapeutic targets and pharmacological treatment of COVID-19* as members of the scientific community and shared world.

## Dedication

This special issue is dedicated to Dr. Mirella Iskandar, a gentle, loving, caring, and gifted Intensivist and Pulmonologist, who is risking and dedicating her life in serving the most vulnerable of the Lebanese community during the COVID-19 pandemic.

## Author agreement

Our work is original and is being submitted only to European Journal of Pharmacology, has not been published already, and is not under consideration for publication or in press elsewhere. All authors agree to the submission of the manuscript.

## CRedit authorship contribution statement

**George W. Booz:** contributes to the, Writing - original draft, Writing - review & editing, of the manuscript. **Fouad A. Zouein:** contributes to the, Writing - original draft, Writing - review & editing, of the manuscript.

## Declaration of competing interest

The authors have no conflicts of interest to declare.

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