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NUS team invents new diagnostic device

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A multidisciplinary team of researchers at the National University of Singapore (NUS) has developed a portable, easy-to-use device for quick and accurate screening of diseases. This versatile technology platform called enVision (enzyme-assisted nanocomplexes for visual identification of nucleic acids) can be designed to detect a wide range of diseases - from emerging infectious diseases (e.g. Zika and Ebola) and high-prevalence infections (e.g. hepatitis, dengue, and malaria) to various types of cancers and genetic diseases.

enVision takes between 30 minutes to one hour to detect the presence of diseases, which is two to four times faster than existing infection diagnostics methods. In addition, each test kit costs under S$1 - 100 times lower than the current cost of conducting similar tests.

Building on the current work, the research team is developing a sample preparation module for extraction and treatment of DNA material to be integrated with the enVision platform to enhance point-of-care application. In addition, the research team foresees that the smartphone app could include more advanced image correction and analysis algorithms to further improve its performance for real-world application.