Statins: Could an old friend help the fight against COVID-19?

Raúl Rodrigues Díez¹, Antonio Tejera-Muñoz¹, Laura Marquez-Exposito¹, Sandra Rayego Mateos¹, Laura Santos-Sanchez¹, Vanessa Marchant¹, Lucía Tejedor-Santamaria¹, ADRIÁN RAMOS², Alberto Ortiz¹, Jesús Egido³, and Marta Ruiz-Ortega²

May 25, 2020

Abstract

COVID-19 pandemic caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has overwhelmed Healthcare Systems requiring the rapid development of treatments, at least, to reduce COVID-19 severity. Drug repurposing offers a fast track. Here, we discuss the potential beneficial effects of statins in COVID-19 patients based on evidence that they may target virus receptors, replication, degradation and downstream responses in infected cells, addressing both basic research and epidemiological information. Briefly, statins could act modulating virus entry, acting on the SARS-CoV-2 receptors, ACE2 and CD147, and/or lipid rafts engagement. Statins, by inducing autophagy activation, could regulate virus replication or degradation, exerting protective effects. The well-known anti-inflammatory properties of statins, by blocking several molecular mechanisms, including NF-xB and NLRP3 inflammasome, could limit the "cytokine storm" in severe COVID-19 patients which is linked to fatal outcome. Finally, statin moderation of coagulation response activation may also contribute to improve COVID-19 outcomes.

Hosted file

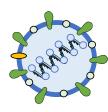
Statins and Covid19 for BJP 22.05.2020.pdf available at https://authorea.com/users/325853/articles/453868-statins-could-an-old-friend-help-the-fight-against-covid-19

¹Instituto de Investigación Sanitaria de la Fundación Jiménez Díaz

²Instituto de Investigación Sanitaria-Fundación Jiménez Díaz (IIS-FJD)

³IIS-Fundacion Jimenez Diaz

SARS-CoV-2 Complete infectious virion



- Membrane protein (MP)
- Nucleocapsid protein (NP)
- Envelope protein (EP)
- Spike protein (SP)

