

P2044 Evaluation of the Hologic Panther Fusion® MRSA assay on European clinical isolates

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Background: The prevalence rates and genetic diversity of methicillin-resistant *Staphylococcus aureus* (MRSA) and methicillin-susceptible *Staphylococcus aureus* (MSSA) can vary by continent, country, and region. It is therefore of paramount importance to ensure any new assay is evaluated using a sufficiently diverse sample population.

Materials/Methods: 96 MRSA and MSSA isolates were selected based on geographic and genetic diversity. The 80 MRSA isolates were sourced from 22 European and neighboring countries, representing 38 different spa-types. These MRSA isolates include 56 isolates considered main clones circulating in Europe and 24 isolates harbouring various atypical SCCmec cassettes. 16 MSSA mecA-drop-out isolates were also included.

All 96 isolates were diluted in Liquid Amies transport medium (Copan) and tested with the fully automated Hologic Panther Fusion MRSA assay. Any isolates generating results which were discordant with the expected result were further tested using Xpert SA Nasal Complete (Cepheid) and sequenced.

The Hologic Panther Fusion MRSA assay utilizes non-specific target capture to isolate the nucleic acid from the specimen. Lyophilized reagents are reconstituted and combined with the isolated nucleic acid which is thermal cycled enabling the Invader Plus® chemistry to amplify and detect targeted nucleic acid sequences.

Results: The Hologic Panther Fusion MRSA assay correctly reported 53 of the 56 main clones and 19 of the 24 atypical cassette isolates as MRSA. The eight missed isolates failed to generate signal for the *orfX*/SCCmec junction and corresponded to uncharacterized (n=6), type xi (n=1), and type xviii (n=1) MREJ sequences. The same eight isolates were also incorrectly identified by Xpert SA Nasal Complete due to the absence of SCCmec signal. All 16 mecA-drop-out isolates were correctly identified as MSSA by the Hologic Panther Fusion MRSA assay.

Conclusions: The Hologic Panther Fusion MRSA assay correctly identified 90% (72/80) of the MRSA isolates belonging to a specific collection of MRSA selected for their prevalence or their atypical SCCmec and 100% (16/16) of the MSSA mecA-drop-out isolates tested. This testing indicates the Hologic Panther Fusion MRSA assay has robust performance, correctly identifying MRSA isolates sourced from several European countries comprising a diverse genetic population.