

# Bioinformatics analysis of Wuhan novel coronavirus pathogen: A clue for finding antiviral drug against Wuhan novel coronavirus

Dear Editor,

Wuhan novel coronavirus infection is a newly emerging virus infection that becomes the global public health problem at present.<sup>[1]</sup> The disease firstly emerged in China, then widely spread, and also imported outside to other countries.<sup>[2]</sup> As novel coronavirus infection is a new disease, there is a limited knowledge on diagnosis and treatment. Searching for a therapeutic agent against the pathogen is important.<sup>[3]</sup> To find a new drug against the new pathogen, the standard advanced bioinformatics approach is useful. Here, the authors report the observation from using bioinformatics analysis of publicly available sequence of Wuhan novel coronavirus (NCBI Reference Sequence: NC\_045512.2). The referencing tool namely PROSITE is used for the analysis of the sequence.<sup>[4]</sup> Briefly, PROSITE is the tool for functional prediction from annotation analysis of the protein sequence. The PROSITE is a computation bioinformatic tool which helps identify the patterns or profiles of meaningful signatures in the studied sequence and further gives useful biological information on the protein family and domain or functional site identified by the signature analysis.<sup>[4]</sup> Regarding computational signature analysis, domains and functional sites as well as associated patterns and profiles are firstly identified and then subfamily-specific profiling and profile building is done to finally identified functionally important residues.<sup>[4]</sup>

According to the analysis, the identified functional domains are peptidase, helicase, helicase, and carbamoyl-phosphate synthase. These functional domains might be the target for antiviral drug findings. Based on the study, drugs that have the possibility as antiviral drugs for the new Wuhan novel coronavirus infection are shown in Table 1. The identified possible drugs are lopinavir, ritonavir, and pritelivir. For the proposed possible mechanisms, lopinavir and ritonavir can act on peptidase, whereas pritelivir can act on helicase, which is useful for viral control and eradication of infection. Further studies to evaluate the actual effect of those derived drug candidates are recommended.

**Table 1: Identified functional domains and possible antiviral drug for the management of Wuhan novel coronavirus infection**

Functional domains	Presently available antiviral drug
Peptidase	Lopinavir, ritonavir
Helicase	Pritelivir
Carbamoyl-phosphate synthase	-

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## Conflicts of interest

There are no conflicts of interest.

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