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### 1. Introduction

Among the various diseases caused by viruses, the 2019 coronavirus disease (COVID-19) caused by a new coronavirus (SARS-CoV-2) was first detected in December 2019 and has since become a global pandemic (Chan *et al.*, 2020; Chen *et al.*, 2020). This virus has been reported as a new member of the  $\beta$ -coronavirus genus. It is closely related to severe acute coronavirus respiratory syndrome (SARS-CoV) and several bat coronaviruses (Zhou *et al.*, 2020). Compared to coronavirus types previously found (SARS-CoV and MERS-CoV), the SARS-CoV-2 virus shows faster human-to-human transmission. Thus, the World Health Organization (WHO) has established public health emergencies worldwide (Chan *et al.*, 2020; Chen *et al.*, 2020). Additionally, this virus's targeted therapeutic compounds and effective treatment options are still minimal. Therefore, efforts are needed to design new drugs that can be used as SARS-CoV-2 antiviral candidates with virtual drug screening methods. To date, no effective antiviral therapy has been found. However, several broad-spectrum antivirals have been recommended, such as the Nucleoside analogs and HIV-Protease Inhibitors (lopinavir, ritonavir), as an alternative to temporary therapy until specific antivirals are found (Zhou *et al.*, 2020). Additionally, aside from vaccine development, repurposing approved antiviral drugs (e.g., remdesivir) is a practical clinical approach to overcome the SARS-CoV-2 global pandemic (Wu *et al.*, 2020). Nevertheless, designing broad-spectrum antiviral agents that are effective against a wide range of SARS-CoV-2 and other emergent classes of viruses could be a sound strategy (Cho and Glenn, 2020; Hall and Ji, 2020).

The broad spectrum of antiviral drugs can be divided into two mechanisms of action: 1) by inhibiting the interactions between virus particles outside of cells and the receptors on the cell surface, thus preventing infection (Hangartner *et al.*, 2006; Kim *et al.*, 2012) and 2) by stopping