



LITERATURE STUDY: THE OLFACTORY EPITHELIUM AS A POTENTIAL ENTRANCE FOR SARS-COV-2 TO REACH THE CENTRAL NERVOUS SYSTEM

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The emergence of the recently identified severe acute respiratory syndrome coronavirus type 2 (SARS-CoV-2) has vastly impacted human health and the economy worldwide. The SARS-CoV-2 sourced COVID-19 disease varies in severity, as some only experience mild symptoms while others experience life-threatening conditions. Although many people experience different levels of severity, the common symptoms are coughing, shortness of breath, and loss of sense of smell and taste. This notoriously characterized respiratory disease may have symptoms that could be a result of the interactions between SARS-CoV-2 and the central nervous system (CNS). Many studies outline the olfactory epithelium as an entry route to the brain. This is due to the strong expression of the angiotensin-converting enzyme 2 (ACE 2) receptor in the olfactory epithelium. This literature review investigates the possible connections between SARS-CoV-2 and the olfactory epithelium as being an entryway to the CNS causing symptoms such as loss of taste and smell. The olfactory epithelium displays the receptor ACE 2 which allows SARS-CoV-2 to bind to supporting cells in the olfactory epithelium. This provides a possible pathway for its genetic material to enter the olfactory bulb in the brain. Articles that use human and mice models were compiled to further investigate transportation of the genetic material through axonal transport. This review aims to encapsulate the major findings related to understanding the entry of SARS-CoV-2 sourced COVID-19 into the CNS and will provide a foundation to direct future research in our laboratory.

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