

# INTRODUCING: Blood Culture Identification Panel 2 (BCID2)

A new version of the BioFire FilmArray Blood Culture Identification Panel has been released. This panel, the BCID2, features an expanded array of targets, including additional bacterial and fungal pathogens and an increased number of resistance determinants. The new panel will replace the old panel effective **July 6, 2021**. The panel will continue to be run on the first positive blood culture bottle from a patient in a single episode (defined as no previous positive blood within 5 days). The BCID2 panel will only be run on subsequent positives if the Gram stain differs.

To facilitate easier interpretation, the panel will now be given its own test code (BCID2), aka Blood Culture ID, NAA. When a positive culture is obtained by microbiology, the laboratory will place an order for the BCID2, and results of the panel can be found under this order. The table below shows all of the targets on the new panel and indicates targets that have been added.

Gram Negative Bacteria	Gram Positive Bacteria	Antimicrobial Resistance Genes	Yeast
Gram Negative Bacteria  Acinetobacter calcoaceticus- baumannii complex  Enterobacterales Enterobacter cloacae complex Escherichia coli Klebsiella aerogenes* Klebsiella oxytoca Klebsiella pneumoniae group Proteus spp. Salmonella*	Enterococcus faecalis Enterococcus faecium Listeria monocytogenes  Staphylococcus Staphylococcus aureus Staphylococcus epidermidis* Staphylococcus lugdunensis*  Streptococcus Streptococcus Streptococcus agalactiae Streptococcus pneumoniae Streptococcus pyogenes	Antimicrobial Resistance Genes  Carbapenemases IMP* KPC OXA-48-like* NDM* VIM*  Colistin Resistance mcr-1 ESBL	Yeast  Candida albicans  Candida auris*  Candida glabrata  Candida krusei  Candida parapsilosis  Candida tropicalis  Cryptococcus neoformans/gattii*
Serratia marcescens Haemophilus influenzae Neisseria meningitidis Pseudomonas aeruginosa Stenotrophomonas maltophilia*		Methicillin Resistance mecA/C mecA/C and MREJ (MRSA)*  Vancomycin Resistance vanA/B*	

<sup>\*</sup>Indicates a new addition to the panel

### HIGHLIGHTS OF RELEVANT CHANGES OR ADDITIONS:

- Enterobacteriaceae has been updated to Enterobacterales to reflect a recent taxonomic update. This remains a broad target that will be positive when an organism within the order Enterobacterales is present in the sample. Within the panel are targets for commonly encountered Enterobacterales, like E. coli, but other Enterobacterales will only be positive for the order specific target, such as Citrobacter species.
- The panel detects CTX-M the most common ESBL gene in the United States, along with five of the most common carbapenemase genes (KPC, NDM, IMP, OXA-48-like, and VIM).
- The panel includes mecA/C detection with and without MREJ to differentiate mecA/C in coagulase negative Staphylococci and mecA/C in S. aureus when polymicrobial samples are tested.
  - mecA/C will only be reported when S. aureus, S. epidermidis, and/or S. lugdunensis are detected. Other coagulase negative staph detections are considered contaminants and mecA/C is not reported by the panel to discourage unnecessary antibiotic use.

#### **TESTING DETAILS**

#### Turn Around Time

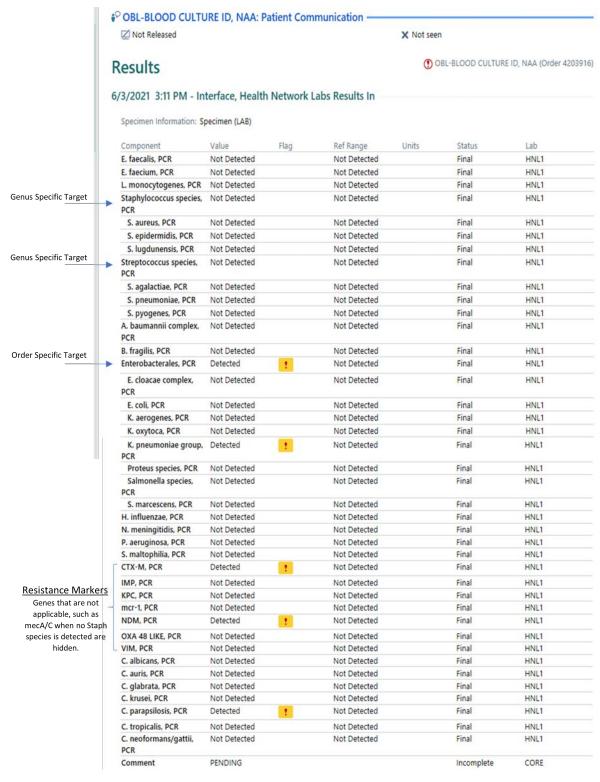
- Blood cultures incubated at main laboratory: Generally, within 2 hours of culture positivity
- Blood cultures incubated at Acute Care Labs: Generally, within 6 hours of Gram stain report

#### Reporting and Interpretation

Results will be entered under a different test code than the blood culture order. Each organism on the panel and resistance gene targets that are valid for the detected organisms will be reported as Detected or Not Detected. An example report is shown below.

#### **Blood Culture Identification Results**

Results of the BCID2 should be used to guide therapy. However, resistance to antibiotics can occur via multiple mechanisms. All positive bottles will be cultured, and phenotypic susceptibility results will be reported to guide any necessary updates to therapy.



## **INTERPRETATION**

In the above example Enterobacterales, E. coli, CTX-M, NDM, and C. parapsilosis were detected. This indicates that the blood culture is positive for an E. coli carrying CTX-M and NDM and treatment with cephalosporins and carbapenems will likely be ineffective. Phenotypic susceptibility will be performed to confirm these results. The culture also is positive for the yeast Candida parapsilosis and treatment with an antifungal may be warranted. Based on this molecular test, the expected Gram stain to correlate with these results would be Gram negative rods and yeast.

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