OpGen®

Acuitas®
AMR Gene Panel

The Acuitas® AMR Gene Panel
helps to advance your diagnostic capabilities.

By providing comprehensive antimicrobial resistance (AMR) testing to rapidly optimize therapy for compromised patients the Acuitas AMR Gene Panel identifies resistance at least a day earlier than conventional AST.

FDA-cleared Acuitas AMR Gene Panel

- Simultaneously tests for **28 AMR markers** across **9 classes of antibiotics** in 2.5 hours from a bacterial isolate
- Covers common antimicrobial agents to enable the selection of first line antibiotics, conserving last resort drugs
- Links the detected AMR genes to the organism and correlates it with non-susceptible (intermediate and resistant) phenotypic AST results, allowing for earlier tailored treatment decisions
- Accurate AMR detection[1]: ≥95% PPA and NPA

"The most exciting part is the ability to not only detect AMR genes, but also associate that gene with not-susceptible results."

How can the AMR panel expand your current testing?

- Comprehensive AMR detection among bacterial isolates recovered from any specimen type (e.g., urine, respiratory, wound, blood, etc.)
- Detects a broad panel of beta-lactamase genes, including the most common targets (e.g., CTX-M, KPC, NDM, VIM, IMP, OXA-48-like) and an expanded menu (e.g., CMY, DHA, PER, OXA-1/-9, TEM, SHV), plus others
- Determines mechanisms of resistance to guide antibiotic selection (for example, whether 3rd generation cephalosporin is mediated by ESBL or AmpC), which cannot be assessed with phenotypic AST methods
- Detects emerging resistance mechanisms such as MCR-1 which is associated with polymyxin resistance

Acuitas® AMR Gene Panel

The Acuitas® AMR Gene Panel is FDA cleared to detect 28 genetic antimicrobial resistance (AMR) markers, covering select drugs in 9 classes of antibiotics, in isolated bacterial colonies from 26 different pathogens. An identified bacterial isolate is tested, and the resistance markers associated with the selected bacterial species (see table) are reported as "Detected", "Not Detected" or "NA/NR".

Organism	Reported AMR Gene Marker
Citrobacter freundii complex[a]	CTX-M-1, CTX-M-9, KPC, NDM, OXA-48
Citrobacter koseri	KPC, OXA-48
Enterobacter cloacae complex[b]	CTX-M-1, CTX-M-9, KPC, TEM[d]
Enterococcus faecalis	vanA
Escherichia coli	AAC, ANT, CMY, CTX-M-1, CTX-M-2, CTX-M-9, DFR, gyrA Mutant[c], KPC, MCR-1[e], OXA-1, OXA-9, SHV[d], Sul1, Sul2, TEM[d]
Klebsiella aerogenes	CTX-M-1, CTX-M-9, KPC, NDM, OXA-48
Klebsiella michiganensis	CTX-M-1, CTX-M-9, KPC, NDM, OXA-48
Klebsiella oxytoca	CTX-M-1, CTX-M-9, KPC, NDM, OXA-48
Klebsiella pneumoniae	AAC, AAD, APH, CMY, CTX-M-1, CTX-M-9, DFR, DHA, IMP, KPC, NDM, OXA-1, OXA-9, OXA-48, RMY, Sul1, Sul2, TEM[d]
Klebsiella quasipneumoniae	CTX-M-1, CTX-M-9, KPC, NDM, OXA-48
Klebsiella variicola	CTX-M-1, CTX-M-9, KPC, NDM, OXA-48
Morganella morganii	CTX-M-1, KPC, NDM, OXA-48
Proteus mirabilis	AAC, ANT, APH, armA, CMY, CTX-M-1, CTX-M-2, CTX-M-9, DFR, KPC, NDM, OXA-1, OXA-9, OXA-48, Sul2, TEM[d], VEB, VIM
Providencia rettgeri	NDM
Providencia stuartii	NDM
Pseudomonas aeruginosa	AAC, ANT, CTX-M-1, CTX-M-2, gyrA Mutant[c], KPC, NDM, OXA-1, PER, SHV[d], TEM[d], VEB, VIM
Raoultella ornithinolytica	KPC, NDM, OXA-48
Raoultella planticola	KPC
Serratia marcescens	CTX-M-1, CTX-M-9, KPC, NDM, OXA-48

[a] *Citrobacter freundii complex = C. freundii, C. braakii, C. werkmanii and C. youngae.*
[b] *Enterobacter cloacae complex = E. asburiae, E. cloacae, E. hormaechei, E. kobei and E. ludwigii.*
[c] *PCR assays associated with fluoroquinolone resistance detect and differentiate wild type and mutant variants of gyraseA at amino acid position 87 for E. coli and position 83 for P. aeruginosa.*
[d] *PCR assays for SHV and TEM detect several sequence variants for the two genes, respectively, at amino acid positions 156 and 104 associated with wild type penicillin resistance and mutations associated with ESBL phenotypes.*
[e] *The panel includes an assay for the detection of the mobilized colistin genetic determinant MCR-1 in E. coli.*

Knowing the mechanism of resistance can help guide antibiotic selection.

Antibiotics in the following classes covered by the Acuitas AMR Gene Panel

Aminoglycosides (AAC, AAD, ANT, APH, armA, RMT): Amikacin, Gentamicin, Tobramycin ; **Carbapenems** (CMY, DHA, IMP, KPC, NDM, OXA-48, PER, VIM): Ertapenem, Imipenem, Meropenem ; **Cephalosporins** (CMY, CTX-M-1, CTX-M-2, CTX-M-9, DHA, OXA-9, VEB): Cefazolin, Cefepime, Ceftazidime, Ceftriaxone, Cefuroxime ; **Fluoroquinolones** (gyrA): Ciprofloxacin, Levofloxacin ; **Glycopeptides** (vanA): Vancomycin ; **Penicillins** (OXA-1, SHV, TEM): Amoxicillin K Clavulanic Acid; Ampicillin; Ampicillin Sulbactam; Piperacillin Tazobactam ; **Polymixins** (MCR-1): Colistin ; **Sulfonamides** (Sul1, Sul2): Trimethoprim-Sulfamethoxazole ; **Trimethoprim** (DFR): Trimethoprim-Sulfamethoxazole

The Acuitas® **A**ctionable **M**ultiplexed **R**evolutionary Gene Panel

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Request information today:
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Reference:
1. Simner PJ, et al. Multicenter Evaluation of the Acuitas AMR Gene Panel for Detection of an Extended Panel of Antimicrobial Resistance Genes among Bacterial Isolates. J Clin Microbiol. 2022 Mar 16;60(3):e0209821. doi: 10.1128/JCM.02098-21.

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