

Fluorescence in Tissue Diagnostics and Clinical Applications

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Fluorescence techniques have revolutionized tissue diagnostics and clinical applications, providing a powerful means for detecting and analyzing the molecular makeup and studying processes in biological tissues. This lecture focuses on the role of fluorescence in medical diagnostics, highlighting its principles and the mechanisms by which fluorescent markers can identify and quantify biomolecules in tissues. Emphasis will be placed on fluorescence lifetime spectroscopy and imaging techniques, as well as their applications in surgical oncology and cardiovascular diagnostics. By understanding the integration of fluorescence in clinical settings, healthcare professionals can leverage these tools for improved diagnostic accuracy, personalized treatment plans, and better patient outcomes.