

Special Issue

Decoding Hematologic Malignancies by Clinical Cytometry: From Diagnosis to Precision Medicine

Message from the Guest Editors

Flow cytometry has become a powerful tool in the diagnosis, classification, and monitoring of hematologic malignancies, offering rapid, high-resolution analysis of immunophenotypes with high sensitivity. This Special Issue explores the transformative role of flow cytometry in understanding the heterogeneity of hematopoietic malignancies, including acute leukemia, lymphoma, myeloma, and myelodysplastic syndrome. Key themes include the following:

- **Diagnostic Advancements:** the application of multiparametric and high-dimensional flow cytometry in distinguishing malignant clones, detecting rare populations, and refining disease subclassification.
- **Minimal/Measurable Residual Disease (MRD) Monitoring:** highly sensitive flow cytometric MRD assay development and clinical correlation.
- **Emerging Technologies:** innovations such as spectral flow cytometry, mass cytometry (CyTOF), and AI-driven data analysis that push the boundaries of detection and biomarker discovery.
- **Translational Applications:** integrating flow cytometry with genomic and functional studies to uncover mechanisms of resistance and identify novel therapeutic targets.

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