NEW STUDY SHOWS THAT INNOVATIVE METHODOLOGY POWERED BY SENSOME TECHNOLOGY SUCCESSFULLY MONITORS CANCER PROGRESSION

Paper Published in *Science Advances* Unveils Results of Multi-Year Collaboration between Sensome, École Polytechnique and French National Center for Scientific Research (CNRS)

PARIS - JULY 17, 2025 – Sensome, the pioneer of microsensing technology for real-time, in situ tissue analysis, today announced publication of a study in *Science Advances* unveiling an innovative methodology using its technology to non-invasively monitor cell spatiotemporal dynamics involved in cancer progression in a real-time and label-free manner, which can provide new insights for cancer diagnosis and treatment.

The new methodology combines the use of micro-electrode arrays, electrical impedance spectroscopy (EIS) that measures the characteristics of tissue surrounding the sensor, and predictive algorithms. The use of predictive algorithms allows for faster prediction, better resilience to noise, and recognition of complex data patterns when compared to traditional EIS analysis approaches. This new methodology is believed to be the first-ever use of EIS to enable quantitative real-time monitoring of cell spatiotemporal dynamics, or cell changes over time.

The research was a multi-year endeavor led by Sensome and École Polytechnique, in collaboration with the Center for Nanoscience and Nanotechnology (C2N). In the study, the team at École Polytechnique's Hydrodynamics Laboratory (LadHyX) leveraged Sensome's technology and exposed it to normal and cancerous breast epithelial cells, where it was able to accurately predict the spatiotemporal evolution of cell density, cell substrate coverage, mean cell diameter, and cell type in agreement with microscopy findings. It also enabled real-time tracking of spatial heterogeneities in breast cancer cell growth and the competition between normal and cancerous cells based on the EIS measurements alone.

"*This technology has the potential to obviate the need for microscopy imaging in cancer cell monitoring in various settings and significantly advance our understanding of cancer cell behavior and interactions,*" said co-author Abdul Barakat, CNRS Director of Research and Professor at École Polytechnique. "*Assessing how cells organize in space and time is essential to elucidating cancer progression. Live-cell fluorescence microscopy is the predominant method for tracking these dynamics today but is often limited by cytotoxicity induced by the fluorescent dyes, by cellular photo-damage during extended periods of microscopic imaging, and by restrictions in optical access in the case of opaque clinical samples. This methodology using Sensome's technology demonstrates a non-invasive, label-free method enabling long-term monitoring of cancer-related cellular spatiotemporal dynamics with minimal disruption of natural cellular processes.*"

"*This study shows that the proprietary signal processing and machine learning algorithms involved in our technology can empower a method to successfully monitor cancer cell differentiation and evolution over time,*" said Franz Bozsak, CEO and co-founder of Sensome. "*This breakthrough is the first step in exploring the use of our tissue-sensing technology in monitoring cancer-related phenomena, such as tumor growth. It complements the work we are currently doing in lung cancer—where in-situ cancer detection is crucial—which is one of several applications where we are applying our mastery of electrical impedence spectroscopy to novel uses in medicine. We are actively seeking industrial partners to realize innovative medical devices centered on our technology.*"

The Sensome tumor sensing technology is an investigational device and is not approved for commercial use in the U.S or any other jurisdiction.

ABOUT SENSOME

Sensome, a clinical-stage healthtech start-up, has developed a patented, breakthrough microsensor technology that combines the world's smallest impedance-based sensor with predictive algorithms to identify and characterize biological tissues in real-time. The technology is currently being studied in three different clinical indications: clot characterization (ischemic stroke), total occlusion characterization (peripheral vascular disease) and *in situ* tool-in-lesion confirmation (lung cancer). Sensome intends to partner with leading medtech companies to design, manufacture and distribute smart medical devices integrating its proprietary microsensing technology. The company is partnered with leading guidewire manufacturer ASAHI INTECC for manufacturing of the Clotild® Smart Guidewire System for ischemic stroke, and with Cosmotec for distribution of that device in Japan upon regulatory approval. www.sensome.com

ABOUT ÉCOLE POLYTECHNIQUE

École Polytechnique, also known as L'X, is a higher education and research Institution that cultivates multidisciplinary and scientific excellence. L'X combines research, education and innovation at the highest scientific and technological levels. The Institution promotes a culture of excellence with a strong emphasis on science, anchored in humanist traditions. Through its range of training programs, – Bachelor of Science, École Polytechnique engineering program, Masters of Science and Technology, Executive Masters, Continuing education - École Polytechnique trains leaders with a strong multidisciplinary scientific culture by exposing them to both the world of research and industry. With its 23 laboratories, including 22 joint research units with the CNRS, École Polytechnique works at the frontiers of knowledge on major interdisciplinary challenges in the scientific, technological and societal fields. École Polytechnique is a founding member of Institut Polytechnique de Paris. www.polytechnique.edu

ABOUT CNRS

A major player in basic research worldwide, the National Centre for Scientific Research (CNRS) is the only French organization active in all scientific fields. Its unique position as a multi-specialist enables it to bring together all of the scientific disciplines in order to shed light on and understand the challenges of today's world, in connection with public and socio-economic stakeholders. Together, the different sciences contribute to sustainable progress that benefits society as a whole. www.cnrs.fr

###

MEDIA CONTACTS:

SENSOME
Michelle McAdam,
Chronic Communications, Inc.
michelle@chronic-comm.com
+1 310-902-1274

ÉCOLE POLYTECHNIQUE
Laëtitia Piriou
laetitia.piriou@polytechnique.edu
+33 6 66 53 56 10

CNRS
presse@cnrs.fr
+33 1 44 96 51 51