

# 21<sup>st</sup> Monthly Colloquium- Abstract

## **Recent Advances in Optical Histopathology**

Histopathology, the gold standard for diagnosing various diseases, has witnessed a transformative evolution with the integration of optical and virtual technologies. This invited lecture explores the recent strides in optical and virtual histopathology, presenting a comprehensive overview of their applications and advancement

In the realm of optical histopathology, novel imaging techniques such as multiphoton microscopy, confocal microscopy, and optical coherence tomography have revolutionized tissue imaging, offering high-resolution, real-time visualization of cellular structures and dynamics. These advancements have significantly enhanced diagnostic accuracy, particularly in oncology and pathology

Furthermore, the advent of virtual histopathology has revolutionized traditional slide-based pathology by digitizing tissue samples and enabling remote access and collaboration. Virtual microscopy platforms coupled with artificial intelligence algorithms have facilitated rapid and accurate diagnosis, paving the way for telepathology and decentralized healthcare

This lecture delves into the integration of optical and virtual technologies, highlighting their synergistic potential in enhancing diagnostic precision, workflow efficiency, and patient care. Moreover, it addresses the challenges and future prospects in harnessing these innovations to redefine the landscape of diagnostic imaging in histopathology.