Optical Fiber Sensor For The Detection Of Dengue (Denv II E Protein)

TECHNOLOGY DESCRIPTION

This technology is an optical sensor for the detection of DENV II E protein and to monitor dengue infection and its progress.

TECHNOLOGY FEATURES

This technology utilizes label-free DENV II detection using a single-mode tapered fiber which surface has been modified to specifically interact with DENV II E proteins. The technology allows quantitative measurement of DENV II E protein with a low detection limit. A concentration of 1pM is sufficient for detection within the first few hours when infection occurs. This technology allows rapid detection and takes only 15 minutes. It functions well at room temperature and has a high repeatability (SD of ±0.24).

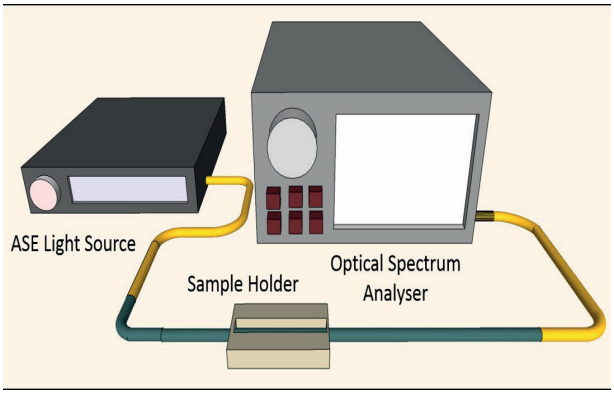
ADVANTAGES

- Accurate detection of the virus
- Precise monitoring of the viral infection and its progress
- A tool that would lead to better clinical management of the infection
- High sensitivity
- Compact size
- Simple testing procedure

INDUSTRY OVERVIEW

Prospect: Healthcare Industry

The alarming rise of dengue epidemiology has been highlighted to haunt 40% of world population. The global increase of dengue incidence is also experienced in Malaysia. Since 2000, dengue incidence in Malaysia continues to increase from 32 cases per 100,000 populations to 361 cases per 100,000 populations in 2014. There was also a more than 50% jump in the number of deaths caused by dengue in 2015 compared to 2014. This particular invention demonstrates great performance in terms of sensitivity and specificity towards DENV II which may help curb and manage the Dengue infection by giving early and accurate monitoring of the disease. Its quantitative measurement of DENV II E protein requires a low detection limit of 1pM (first few hours of infection), but ensures rapid detection of 15 minutes. This technology has excellent sensitivity at room temperature with high repeatability (SD of ±0.24). Other advantages include better clinical management of the infection, compact size, and simple testing procedure. The data from the Ministry of Health indicates that there are 132 government hospitals and 9 special medical institutions with 1039, 1821, and 254 health clinics, community clinics, and 1Malaysia clinics, respectively in Malaysia. In addition, there are 214 private facilities that co-exist to better serve the community. Globally, this invention can also be used among the dengue affected countries such as South America, Brazil , Puerto Rico, Australia, and Africa.



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