Background

The ePlex® Blood Culture Identification Panel Gram Positive (BCID-GP) is a recently FDA-cleared assay that can identify 20 Gram positive organisms and 4 resistance determinants along with a Pan Gram-Negative and Pan Candida target from a positive blood culture bottle in 90 minutes.

Gram-Positive Organisms

- 
- Bacillus cereus group
- 
- Bacillus subtilis group
- 
- Corynebacterium
- 
- Cultibacterium (Propionibacterium) 
- 
- Enterococcus
- 
- Enterococcus faecalis
- 
- Enterococcus faecium
- 
- Lactobacillus

Resistance Genes

- 
- Pan Targets
- 
- Pan Gram-Negative
- 
- Pan Gram-Positive Organisms
- 
- Cutibacterium acnes (P. acnes)
- 
- Enterococcus faecium
- 
- Enterococcus faecalis
- 
- Enterococcus hirae
- 
- Enterococcus avium
- 
- Enterococcus cassificatus
- 
- Enterococcus gallinarum
- 
- Enterococcus faecalis
- 
- Enterococcus agglomerans
- 
- Enterococcus cassificatus
- 
- Enterococcus hirae

Table 1. BCID-GP Panel Targets

We performed a semi-prospective study comparing the performance of the reference use only (RUD) BCID-GP Panel to conventional culture followed by MALDI-TOF identification. Positive blood cultures with Gram positive or mixed organisms on Gram stain were run on the RUO BCID-GP Panel within seven days of culture positivity.

Results

Eighteen (17.6%) of the cultures contained more than one organism as identified by conventional culture and five of those (4.9%) contained three or more organisms. There were 12 repeat sample runs, six for failed cartridges (5.8%) and six for discordant results.

Resistance Mechanisms

<table>
<thead>
<tr>
<th>Staphylococcus spp. ( mecA )</th>
<th>Positive Agreement</th>
<th>Negative Agreement</th>
</tr>
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<tbody>
<tr>
<td>Staphylococcus spp. ( vanA )</td>
<td>25</td>
<td>100% (5/5)</td>
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Discrepancy Resolution

Table 2. Positive and negative agreement of BCID with traditional AST for MRSA and VRE. The two discordant Enterococci species were E. gallinarum which is expected to display vancomycin resistance through vanA.

Table 3. Positive and negative agreement of BCID compared to conventional culture followed by MALDI-TOF identification. Analysis was performed after discrepancy resolution.

Conclusions

Overall, the ePlex RUO BCID-GP Panel displayed excellent concordance regarding Staphylococcus spp., Enterococcus spp., and Gram-positive rods. In three cases, new microorganisms were identified on BCID and confirmed with re-culture.

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