Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Plausible role of combination of Chlorpromazine hydrochloride and Teicoplanin against COVID-19

To the editor

COVID-19 is an endangering viral infection claiming lakhs of lives across the globe. The early spread of COVID-19 was reported from Wuhan, China in December 2019 [1], and was declared as pandemic on March 11, 2020 [2]. COVID-19 caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) or generally referred to as Novel coronavirus (2019-nCoV) [3], is posing a serious threat to mankind. However, as the drug development process is very lengthy, to face this alarming global challenge we may need to think of an alternate way. Repurposing the clinical use of an 'old' drug to treat 'new' disease could be an effective strategy to confront the present context of the COVID-19 pandemic [4] (Fig 1.).

Chlorpromazine hydrochloride (CPZ-HCl), an anti-psychotic agent reported to show *in vitro* antiviral activity with a IC 50 of 3.14 Mm [5] by inhibiting assembly and disassembly of Clathrin lattices on cell surfaces and endosomes by CPZ-HCl and thereby prevents the entry of virus into host cells. [6]. Teicoplanin (TCP), a broad spectrum anti-bacterial drug, reported to show *in vitro* antiviral activity with a IC 50 of 1.66 μM [7], by inhibiting low pH cleavage of viral spike protein cathepsin in late endosomes during the early stages of viral life cycle This averts the release of viral RNA and its further replication [7], which conserved towards COVID-19 [8]. As both these drugs are FDA approved, a combination of these two drugs can be used for COVID-19. Hence, based on the available information on possible mechanisms of actions of CPZ-HCl and TCP, a combination can be suggested for further investigation, to target COVID-19 primarily by inhibiting clathrin mediated endocytosis with CPZ-HCl and secondarily by preventing low pH cleavage of viral spike protein of viral proteins which might have escaped the endocytosis inhibition.

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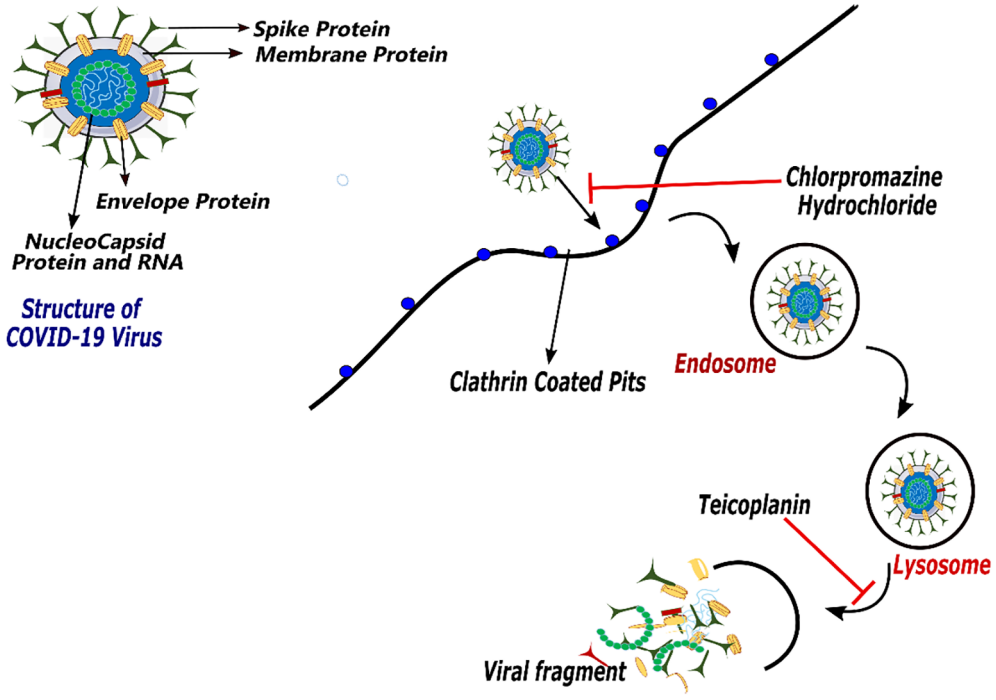

Fig. 1. Structure of COVID-19 Virus; Plausible role of combination of Chlorpromazine hydrochloride and Teicoplanin in controlling COVID-19 replication, where Chlorpromazine hydrochloride inhibiting binding of virus to Clathrin pits and Teicoplanin inhibiting inhibiting low pH cleavage of viral spike protein.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.mehy.2020.110011.

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