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Cell and Tissue Engineering for Functional Analysis

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Message from the Guest Editor

Functional expression in tissues and organs is determined by the gene expression profile at the cellular level. Many innovations have been made to evaluate the functions of tissue and organ cells, and knowledge to explain the biological phenomena observed in the tissue and organ cells has been accumulated using these technologies. Recently, stem cell engineering, genome engineering, and synthetic biology have been added to this approach, and cell-based engineering methods have been used to control the cellular response to internal factors and stimuli from the extracellular environment. By incorporating an artificial gene circuit into a cell, its function can be changed autonomously. Rewriting genetic programs encoded on the genome determine the fate and longevity of cells based on cell function. The fabrication of tissues made with cells that perform the functions designed by direct control of the cellular gene expression profile at the genomic level may bring advances in biomedical engineering. This Special Issue deals with the latest research on cell function analysis and its medical applications using technologies such as genome editing, AI, bioprinting, and microfluidics.



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Special Issue



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