

**LLS ROWIAK is a partner in a multi-million euro project aimed at revolutionising how patients are diagnosed and treated.**

**European consortium aims to take biopsy analysis to the next level by developing a breakthrough, super-fast Raman-based technology.**

**Media Release: April 2024**

LLS ROWIAK is partner on a pan-European project that could lead to the speeding up medical diagnoses allowing for the more timely and better tailoring of treatments for patients.

uCAIR, will explore an innovative photonics technology to enable Raman imaging into clinical practice. Raman imaging is a technique that generates images with both spectral and spatial information.

Current live cell imaging tools can only provide a limited view of the in vivo and in vitro microenvironments where diseases originate and grow. The result is a gap in our understanding of the biochemical cellular makeup and how their disturbance leads to disease. By increasing accuracy and speed of imaging and analysis, the gap can be closed allowing innovative medical treatments and diagnostics tailored to patients' specific conditions.

A real-time, label-free imaging solution, detecting molecular level disruption of the biological cells' life cycle, would dramatically change healthcare by replacing lengthy, up to multiple days, biopsy analysis workflows with virtually instantaneous online decision making.

Coordinated by University of Limerick, the project will receive around €5 million in funding under the Europeans Union's Horizon Europe Programme. uCAIR brings together 11 partner institutions from Ireland, Belgium, Czech Republic, France, Germany and Turkey.

Raman spectra contain specific information on molecular structure and biochemical composition of cells, which change in case of a pathology (the study and diagnosis of disease), they can be used in diagnostic procedures capable of detecting diseases at very early stages. However, current Raman-based systems are too slow for diagnostic procedures.

Professor Christophe Silien, Department of Physics and Bernal Institute is coordinator of uCAIR: "As part of the project, an innovative AI expert system driven light probe will be developed to enhance the accuracy and speed of Raman-based imaging system. The results and benefits of the developed technologies will be studied in two realistic case studies on bladder cancer - diagnostic from biopsy tissues and fast analysis of fluid biomarkers from urine.

"We want to break through the technological barriers that currently prevent widescale adoption of Raman in clinical practices. To this end, the consortium is uniquely placed to achieve this goal as the project brings together world recognised experts covering the whole development chain including R&D photonics SMEs, research laboratories in optics and cell biology, and world-leading microscopists and clinicians to create an innovative, versatile, practical multimodal photonics platform that will enhance and speed up the way cells are examined by scientists and healthcare professionals."

Birgitta Stolze, CEO LLS ROWIAK added: "Both Germany and the European Union significantly invest in tackling cancers. We at LLS ROWIAK are proud to have the opportunity to contribute in terms of our optical know-how The consortium technology roadmap targets rapid societal impact in the medical instrument market and also ambitious scientific and economic impacts with a faster pace of discoveries in materials and pharmaceuticals objectives.

"Technology progression to TRL 6 will allow first mover advantage with sustainable supply chain. In this way, uCAIR sustains the European leadership in photonics to deliver continuous innovation and outstanding benefits for its economy and the health of its population."