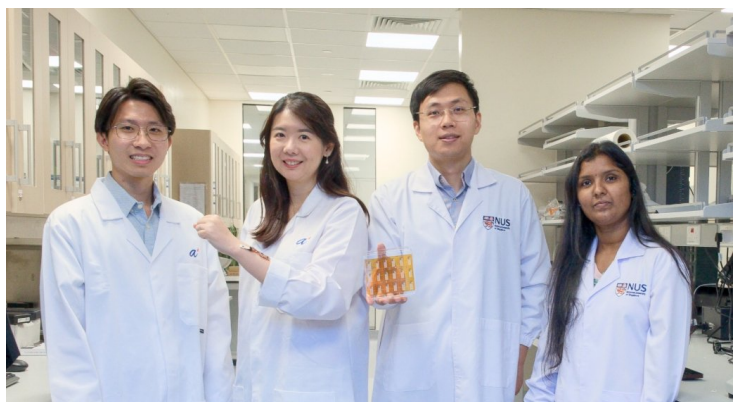


Singapore develops stretchable sensor for non-invasive detection of solid-state skin biomarkers

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Overcoming the limitations of current methods that rely on biofluid samples



Researchers from the National University of Singapore (NUS) and the Agency for Science, Technology and Research (A*STAR) have developed a novel sensor that enables the continuous, and real-time detection of solid-state epidermal biomarkers (SEB), a new category of health indicators.

The research team's innovation offers a non-invasive method to monitor health by detecting biomarkers such as cholesterol and lactate, directly on the skin.

The team's wearable, stretchable, hydrogel-based sensor overcomes the limitations of current methods that rely on biofluid samples, such as blood, urine and sweat. This makes it a promising alternative for wearable, continuous, and real-time health monitoring, facilitating the early detection of conditions such as cardiovascular diseases and stroke.

It can also efficiently monitor athletes' lactate levels, an indication of exhaustion and tissue hypoxia, which affect their performance. This development is especially pertinent to areas including chronic disease management, population-wide screening, remote patient monitoring and sport physiology.

The NUS and A*STAR researchers plan to enhance the sensor's performance by increasing its working time and sensitivity. Further, they aim to integrate additional solid-state analytes, broadening the sensor's applicability to other biomarkers. The researchers are also collaborating with hospitals to provide additional clinical validation and bring the technology to patients, particularly for continuous glucose monitoring, as well as quantitative assessment of dynamic resilience.