

Lateral flow devices for COVID-19-related biomarkers

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In December 2019, an outbreak of severe acute respiratory syndrome caused by a novel coronavirus (SARS-CoV-2) was originated in Wuhan, Hubei province, China, escalating into a global pandemic in just three months. The disease, officially named COVID-19, has saturated healthcare systems worldwide, thus demonstrating the urgent need to deploy rapid and reliable diagnostic tools. Along with contention measures such as social distancing and good hygienic practices, the use of diagnostic devices during the early stages of the pandemic can have a major impact on limiting the spread of the virus. In this context, lateral flow assays (LFAs) offer advantages compared to traditional techniques that depend on nucleic acid amplification due to their lower cost, shorter time of assay and ease of use. Most LFAs for COVID-19 diagnostic target immunoglobulins G and M (IgG/M) in blood for the assessment of acquired immunity against the virus. Alternatively, some LFAs target viral proteins of the SARS-CoV-2 structure, allowing for direct detection of the virus before the onset of symptoms. This poster will present: 1) a general outline on the operation of LFAs, 2) the two main approaches used during the current pandemic (IgG/IgM and viral protein detection), and 3) novel strategies, such as LFAs coupled to nucleic acid amplification.