

Current and Emerging Nanomedicine Innovations: Success Stories from the European Frontlines

Alexandre CECCALDI - *ETPN*

Nanomedicine is rapidly evolving, transforming innovative research into tangible healthcare solutions across Europe. This talk will showcase successful clinical applications of various nanomaterials, including targeted drug delivery systems, nano-enabled diagnostics, and cutting-edge therapeutics. By exploring these success stories, we will highlight the key factors that have propelled these innovations from research to clinical practice and discuss the ongoing challenges that still need to be addressed.

We will also focus on the barriers that persist in the field—such as regulatory hurdles, standardization issues, and the need for robust metrology. The **European Technology Platform on Nanomedicine (ETPN)** has been at the forefront of efforts to overcome these challenges. Beyond specific projects like the **Metrino project** (EURAMET) for standardizing nanomedicine metrology and the **NANOSPRESSO-NL project** for localized preparation of high-quality, personalized nucleic acid nanomedicines, the ETPN plays a critical role in community building, strategic reflection, and support for EU public funding in nanomedicine. These initiatives are complemented by our focus on networking, mentorship, and assistance with characterization and manufacturing, all aimed at creating a supportive ecosystem for advancing nanomedicine.

This session will provide not only a retrospective on Europe's most significant achievements in nanomedicine but also insights into how these collaborative efforts are shaping the future of the field, ensuring that European innovations continue to lead on the global stage.