Special Issue

Nanotechnology-Driven Strategy Against Viral Infections

Message from the Guest Editor

Traditional therapies using classical antiviral drugs often face limitations including resistance, poor targeting, and systemic toxicity. Nanotechnology offers innovative solutions for preventing, diagnosing, and treating viral diseases, predominately through drug delivery using nanocarriers such as nanoparticles, liposomes, nanoemulsions, dendrimers, and quantum dots. In addition to classic antiviral delivery systems, other therapies are available, such as gene silencing strategies, immunomodulation, nanovaccines, photodynamic therapy, and combination therapies. Nanocarriers are capable of transporting and sustaining the release of classical antivirals, improving the bioavailability of active compounds and reducing adverse effects. Other active compounds can be encapsulated in nanocarriers, such as vaccine antigens, interfering RNA (siRNA), and photosensitizers for photodynamic therapy. Furthermore, nanocarriers can be administered topically for the treatment of skin and mucosal viruses or into the bloodstream to induce systemic effects. Nanotechnology is revolutionizing the development of antiviral strategies for therapy, diagnosis, and prevention.

Guest Editor

Prof. Dr. Eduardo Ricci-Júnior

Departamento de Fármacos e Medicamentos, Faculdade de Farmácia, Universidade Federal do Rio de Janeiro (UFRJ), Cidade Universitária, Ilha do Fundão, Rio de Janeiro 21941-902, RJ, Brazil

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Viruses
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
viruses@mdpi.com

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Editor-in-Chief

Dr. Eric O. Freed
HIV Dynamics and Replication Program, Center for Cancer Research, National Cancer Institute, Frederick, MD 21702-1201, USA

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