

6th International Conference on

Forensic Science, Medicine, Research

April 27-28, 2026 | Dubai, UAE

Volume: 11

Next-Generation Sequencing in Forensic Genetics: Expanding the Future of Human Identification

Walther Parson

Medical University of Innsbruck, Austria

Next-generation sequencing (NGS) has significantly expanded the capabilities of forensic genetics by enabling comprehensive analysis of genetic markers with greater sensitivity and resolution than conventional DNA profiling methods. This presentation reviews advances in mitochondrial DNA sequencing, forensic genomics, ancestry inference, phenotype prediction, and massively parallel sequencing technologies. Emerging laboratory techniques are improving identification of degraded biological samples and disaster victim investigations.

The session also discusses international quality assurance standards, validation of forensic genomic methods, and ethical challenges associated with advanced genetic technologies. Future perspectives include precision forensic genetics, AI-assisted sequence analysis, and portable genomic platforms for rapid forensic investigations.

Biography

Walther Parson is Professor of Forensic Molecular Biology at the Medical University of Innsbruck, Austria. His research focuses on forensic DNA analysis, mitochondrial genetics, forensic genomics, and human identification. He has contributed extensively to international forensic DNA standards and molecular identification research.