

## Laboratory diagnosis and potential application of nucleic acid biosensor approach for early detection of dengue virus infections

### ABSTRACT

Dengue fever is caused by the dengue virus, the genus of Flaviviridae virus family. Until now, there is no specific medication to kill the dengue virus and patients just solely depend on the treatment of the dengue infection symptoms. Thus, a highly sensitive and rapid diagnostic tool for early diagnosis of dengue virus is very desirable, especially in resource limited-condition. We briefly review pro and cons of existing diagnostic methods for the detection of dengue virus (virus isolation, PCR, NS1Ag, Serology). We also highlight the recent advances of the biosensor technology in the dengue diagnostic dengue as a promising point-of-care diagnostic in the future. The DNA based biosensor technology combined miniaturized sample preparation offers a good opportunity for the commercialized point of care testing for dengue diagnosis in the future.

**Keyword:** Dengue infections; Point of care; Rapid diagnostic test; Laboratory diagnosis; Biosensor technology