Special Issue

Modern Trends and Applications in Cell Imaging

Message from the Guest Editors

Cell imaging has revolutionized the field of biomedical research, enabling scientists to visualize cellular structures, track dynamic processes, and gain deeper insights into disease mechanisms. Modern trends in cell imaging are focusing on enhancing resolution, speed, and specificity while minimizing phototoxicity. Advancements in fluorescence, hyperspectral imaging, and label-free imaging are improving the real-time observation of living cells, enabling the more precise spectral analysis of cellular components. Meanwhile, super-resolution microscopy techniques, such as STED, allow imaging beyond the diffraction limit, revealing nanoscale cellular details.

Artificial intelligence (AI) and machine learning are transforming image analysis, automating feature recognition and quantification. Multiplex imaging techniques, including spatial transcriptomics, enable the high-dimensional analysis of cellular interactions within tissues.

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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.

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