Special Issue

Bio-Inspired Nanocarriers in Next-Generation Vaccines Against Bacterial and Viral Pathogens

Message from the Guest Editors

The COVID-19 pandemic has driven unprecedented vaccine development, underscoring nanotechnology's key role in vaccine design and delivery. Many approved vaccines use nanoparticles to enhance the stability and efficacy of antigens like proteins, mRNA, or DNA. Synthetic lipid nanoparticles, including liposomes, have emerged as scalable platforms, allowing controlled antigen release. Natural nanocarriers, such as extracellular vesicles (EVs), offer additional promise by closely mimicking cellular interactions for enhanced immune responses. Bacterial EVs also show potential, broadening the scope of nanocarrier-based vaccines. This Special Issue will explore both synthetic and natural nanocarriers, focusing on innovative applications against diverse bacterial and viral pathogens, paving the way for next-generation immunization strategies.

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About the Journal

Message from the Editor-in-Chief

Vaccines (ISSN 2076-393X), founded in 2013, now has a firm history of publishing peer-reviewed, state-of-the-art research papers on vaccines and vaccination in the broadest sense. Areas covered include, but are not limited to, novel and emerging vaccine technologies, building on in-depth knowledge of what constitutes a protective immune response. These can be new vaccines for old diseases, or old vaccines for new diseases. Vaccines against cancer and autoimmune diseases explicitly are also within the scope of the journal. Because public opinion and even government policies towards vaccines and vaccination have changed, vaccine policy and public health issues are major concerns. Climate change will also have an impact on the spread of infectious diseases, and thus also on vaccine and vaccination policies worldwide.

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 18.1 days after submission; acceptance to publication is undertaken in 2.8 days (median values for papers published in this journal in the second half of 2025).

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