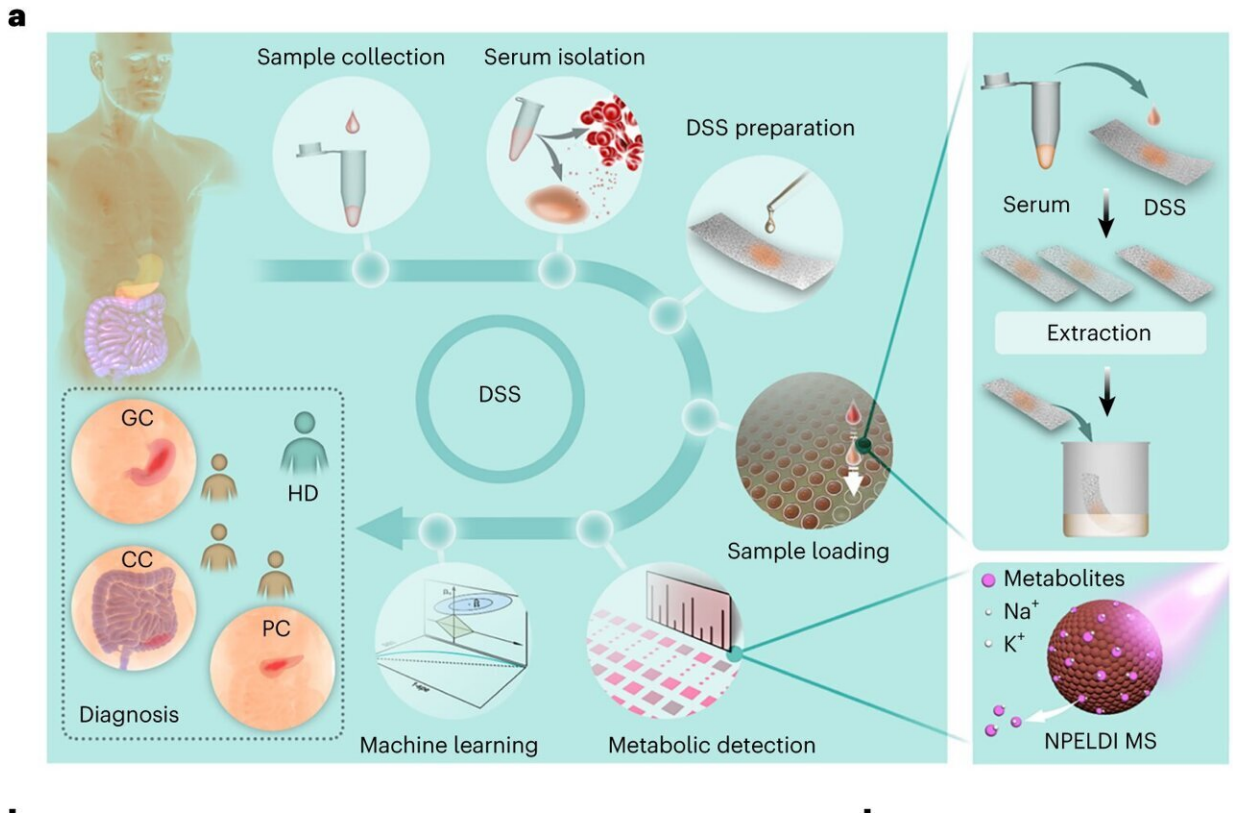
Medical Xpress

A sustainable diagnosis tool for multiple cancers

April 23 2024



Validation via cancers diagnosis. Credit: *Nature Sustainability* (2024). DOI: 10.1038/s41893-024-01323-9

An accurate, affordable, environmentally and user-friendly diagnostic tool for multiple cancers—including pancreatic, gastric, and colorectal cancers—is reported in a paper in *Nature Sustainability*. The tool can diagnose cancers within minutes and could help to address the need for accessible diagnostic tools, especially in remote areas.

Over a billion people across the world experience a high rate of missed disease diagnosis—the World Health Organization estimates that fewer than 30% of low-income countries have access to generally available diagnosis facilities.

It is estimated that 70% of cancer-related deaths worldwide occur in lower- and middle-income countries, demonstrating the need for accurate and affordable tests. Additionally, tests may be used in ecologically sensitive or energy-limited regions, and solutions are needed to ensure sustainable options are available.

Kun Qian and colleagues developed a cancer diagnostic method based on metabolite detection. Using dried serum spots, instead of traditional liquid blood storage, this tool provides an environmentally friendly and metabolite-stable solution for biological sample collection and storage.

They combined this with nanoparticle-enhanced mass spectrometry, which enhanced detection sensitivity and speed. Qian and colleagues indicate that this approach allows for the diagnosis of pancreatic, gastric, and colorectal cancers within minutes, offering affordability, environmental friendliness, serum-equivalent precision and a user-friendly protocol.

By collaborating with population-based cancer screening programs, the authors suggest that implementation of this tool in less-developed

regions could reduce missed diagnoses of colorectal cancer, gastric cancer, and pancreatic cancer by 20.35%–55.10%.

This technology could offer increased accessibility and accuracy and may maximize health gains within available resources, the authors conclude.

More information: Ruimin Wang et al, A sustainable approach to universal metabolic cancer diagnosis, *Nature Sustainability* (2024). DOI: 10.1038/s41893-024-01323-9

Provided by Nature Publishing Group