Journal of Regenerative Biology and Medicine
An Open Access Journal
ISSN: 2582-385X

Treatment Options in COVID-19: The Role of Bioavailable Antiviral Ribonucleoside Analogon NHC *in vitro*

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Received Date: 04-14-2020; **Published Date:** 04-27-2020

Keywords

Pneumonia; China; WHO; COVID-19; Coronavirus Disease; Infection; SARS-CoV-2.

Letter to the Editor

On December 31, 2019, WHO was informed of cases of pneumonia of unknown cause in Wuhan City, China. A novel coronavirus was identified as the cause by Chinese authorities on January 7, 2020 and was provisionally named "2019-nCoV". This new Coronavirus causes a clinical picture which has received now the name COVID-19. The virus has spread subsequently worldwide and was explained on the 11th of March, 2020 by the World Health Organization to the pandemic. There is no admitted therapy for COVID-19, and the present standard of treatment is the supporting treatment. SARS CoV 2 uses the cell entry receptor protein to Angiotensin Converting enzyme II (ACE-2) to reach human cells and to infect [2]. What we know is that SARS-CoV-2 needs for entry in the cell (Pneumocytes II) the help of a serine protease TMPRSS2 and cathepsin L [2-4]. Since the outbreak in China in December 2019 researchers searching for adequate therapy to control viral spreading and to inhibit COVID-19 effectively. To date, no effective drug to treat this severe viral infection was found. Publications about angiotensin II receptor blocker reveal a new effective method to think about in treating COVID-19 [6-10]. Moreover, different therapy options were started to stop the devastating potential of COVID-19 worldwide. Antibody-rich donated plasma from survivors, different inhibitors are part of analysis to stop the entry of the virus into the cell and disturb the connection between SARS-CoV-2 and angiotensin-2 receptor binding. A new orally bioavailable broad-spectrum antiviral inhibits was found in SARS CoV-2 in human airway epithelial cell structures and in different coronaviruses in mice and published in

Citation: Bittmann S, Weissenstein A, Villalon G, Moschüring-Alieva E, Bittmann L, Luchter E. Treatment Options in COVID-19: The Role of Bioavailable Antiviral Ribonucleoside Analogon NHC *in vitro*. J Regen Biol Med. 2020;2(2):1-2.
DOI: https://doi.org/10.37191/Mapsci-2582-385X-2(1)-024

SCIENCE [5]. In this publication the ribonucleoside analog beta-D-N4-hydroxycytidine (NHC, EIDD 1931) had great potential and antiviral potency against SARS-CoV-2. The results of Timothy Sheahan`s work and his colleagues highlight the potential utility as an effective antiviral drug against COVID-19 corona virus *in vitro* [5]. As a consequence, further off-label trials in severe COVID-19 patients must follow.

References

1. *Simmons G. Characterization of severe acute respiratory syndrome-associated coronavirus (SARS-CoV) spike glycomediated viral entry. Proc Natl Acad Sci USA. 2004;101:4240-45.*
2. *Hoffmann M, Kleine-Weber H, Schroeder S. SARS-CoV-2 cell entry depends on ACE2 and TMPRSS2 and is blocked by clinically proven protease inhibitor. Cell. 2020;181:1-10.*
3. *Coote K, Atherton-Watson HC, Sugar R, et al. Camostat attenuates airway epithelial sodium channel function in vivo through the inhibition of a channel-activating protease. J Pharmacol Exp Ther. 2009;329(2):764-74.*
4. *Simmons G, Rosalia DN, Rennekamp AJ, Reves JD, Diamond SL. Bates P: Inhibitors of cathepsin L prevent severe acute respiratory syndrome coronavirus entry. PNAS. 2005;102(33):11876-81.*
5. *Sheehan TP, Sims AC, Zhou S, Graham RL, Pruijssers AJ, Agostini ML, et al. An orally bioavailable broad-spectrum antiviral inhibits SARS-CoV-2 in human airway epithelial cell cultures and multiple coronaviruses in mice. Sci. Transl Med. 2020.*
6. *Bittmann S, Luchter E, Moschüring-Alieva E, Villalon G. Covid-19-The Role of Children and Search for Effective Treatment Options with Promising view to Angiotensin II Inhibitors. Am J Biomed Sci Res. 2020;8(4).*
7. *Bittmann S. COVID-19 in Adults and Children: The Clock is Ticking. J Regen Biol Med. 2020;2(2):1-2.*
8. *F Jiao, Bittmann S. A new classification of clinical findings and treatment options of SARS-CoV-2 infection in children from China. Adv Pediatr Res. 2020.*
9. *Bittmann S, Luchter E, Villalon G, Moschüring-Alieva E, Weissenstein A. Clinical Landmarks of COVID-19 in Newborn, Children and Teenagers. J Pediatric Health Nutri. 2020;1(3):1-2.*
10. *Bittmann S. COVID-19: What We Know. J Pediatric Health Nutri. 2020.*

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DOI: https://doi.org/10.37191/Mapsci-2582-385X-2(1)-024