

Non-invasive Glucose Detection Wearable Sensor 可穿戴的無創葡萄糖檢測傳感器

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Special features 技術特點

- *High sensitivity and low detection limit*
高靈敏度和低檢測下限
- *Light-weight and inexpensive fabric*
織物輕巧，價格低廉

People with diabetes often need to monitor blood glucose levels regularly to maintain treatment records or regulate eating habits. Traditional monitoring techniques are invasive which require frequently finger pricking and normally restricted to one kind of glucose sensing scenarios. A new type of wearable non-invasive glucose biosensor is developed by using

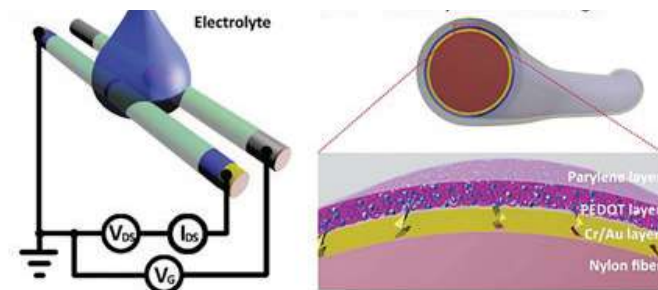
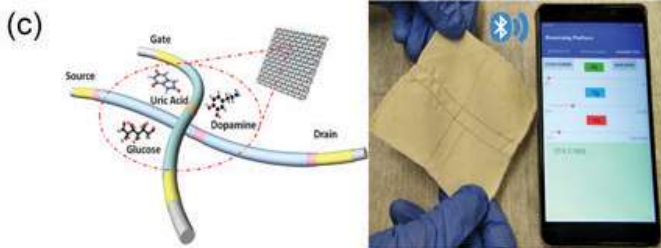
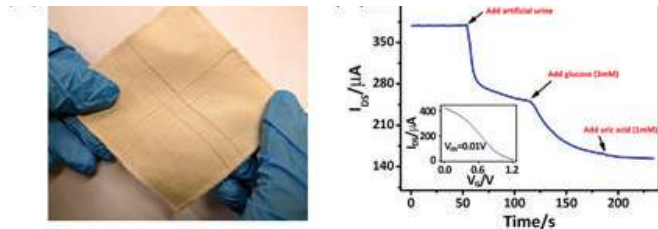
flexible fabric organic electrochemical transistor. With in situ amplification of target analyte signal in solution, the biosensor can be used to detect glucose in different sensing scenarios, such as saliva, sweat and tear.

This wearable sensor has excellent bending stability, high sensitivity (down to 30 nM glucose concentration) and good selectivity due to the utilization of material engineering, electrochemical engineering and enzyme modification method during sensor fabrication. The real time and long term reliable monitoring of glucose level in body fluids can be realized by wireless detection platform so that better diabetic management can be provided to needed patients.

This technology will be a revolution towards traditional blood glucose meter and can be expanded to different healthcare monitoring systems.

糖尿病患者通常需要定期監測血糖水平以作治療紀錄或調節飲食習慣。理大科研團隊採用新型技術製備的柔性織物有機電化學晶體管已被用作葡萄糖生物傳感器，並成功用作非侵入性葡萄糖檢測。採用

材料工程技術、電化學工程技術和酶改性方法所製備的可穿戴傳感器，具有優異的彎曲穩定性、高靈敏度和良好的選擇性。感測器可用於檢測唾液、汗液或淚液中的葡萄糖量，其檢測限可低至30nM葡萄糖濃度。團隊更同時開發了無線檢測平台，以實現實時和長期可靠的體液中葡萄糖監測。



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