

EDITORIAL

Open Access



Genomics of COVID-19: molecular mechanisms going from susceptibility to severity of the disease

Ruty Mehrian-Shai¹, Giuseppe Novelli², Vasilis Vasiliou³, Jessica Watt⁴ and Juergen K. V. Reichardt^{5*}

The current COVID-19 pandemic (<https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19%2D%2D11-march-2020>) has highlighted the importance of science and medicine, specifically public health, in our modern societies. Countries have taken different approaches to the pandemic.

Science and medicine will play an important role in our way forward. Specifically, genetics and genomics will be central in discovering variations in virus strains and their impact on patients' susceptibility, progression, and outcome. Additionally, the human and zoonotic hosts' ability to fend off the virus and the severity of disease in patients will have genomic elements. Furthermore, the question of long-term immunity to COVID-19 will likely have a genomic basis which should be investigated. Some of these genetic and genomic investigations will undoubtedly be suitable for publication in *Human Genomics*. We, therefore, expressly welcome submissions of manuscripts on such subjects to the thematic series on the "Genomics of COVID-19: molecular mechanisms going from susceptibility to severity of the disease."

As citizen-scientists, we also have a responsibility toward society as citizens first and foremost but also specifically as scientists working on improving the lives of all humans. Political aspects of the COVID-19 pandemic and its origins can and should not be ignored as the needs of all humans: rich and poor, various ethnicities, rural vs. urban, different health and political systems, etc. These aspects, if fitting within the scope of the journal, will also be considered for publication in this thematic series in *Human Genomics*.

In summary, the COVID-19 pandemic will impact all of humanity. Basic and medical research will have an important role to play in the way forward. Genomics will make important contributions to our understanding of origins of and susceptibility to the disease, its progression, outcome, possible reinfection, and much more. We look forward to a lively forum in the thematic series on the "Genomics of COVID-19: molecular mechanisms going from susceptibility to severity of the disease" of this journal, *Human Genomics*, to publish and share novel and important insights into the pandemic spanning all aspects falling within the scope of the journal at this vital time.

Abbreviation

COVID-19: Corona virus disease 2019

Acknowledgements

We are grateful to Stefanie Dether (Springer Nature) for helpful comments on the manuscript draft.

Authors' contributions

The authors read and approved the final manuscript.

Competing interests

The authors declare no competing interests.

Author details

¹Pediatric Hemato-Oncology, Sheba Medical Center, Tel Hashomer, Israel. ²Department of Biomedicine and Prevention, University Tor Vergata, Rome, Italy. ³Department of Environmental Health Sciences, School of Public Health, Yale University, New Haven, USA. ⁴College of Public Health, Medical and Veterinary Sciences, James Cook University, Smithfield, QLD, Australia. ⁵Australia Institute of Tropical Health and Medicine, James Cook University, Smithfield, QLD, Australia.

Published online: 10 June 2020

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

* Correspondence: Juergen.reichardt@jcu.edu.au⁵Australia Institute of Tropical Health and Medicine, James Cook University, Smithfield, QLD, Australia

Full list of author information is available at the end of the article



© The Author(s). 2020 **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.