

Carbapenem Resistance Genes, Molecular Detection, PCR, Varies

Test ID: CARBI

Useful for:

Detecting and differentiating *blaKPC*, *blaNDM*, *blaVIM*, *blaOXA-48*, and *blaIMP* gene sequences associated with carbapenem intermediate or resistant results.

Aiding in infection control in the detection of gastrointestinal colonization of patients in healthcare settings with bacteria not susceptible to carbapenems using bacterial isolates from rectal or perirectal swabs.

Ordering Guidance:

This assay should be used for testing of isolates of Enterobacterales, *Pseudomonas aeruginosa* and *Acinetobacter baumannii*. If testing directly from rectal swabs is desired, order CRPCR / Carbapenem Resistance Genes, Molecular Detection, PCR, Rectal Swab.

Other mechanisms of carbapenem resistance, including other carbapenemase not targeted by this assay, porin mutations, and hyperexpression of drug efflux pumps, may result in carbapenem resistance. These mechanisms are not detected by this assay.

Methodology:

Real-Time Polymerase Chain Reaction (PCR)/Reverse Transcription PCR

Necessary Information:

Organism identification and specimen source are required.

Specimen Requirements:

Supplies: Infectious Container, Large (T146)

Container/Tube: Slant

Specimen Volume: Isolate

Collection Instructions:

1. Perform isolation of infecting bacteria.
2. Bacterial organism must be submitted in pure culture, actively growing. Do not submit mixed cultures.

Specimen Stability Information:

Specimen Type	Temperature	Time
Varies	Ambient (preferred)	
	Refrigerated	

Cautions:

The Xpert Carba-R Assay detects *blaKPC*, *blaNDM*, *blaVIM*, *blaOXA-48*, and *blaIMP* from pure colonies and is not for bacterial identification. Detection of these gene sequences does not indicate the presence of viable organisms.

The Xpert Carba-R Assay is not a genetic relatedness subtyping tool and does not report variants of the *blaKPC*, *blaNDM*, *blaVIM*, *blaOXA-48*, or *blaIMP* genes.

IMP types detected by this assay include only IMP-1, 2, 4, 6, 10 and 11.

Certain bacterial species, such as *Pseudomonas aeruginosa* and *Acinetobacter baumannii* have been shown to exhibit resistance to the carbapenem antimicrobial ertapenem due to intrinsic resistance mechanisms.

The detection of other OXA-carbapenemase genes besides *bla*_{OXA-48} and *bla*_{OXA-181} has not been evaluated with this assay.

Variants or alterations in primer or probe binding regions may affect detection of current, new, or *unknown* *blaKPC*, *blaNDM*, *blaVIM*, *blaOXA-48*, and *blaIMP* variants, resulting in a false-negative result.

Testing with the Xpert Carba-R Assay should be used as an adjunct to other available methods.

Carbapenem-resistant anaerobes potentially present in fecal specimens have not been evaluated by the Xpert Carba-R Assay.

Erroneous test results might occur from improper culture techniques, failure to follow recommended procedure to prepare the 0.5 McFarland suspension, handling and storage procedures, technical error, sample mix-up, or because the number of organisms in the specimen is too low to be detected by the test. Careful compliance with the instructions in the test instructions for use is necessary to avoid erroneous results.

CPT Code:

87150

Day(s) Performed: Monday through Sunday

Report Available: 1 to 2 days

Questions

Contact Brandon DeBoom, Laboratory Resource Coordinator at 800-533-1710.