Detection of SARS-CoV-2 Omicron BA.4/BA.5 subvariants through Real-time PCR

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1 Background

Whole-genome sequencing is a sensitive method for exploration of genomic diversity and detection of variants/sub-variants of SARS-CoV-2. However, due to the complexity of the technique, it is restricted to specialized laboratories having relevant expertise and resources. SARS-CoV-2 PCR genotyping assays that target specific mutations serve as a good tool for timely detection of variants/sub-variants including Omicron BA.4/BA.5. As BA.4 and BA.5 sub-variants contain 69-70 deletion in the spike gene (not found in BA.1 and BA.2) therefore, it may be used as a tool for the screening of these sub-variants. Moreover, commercial real-time PCR kits that detect additional specific mutations of BA.4 & BA.5 may also be used. Genomic surveillance data from Pakistan shows that the Omicron BA.5 cases are on the rise. Accordingly, this guidance document is prepared to aid provincial public health laboratories in the detection and tracking of BA.4/BA.5 in Pakistan.

2 Case Definitions

The definition of probable and confirmed case of Omicron BA.4/BA.5 is as follows:

Probable case: The COVID-19 positive sample collected after May 01, 2022, with spike gene target failure (69-70del).

Confirmed Case: Omicron BA.4/BA.5 by whole-genome sequencing or genotyping;

1. 69-70del (spike gene target failure) + L452R
2. Other relevant genotyping results

Note: For detection of 69-70del and L452R mutation, the primers & probes of the kit must be compatible with omicron.

3 Data sharing

Laboratories involved in genomic surveillance and/or real-time PCR based detection of SARS-CoV-2 variants/sub-variants are requested to share data with the National Institutes of Health on regular basis.

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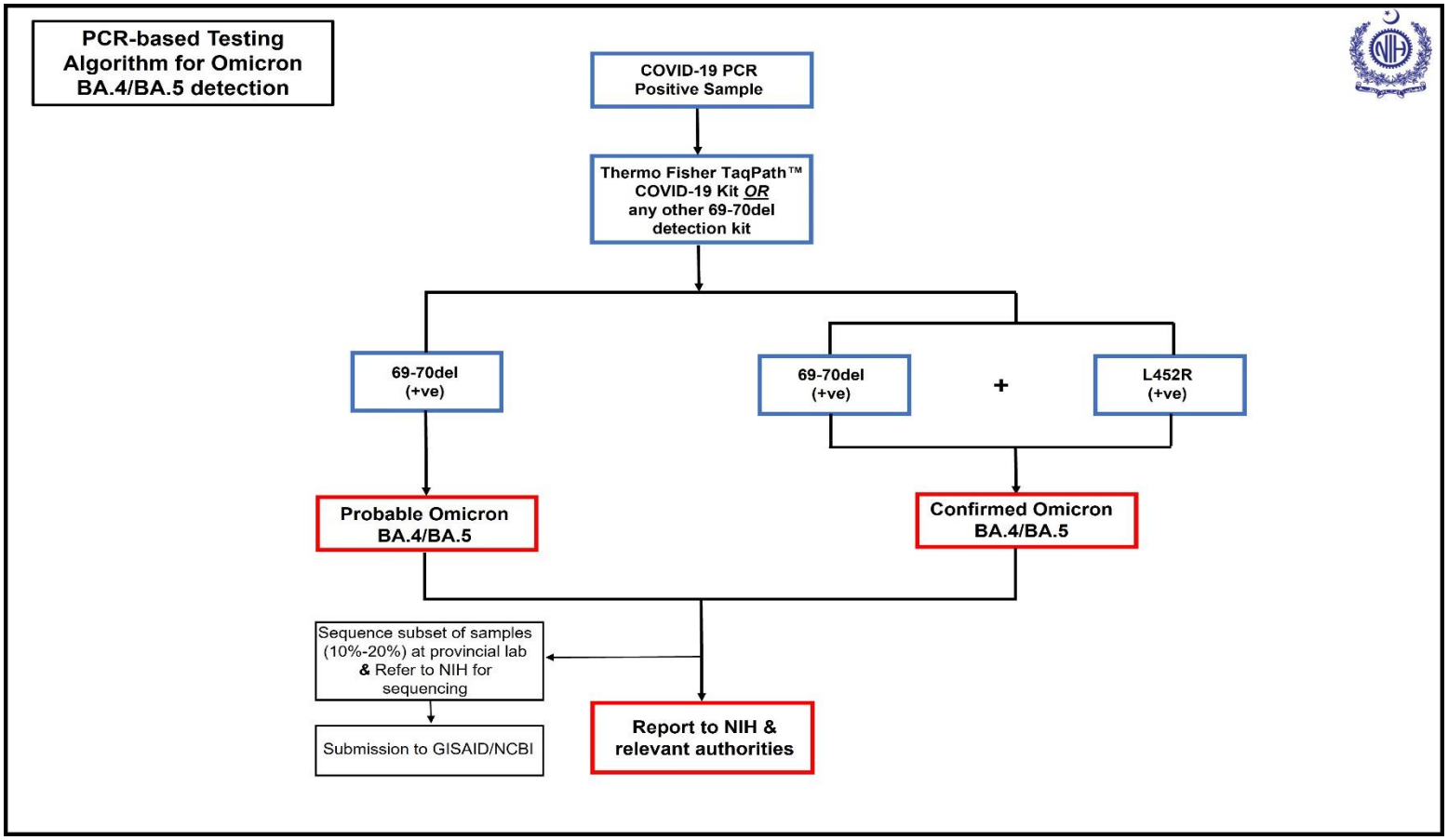
PCR-based Testing Algorithm for Omicron BA.4/BA.5 detection



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