



Special Issue "Virus–Host Interaction and Cell Restriction Mechanisms"

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A special issue of *International Journal of Molecular Sciences* (ISSN 1422-0067). This special issue belongs to the section "Molecular Immunology".

Deadline for manuscript submissions: **31 August 2021**.

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Special Issue Information

Dear Colleagues,

Viral diseases are becoming a major public health concern and an extended field of research. Deciphering the mechanisms that allow viruses to enter susceptible host cells, hijack cellular pathways, and evade innate immune response is a major requirement for potential treatments and drug discoveries. In this context, HIV-1 infection is considered one of the most aggressive pandemics in the world, causing the death of millions of people; however, it represents a clear example of how progress in research has significantly contributed to understanding the molecular and cellular correlates of this infection, providing effective tools to counteract the virus and contain viral replication in the host. Chronic viral infections account for 15% to 20% of total human cancers. Advances in our understanding of how oncoviruses modulate key host factors and signaling pathways have shed light on the pathogenic mechanisms of cancer-causing viruses, including, among others, human papillomaviruses (HPVs) Epstein–Barr virus (EBV), hepatitis B virus (HBV) and hepatitis C virus (HCV), and human T-cell leukemia virus-1 (HTLV-1). Viral adaptation and cell host tropism play a critical role in the emergence of human coronaviruses: severe acute respiratory syndrome coronavirus (SARS-CoV), Middle East respiratory syndrome coronavirus (MERS-CoV), and the most recent and highly pathogenic SARS-coronavirus 2 (SARS-CoV-2). The evaluation of the similarities or the differences of the novel virus with other coronaviruses that have caused outbreaks of severe respiratory diseases in the past should be critical to understand the nature of infection and pathogenicity of the new virus. Although SARS-CoV-2, responsible for the COVID-19 pandemic, has been successfully isolated and its viral infectivity and pathogenicity has been partially understood, more needs to be revealed of the viral antigenic structure, host-immune response, viral entry in host cells, and infectivity in order to contain infection and develop an effective strategy in the management of viral infection.

In this research topic, we welcome contributions focused on understanding the virus–host interaction involved in (i) viral entry (i), viral infection and replication, (ii) viral persistence (iii), cell restriction mechanisms, (iv) immune response and pathogenesis, and (v) oncovirus pathogenesis.

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