

Special Issue

Bioengineering Approaches for the Treatment of Cancer

Message from the Guest Editors

Biomedical engineering (BME) and molecular engineering (ME) are umbrella terms, which include but are not limited to the application of engineering principles to improve or solve problems in medicine and biology. While BME applies engineering principles utilizing physical tools for different applications including improved anticancer drug delivery to achieve a high concentration of anticancer agents directly to the tumor and to maximize the uptake of anticancer agents by cancer cells with minimum effect on bystander cells (e.g., using nanoparticles, hydrogels, micelles, and liposomes, etc.), and modeling the tumor microenvironment (3D models of cancer), ME is more closely related to engineering biomolecules to solve such problems. Some successful examples of ME for cancer involve engineering biomolecules such as DNA (gene therapy, CRISPR, etc.), RNA (microRNAs, aptamers, etc.), peptides and protein-peptide vaccines, antibody, antibody–drug conjugates, enzymes, T cell receptors for chimeric antigen receptor (CAR)-T cell therapy, etc.). This Special Issue will cover various bioengineering approaches which are being utilized to treat different types of cancer.

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