PBRT Kit 2.0 - PCR based replicon typing

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Molecular epidemiology of plasmid-mediated antibiotic resistance
Screening of resistance plasmid content to orient bacterial genome analysis

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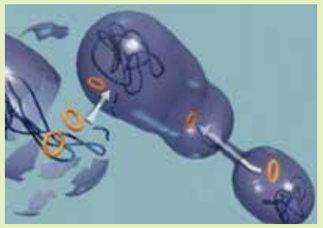
Antibiotic resistance is a serious threat to public health leading to increased healthcare costs, prolonged hospital stays, treatment failures and sometimes death.

PBRT 2.0 Kit

Plasmids represent one of the most difficult challenge for counteracting the dissemination of antimicrobial resistance in Gram-negative bacteria.
The epidemiology of resistance plasmids is a major issue for the description of multiple drug resistance associated with bacterial infections in humans and animals.

The PBRT 2.0 kit is a PCR-based assays developed and validated in collaboration with Dr. A. Carattoli[1] that allow early typing of plasmids conferring drug resistance, offering the possibility to screen before sequencing.



Highlights

The PBRT 2.0 kit has increased sensitivity and specificity
Constantly updated versions are available

Field of application

- Identification of a broad range of plasmid type in antimicrobial resistance surveillance studies
- Screening of plasmid content before sequencing

Principle

The PBRT 2.0 kit is intended for the analysis of bacterial plasmid content using total genomic bacterial DNA purified from a colony isolated from various samples (veterinary, clinical or food samples).

The PBRT 2.0 kit provides a set of 8 specific standard PCR assays and 8 positive controls optimized to perform the amplification up to 30 replicons representative of major plasmid incompatibility groups and replicase genes identified on resistance plasmids circulating among Enterobacteriaceae: HI1, HI2, HIB-M, I1α, I1γ, I2, X1, X2, X3,X4, K, B/O, M, N, N2, FII, FIA, FIB, FIB-M,FIB-KQ, FIB-KN, FIIK, FIIS, P1, R, U, L, A/C, T and W.

These are recognized as the largely prevalent plasmid families as well as plasmids prevalently associated with specific resistance genes and “epidemic” plasmids closely associated with selective pressure exerted by antimicrobial usage. A list of reference plasmids, one for each replicon detected by the PBRT 2.0 kit is provided. Replicons that are not yet assigned to any known Inc group are reported as “not assigned”.

The PBRT 2.0 Kit can now be used in conjunction with Fragment Analyzer™ instrument to speed up the entire analytical procedure. After PCR reactions have been completed, the data can be analyzed through an agarose gel or through the Fragment Analyzer™ instrument and PBRT Detection System, a software tool which automates “positive/negative” calling of results.

Benefits:

Confidence Clear and reproducible results, independent of operator technique or interpretation

Reliability Automatable test and analysis without the need for expert skills

Ease of use Minimal hands-on time

Convenience All reagents are ready to use providing consistency, stability and long shelf-life

Workflow

How it works

DNA extraction	PCR	Amplicon analysis	Results interpretation
DNA isolation from bacterial isolate	Amplification of DNA using PBRT 2.0 kit	Gel electrophoresis or fragment analysis	
10-45 min	1.5 h	1-5 h	10 min

Technical specifications

- PBRT 2.0 kit has been validated using 105 bacterial collection strains carrying characterized reference plasmids representative of the major Incompatibility groups.
- PBRT 2.0 kit enable plasmid screening and typing from bacterial species isolated from several samples/matrices (food origin, clinical, veterinary ect.)

Open and flexible system

- Compatible with different PCR thermal cyclers
- Compatible with different DNA extraction kits/methods

Ordering information

Code	Product	Size
MBK0078	PBRT 2.0 kit	192 tests

1 Carattoli et al. Identification of plasmids by PCR-based replicon typing.J Microbiol Methods. 2005 .