Potential therapeutic effects of dipyridamole in the severely ill patients with COVID-19

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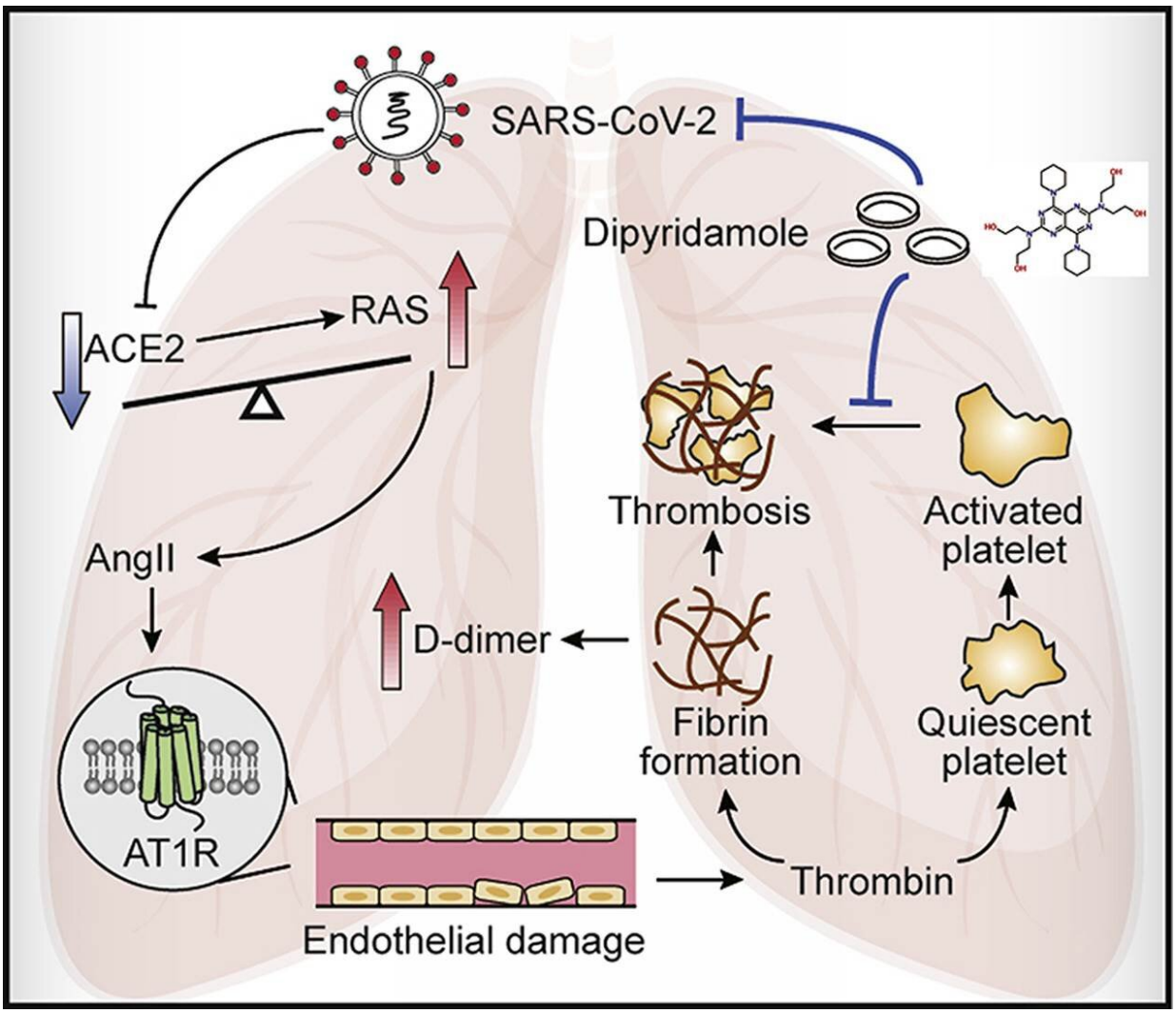

Dipyridamole bound to the SARS-CoV-2 protease Mpro after identified via the virtual screening and bioassay validation, and thus suppressed viral replication in vitro. As a result, dipyridamole supplementation was associated with

significantly decreased concentrations of D-dimers, increased lymphocyte and platelet recovery in the circulation, and markedly improved clinical outcomes in comparison to the control patients. Credit: Compuscript Ltd

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection can cause acute respiratory distress syndrome, hypercoagulability, hypertension, and multiorgan dysfunction. In recent months, SARS-CoV-2 has gradually spread to more than 200 countries and regions, resulting in more than 500,000 deaths globally.

Effective antivirals with safe clinical profile are urgently needed to improve the overall prognosis. In an analysis of a randomly collected cohort of 124 patients with COVID-19, the authors found that hypercoagulability as indicated by elevated concentrations of D-dimers was associated with disease severity. By virtual screening of a U.S. FDA approved drug library, the authors identified an anticoagulation agent dipyridamole (DIP) in silico, which suppressed SARS-CoV-2 replication invitro.

In a proof-of-concept trial involving 31 patients with COVID-19, DIP supplementation was associated with significantly decreased concentrations of D-dimers (P