

# Efficacy of Novel Antiviral Therapies in the Treatment of Severe Acute Respiratory Syndrome

Christina Stelios\*

Department of Microbiology, University of Cambridge, Cambridge, Cambridgeshire CB3 0DY, UK

## Abstract

Severe Acute Respiratory Syndrome (SARS) has posed a significant threat to global public health, causing outbreaks with potentially severe consequences. In the pursuit of effective treatments, researchers and pharmaceutical companies have been exploring novel antiviral therapies that show promise in mitigating the impact of SARS. Severe Acute Respiratory Syndrome, commonly known as SARS, is a viral respiratory illness that gained international attention in the early 2000s due to its potential for rapid spread and severe health consequences. The disease is caused by the SARS coronavirus, specifically referred to as SARS-CoV. SARS is a viral respiratory illness caused by the coronavirus SARS-CoV. The hallmark symptoms include fever, cough and difficulty breathing and in severe cases, it can lead to pneumonia, respiratory failure and death. Given its potential for rapid transmission, SARS outbreaks demand swift and effective interventions.

**Keywords:** Severe acute respiratory syndrome • Antiviral therapies • Pneumonia

## Introduction

SARS first emerged in the Guangdong province of southern China in November 2002. The virus is believed to have originated in bats and was transmitted to humans through intermediary hosts, possibly palm civets or other wild animals. The initial outbreak resulted in a significant number of cases in China and the virus quickly spread to other countries through international travel. The most notable global outbreak occurred in 2002-2003, affecting multiple countries in Asia, North America, Europe and beyond. The World Health Organization (WHO) declared SARS a global health threat and concerted efforts were made to contain its spread. Historically, the treatment of SARS has largely relied on supportive care, including oxygen therapy and mechanical ventilation for severe cases [1,2]. While these measures can be life-saving, they do not directly target the virus itself. This has prompted the scientific community to explore antiviral therapies that can specifically inhibit the replication of the SARS-CoV virus.

## Literature Review

The clinical manifestations of SARS include fever, cough and difficulty breathing. In severe cases, the infection can progress to pneumonia, leading to respiratory failure and, in some instances, death. The virus primarily spreads through respiratory droplets produced when an infected person coughs or sneezes. Close personal contact with an infected individual or touching surfaces contaminated with the virus can also contribute to transmission. One of the challenges in managing SARS lies in its similarity to other respiratory illnesses, such as influenza and pneumonia. Early diagnosis is crucial for implementing appropriate public health measures and initiating supportive care for affected individuals. The global response to the SARS outbreak was marked by international collaboration and public health measures aimed at

**\*Address for Correspondence:** Christina Stelios, Department of Microbiology, University of Cambridge, Cambridge, Cambridgeshire CB3 0DY, UK, E-mail: [christinastelios@gmail.com](mailto:christinastelios@gmail.com)

**Copyright:** © 2023 Stelios C. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Received:** 02 October, 2023, Manuscript No. jid-23-121073; **Editor Assigned:** 04 October, 2023, Pre QC No. P-121073; **Reviewed:** 18 October, 2023, QC No. Q-121073; **Revised:** 23 October, 2023, Manuscript No. R-121073; **Published:** 30 October, 2023, DOI: 10.37421/2684-4559.2023.7.231

controlling the spread of the virus. Quarantine measures, travel restrictions and intensive contact tracing were implemented to contain outbreaks in affected regions.

Several innovative antiviral therapies have shown promise in preclinical and clinical studies, offering hope for more targeted and efficient treatments for SARS. Remdesivir is originally developed for Ebola, remdesivir has demonstrated inhibitory effects against coronaviruses, including SARS-CoV, in laboratory studies. Clinical trials have shown that it can reduce the time to recovery in hospitalized COVID-19 patients, suggesting its potential in treating severe respiratory infections. Casirivimab and Imdevimab are the monoclonal antibodies that have received emergency use authorization for the treatment of COVID-19 and are being explored for their efficacy in SARS [3,4]. By targeting specific regions of the virus, monoclonal antibodies can neutralize the virus and reduce the severity of symptoms. Lopinavir/Ritonavir are initially developed for HIV, this combination of protease inhibitors has been investigated for its potential to inhibit the replication of SARS-CoV.

