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Precision Medicine and Targeted Therapies for Rare Kidney Disorders

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Rare kidney diseases account for a substantial proportion of chronic kidney disorders and often result from inherited genetic abnormalities that affect renal structure and function. Recent advances in molecular genetics, high-throughput sequencing, and targeted therapeutics have transformed the understanding and treatment of these conditions. This presentation explores the application of precision medicine in diagnosing and managing rare renal disorders through comprehensive genomic analysis and biomarker-driven clinical decision-making. Particular emphasis is placed on targeted molecular therapies, personalized treatment approaches, and the integration of multidisciplinary care for improving long-term patient outcomes. Emerging technologies, including gene editing, RNA-based therapeutics, and artificial intelligence-assisted diagnostics, are discussed as promising tools for accelerating therapeutic development. The presentation also addresses challenges associated with clinical trial design, access to orphan drugs, regulatory approval, and international collaboration. Continued research and global partnerships are essential for improving diagnosis, expanding therapeutic options, and enhancing the quality of life for patients affected by rare kidney diseases.

Biography

Guillaume Canaud is a physician-scientist specializing in nephrology, vascular biology, and rare genetic kidney diseases. His research focuses on identifying molecular mechanisms underlying rare renal disorders and developing targeted therapies that improve patient outcomes. He has published extensively in leading medical journals and has received international recognition for advancing precision medicine in nephrology.