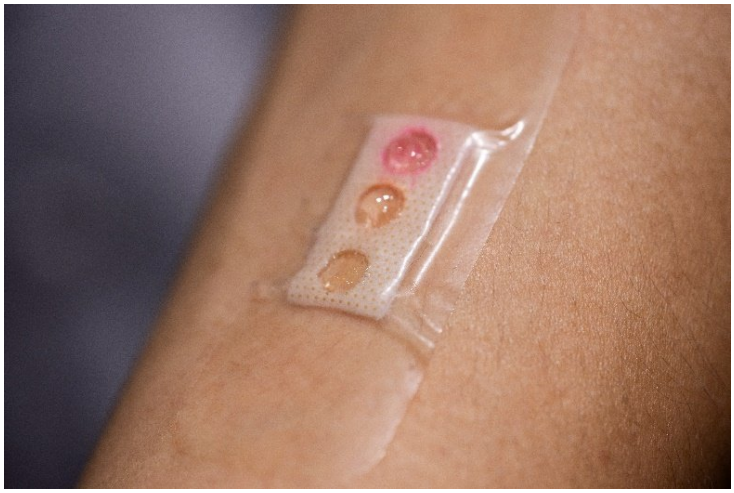
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Singapore develops 'band-aid' with microlaser technology for detecting glucose levels in sweat

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Flexible device also measures other health biomarkers including lactate and urea



Reseachers at Nanyang Technological University (NTU), Singapore have developed a ‘band-aid’ or plaster that measures body ‘biomarkers’ that can indicate health or disease through sweat, paving the way for a new non-invasive and effective way for patients to monitor their health.

By encapsulating a microlaser in liquid crystal droplets and embedding the liquid within a soft hydrogel film, NTU team created a compact and flexible light-based sensing device – like a plaster which can provide highly accurate biomarker readings within minutes.

When sweat interacts with the plaster, the amount of light emitted by the microlasers fluctuates based on the concentration of biomarkers present. To read the biomarker levels, users shine a light source on the plaster, and the light emitted from the microlaser sensors is analysed and translated using a mobile application. The invitro results detected fluctuations of glucose, lactate and urea levels in sweat down to 0.001 millimetre (mm).

The NTU team believes their innovation to be the first reported wearable sensing device that is capable of measuring multiple biomarkers in sweat with ultra-high sensitivity and dynamic range.

The sensitivity enables tracking of a dynamic range (low to high) in biomarkers levels, which provide comprehensive information on patients’ health, say the team. For their next steps, the research team plans to fine-tune the microlaser sensors to detect a wider variety of substances, including drugs and other chemicals found in sweat.

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