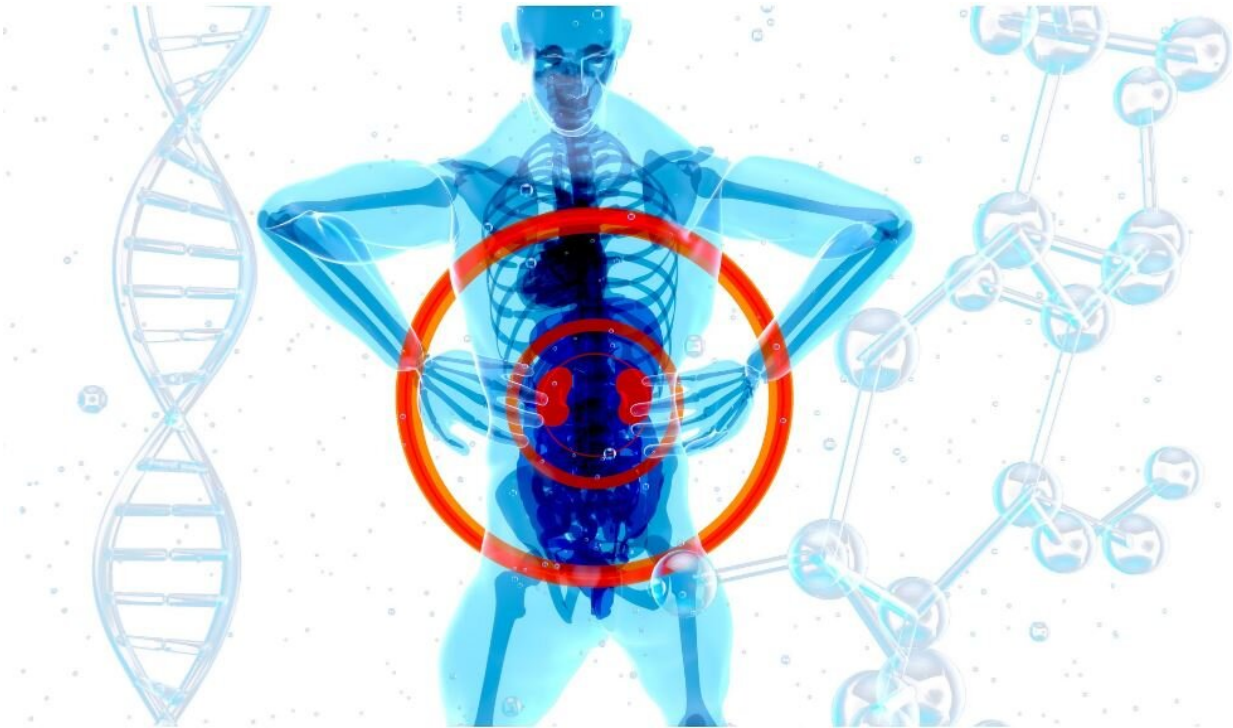


New mobile test system for kidney disease

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Credit: Pixabay

A new method for early detection of chronic kidney disease, which affects an estimated 9% of the world's population, has been shown to have potential to service rural and remote patients and communities with limited medical services.

An affordable and portable biosensor device put to the test by Flinders University researchers can accurately measure levels of albumin in

patients' urine in a new clinical trial conducted at a South Australian hospital.

The results, published in *Sensing and Bio-Sensing Research*, uses an advanced open access system which measures urine biomarker concentrations via an aggregation induced emission biosensor system also adaptable for potential monitoring of cancers, amyloid plaque buildup, and other disease markers.

"The results measured in light wavelengths by the system had a strong correlation to the clinical values of the samples tested by pathology," says lead researcher Professor Youhong Tang, from Flinders University's Institute for Nanoscale Science and Technology.

"A reliable, portable device to accurately measure chronic [kidney disease](#) could be rolled out to point-of-care testing sites in the community to reduce the need for patients to regularly visit a hospital or specialist renal clinic."

An estimated 1.7 million Australian adults had biomedical signs of chronic kidney disease (CKD) in 2011-12, but the disease remains a highly under-diagnosed condition. In Aboriginal and Torres Strait Islander communities, CKD is present in up to 18% of some populations (2012-13 Australian Bureau of Statistics Biomedical Results).

The system, which requires a [digital camera](#), computer, single light source and access to the software, can be operated by a technician without the need for a [clinical setting](#) or expert diagnostic laboratory, researchers say.

The platform in the proof-of-concept study was able to detect the variation of albumin level in [urine sample](#) down to 25mg/litre, making it a potential device for detecting and monitoring albuminuria levels for

kidney disease.

The article, "Developing a fluorescent sensing based portable medical open-platform—a [case study](#) for albuminuria measurement in [chronic kidney disease](#) screening and monitoring," (2022) has been *Sensing and Bio-Sensing Research*.

More information: Anh Tran Tam Pham et al, Developing a fluorescent sensing based portable medical open-platform—a case study for albuminuria measurement in chronic kidney disease screening and monitoring, *Sensing and Bio-Sensing Research* (2022). [DOI: 10.1016/j.sbsr.2022.100504](#)

Provided by Flinders University

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