

Recent and advanced nano-technological strategies for COVID-19 vaccine development

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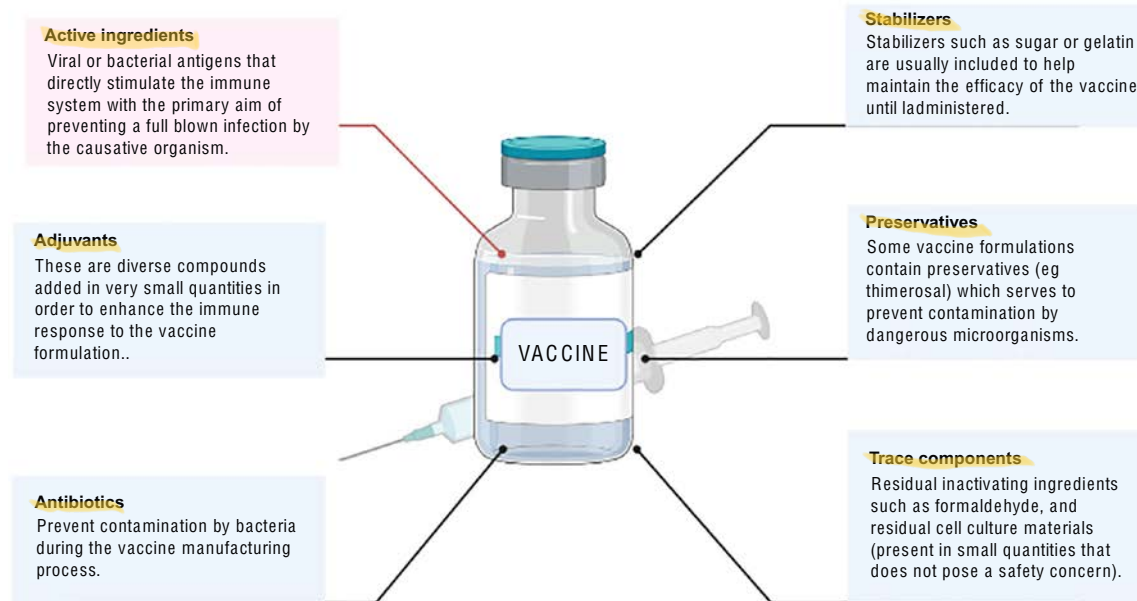
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1 Introduction

The coronavirus disease 2019 (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and is one of the most difficult health crises that humanity has faced in recent years. The pandemic has affected millions of people across the globe causing harm to humans as well as the economies of nations. Several public health strategies such as the use of masks, social distancing, regular washing of hands as well as contact tracing, have been employed since the beginning of the outbreak to curtail the spread of the virus. However, these practices have not been able to completely prevent the widespread of the pandemic (Young, Thone, & Jik, 2021). Despite the tireless efforts of researchers and scientists all over the world, there is as of now, still, no cure for COVID-19, although the United States Food and Drugs Administration (FDA) recently approved the use of remdesivir for treatment, especially in severe cases of viral infection (Campos et al., 2020). The outbreak of the pandemic has stretched the limits of healthcare systems and challenged the management of the situation using conventional tools in the development

Basic constituents of vaccines



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FIG. 3

Basic constituents of vaccines.