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Supplementary Table 1. Selected wearable sweat biosensors.

Platform	Recognition element	Methods	Analyte	References
Textiles	Bromocresol purple (BCP)	Colorimetry	pH	1
Cotton	Bare carbon	Amperometry	β-nicotinamide adenine dinucleotide and hydrogen peroxide	2
Polyimide/Lycra blend	Sodium ionophore	Potentiometry	Sodium	3
Textiles, Polyimide/Lycra blend	Sodium ionophore, bromocresol purple (BCP),	Potentiometry Colorimetry	Sodium, pH	4
Parylene	Lactate oxidase	Transistor based conductometry	Lactate	5
Poly(methyl-methacrylate)	Bromocresol purple (BCP)	Colorimetry	pH	6
Cotton yarns	Nonactin, valinomycin, and tridodecylamine	Potentiometry	Ammonium, potassium and pH	7
Polyester	Ag/AgCl	Potentiometry	Chloride	8
Elastomeric stamps	Carbon	Voltammetry	Uric acid	9
Temporary tattoo	Lactate oxidase	Amperometry	Lactate	10
Temporary tattoo	Polyaniline	Potentiometry	pH	11
Temporary tattoo	Ammonium ionophore	Potentiometry	Ammonium	12
Temporary tattoo	Sodium ionophore	Potentiometry	Sodium	13
Temporary tattoo	Bismuth	Stripping voltammetry	Zinc	14
Polyimide adhesive patch	Sodium ionophore	Potentiometry	Sodium	15
Screen printed carbon electrodes	Sodium ionophore, hydrogen ionophore, and lactate oxidase	Potentiometry, amperometry	pH, sodium and lactate	16

Supplementary discussions for selection of the target analytes

The panel of target analytes and skin temperature is selected based on their informative role in understanding an individual's physiological state. For example, excessive loss of sodium and potassium in sweat could result in hyponatremia, hypokalemia, muscle cramps or dehydration[17,18]. Sweat sodium and potassium could be useful biomarkers for electrolyte imbalance[18] and Cystic Fibrosis diagnosis[19,20]. Sweat glucose is shown to come from blood glucose[21]. Glucose monitoring is the key to managing diabetes, and several papers have reported that sweat glucose levels are correlated with blood glucose levels[22-24]. As such, sweat glucose sensing could potentially serve as a non-invasive way for blood glucose monitoring. Sweat lactate analysis is important for many potential clinical applications[25]. For instance, sweat lactate is shown to potentially be a very useful early warning indicator of pressure ischemia[26-29]. It may also be used to monitor physical performance since lactate is a product of anaerobic metabolism. It was proposed that detection of sweat lactate could offer a non-invasive way for blood lactate monitoring; however, very poor correlation was found between blood and sweat lactate levels[30,31]. There are also reports on using sweat lactate as a biomarker for panic disorder or Frey's syndrome[32,33]. Skin temperature is clinically informative of a variety of diseases and skin injuries such as pressure ulcers[34,35]. It is an effective indicator of human sensations and provides a lot of clinical information about cardiovascular health, cognitive state and malignancy[34]. Additionally, skin temperature measurements are necessary to compensate and to eliminate the influence of temperature variation on the chemical sensors' readings through a built-in signal processing functionality.

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