

## Dual and mutual interaction between microbiota and viral infections; a possible treat for COVID-19

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### Abstract

All of humans and other mammalian species are colonized by some types of microorganisms such as bacteria, archaea, unicellular eukaryotes like fungi and protozoa, multicellular eukaryotes like helminths, and viruses, which in whole are called microbiota. These microorganisms have multiple different types of interaction with each other. A plethora of evidence suggests that they can regulate immune and digestive systems and also play roles in various diseases, such as mental, cardiovascular, metabolic and some skin diseases. In addition, they take-part in some current health problems like diabetes mellitus, obesity, cancers and infections.

Viral infection is one of the most common and problematic health care issues, particularly in recent years that pandemics like SARS and COVID-19 caused a lot of financial and physical damage to the world. There are plenty of articles investigating the interaction between microbiota and infectious diseases. We focused on stimulatory to suppressive effects of microbiota on viral infections, hoping to find a solution to overcome this current pandemic. Then we reviewed mechanistically the effects of both microbiota and probiotics on most of the viruses. But unlike previous studies which concentrated on intestinal microbiota and infection, our focus is on respiratory system's microbiota and respiratory viral infection, bearing in mind that respiratory system is a proper entry site and residence for viruses, and whereby infection, can lead to asymptomatic, mild, self-limiting, severe or even fatal infection. Finally, we overgeneralize the effects of microbiota on COVID-19 infection. In addition, we reviewed the articles about effects of the microbiota on coronaviruses and suggest some new therapeutic measures.