# Article information:

New insights into genetic susceptibility of COVID-19: an ACE2 and TMPRSS2 polymorphism analysis | BMC Medicine | Full Text  
<https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-020-01673-z>

# Article summary:

1. The study investigated genetic susceptibility to COVID-19 by examining DNA polymorphisms in ACE2 and TMPRSS2, two key host factors of the SARS-CoV-2 virus.

2. Unique genetic susceptibility was found across different populations in ACE2 and TMPRSS2, with ACE2 polymorphisms associated with cardiovascular and pulmonary conditions.

3. Polymorphisms in ACE2 or TMPRSS2 could guide effective treatments for COVID-19, such as hydroxychloroquine and camostat.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article titled "New insights into genetic susceptibility of COVID-19: an ACE2 and TMPRSS2 polymorphism analysis" provides an analysis of genetic factors that may contribute to the susceptibility and severity of COVID-19. While the article presents interesting findings, there are several potential biases and limitations that need to be considered.

One potential bias in the article is the focus on ACE2 and TMPRSS2 polymorphisms as the main genetic factors influencing COVID-19 susceptibility. While these genes have been shown to play a role in SARS-CoV-2 infection, there are likely many other genetic factors involved that have not been explored in this study. By focusing solely on ACE2 and TMPRSS2, the authors may be overlooking important genetic variations that could contribute to COVID-19 susceptibility.

Another potential bias is the limited sample size used in the study. The authors analyzed DNA polymorphisms in ACE2 and TMPRSS2 from approximately 81,000 human genomes. While this may seem like a large number, it is important to note that there is significant genetic diversity across different populations. Therefore, analyzing a larger and more diverse sample size would provide a more comprehensive understanding of genetic susceptibility to COVID-19.

Additionally, the article does not provide sufficient evidence for some of its claims. For example, it states that ACE2 polymorphisms are associated with cardiovascular and pulmonary conditions by altering angiotensinogen-ACE2 interactions. However, no specific evidence or studies are cited to support this claim. Without supporting evidence, these claims should be viewed with caution.

Furthermore, the article does not explore potential counterarguments or alternative explanations for its findings. It presents the identified polymorphisms as definitive factors contributing to COVID-19 susceptibility without considering other possible confounding variables or interactions between genes and environmental factors.

The article also lacks discussion on potential risks or limitations associated with targeting ACE2 or TMPRSS2 for treatment strategies. While the authors suggest that polymorphisms in these genes could guide effective treatments for COVID-19, they do not address potential risks or side effects of targeting these genes. It is important to consider the potential unintended consequences of manipulating ACE2 or TMPRSS2 expression, as these genes have important physiological functions beyond their role in SARS-CoV-2 infection.

In terms of reporting bias, the article primarily focuses on the potential genetic factors contributing to COVID-19 susceptibility and does not provide a balanced discussion of other factors such as age, comorbidities, or environmental exposures. This one-sided reporting may lead readers to believe that genetic factors are the primary determinants of COVID-19 susceptibility, while neglecting other important risk factors.

Overall, while the article provides interesting insights into genetic susceptibility to COVID-19, it has several limitations and biases that need to be considered. Further research with larger and more diverse sample sizes is needed to fully understand the complex interplay between genetics and COVID-19 susceptibility. Additionally, a more balanced discussion of other risk factors and potential limitations of targeting ACE2 and TMPRSS2 is necessary for a comprehensive understanding of this topic.

# Topics for further research:

* Alternative genetic factors influencing COVID-19 susceptibility
* Genetic diversity and COVID-19 susceptibility
* Evidence for ACE2 polymorphisms and cardiovascular/pulmonary conditions
* Confounding variables in genetic susceptibility to COVID-19
* Risks and limitations of targeting ACE2 and TMPRSS2 for COVID-19 treatment
* Non-genetic risk factors for COVID-19 susceptibility

# Report location:

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