Special Issue

In Silico Modeling of Human Organ Functions: Advances and Applications

Message from the Guest Editor

This Special Issue explores cutting-edge computational approaches for modeling human organ functions and processes, showcasing their practical applications across medicine, drug development, and personalized healthcare. We welcome original research and review articles that demonstrate innovative in silico techniques —spanning molecular dynamics, machine learning, agent-based models, multi-scale integration, and digital twin technologies—that accurately simulate physiological and pathological behaviors within human organs. Of particular interest are studies that bridge theoretical modeling with experimental validation, showcase clinical applications in disease prediction and treatment optimization, advance methodologies for integrating multi-omics data into organ models, and address current challenges in computational organ modeling. This collection aims to highlight how computational modeling is transforming our understanding of human organ functions while accelerating therapeutic innovations and precision medicine approaches.

Guest Editor

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

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