## Discussion

However, clinical trials have yielded mixed results and further research is needed to determine its effectiveness. Small Interfering RNA (siRNA) is a novel approach that involves using small RNA molecules to inhibit the expression of specific genes, including those of the virus. siRNA targeting the SARS-CoV genome has shown promise in laboratory studies, highlighting the potential of RNAi as a therapeutic strategy. While these novel antiviral therapies offer hope in the fight against SARS, challenges remain. Ensuring safety and efficacy, addressing potential resistance and determining the optimal timing of intervention are critical considerations [5,6]. Additionally, the global distribution and accessibility of these treatments pose logistical challenges, particularly in resource-limited settings. The ongoing evolution of SARS-CoV and the emergence of new variants underscore the need for continuous research and adaptation of antiviral therapies. Collaborative efforts between researchers, healthcare professionals and pharmaceutical companies are essential to expedite the development and deployment of effective treatments.

## Conclusion

The efficacy of antiviral therapies in the treatment of Severe Acute Respiratory Syndrome marks a significant step forward in the quest for targeted and efficient interventions. From antiviral medications to monoclonal antibodies and RNA interference, the diverse approaches reflect the dedication of the

scientific community in addressing the unique challenges posed by SARS. While challenges persist, ongoing research and collaboration hold the key to unlocking the full potential of these innovative treatments, offering a beacon of hope for the management and control of future SARS outbreaks. SARS serves as a reminder of the challenges posed by emerging infectious diseases and the need for a coordinated, global response to contain and manage such threats. While the specific SARS-CoV responsible for the 2002-2003 outbreak has not been prevalent in recent years, ongoing research and preparedness efforts are essential to address the potential re-emergence of similar viruses and to mitigate the impact of future outbreaks. The lessons learned from SARS continue to shape public health strategies and contribute to the resilience of healthcare systems worldwide.

---

## Acknowledgement

None.

---

## Conflict of Interest

None.

---

## References

1. Liang, Xiao-Nan, Li Xie, Jian-Wen Cheng and Zhen Tan, et al. "Association between PAI-1 4G/5G Polymorphisms and osteonecrosis of femoral head: A meta-analysis." *Thromb Res* 132 (2013): 158-163.
2. Sun, Wei, Zirong Li, Zhengcai Shi and Bailiang Wang, et al. "Relationship between post-SARS osteonecrosis and PAI-1 4G/5G gene polymorphisms." *Eur J Orthop Surg Traumatol* 24 (2014): 525-529.
3. Li, Xuejiao, Yukun Liu, Rui Zhang and Jianping Tan, et al. "Meta-analysis of the association between plasminogen activator inhibitor-1 4G/5G polymorphism and recurrent pregnancy loss." *Med Sci Monit: Int Med J Exper Clin Res* 21 (2015): 1051.
4. Muszbek, L. "Deficiency causing mutations and common polymorphisms in the factor XIII-A gene." *Thromb Haemost* 84 (2000): 524-527.
5. Ferrari, Emile, Benjamin Sartre, Fabien Squara and Julie Contenti, et al. "High prevalence of acquired thrombophilia without prognosis value in patients with coronavirus disease 2019." *J Am Heart Assoc* 9 (2020): e017773.
6. Bertina, Rogier M., Bobby PC Koeleman, Ted Koster and Frits R. Rosendaal, et al. "Mutation in blood coagulation factor V associated with resistance to activated protein C." *Nature* 369 (1994): 64-67.

**How to cite this article:** Stelios, Christina. "Efficacy of Novel Antiviral Therapies in the Treatment of Severe Acute Respiratory Syndrome." *Clin Infect Dis* 7 (2023): 231.