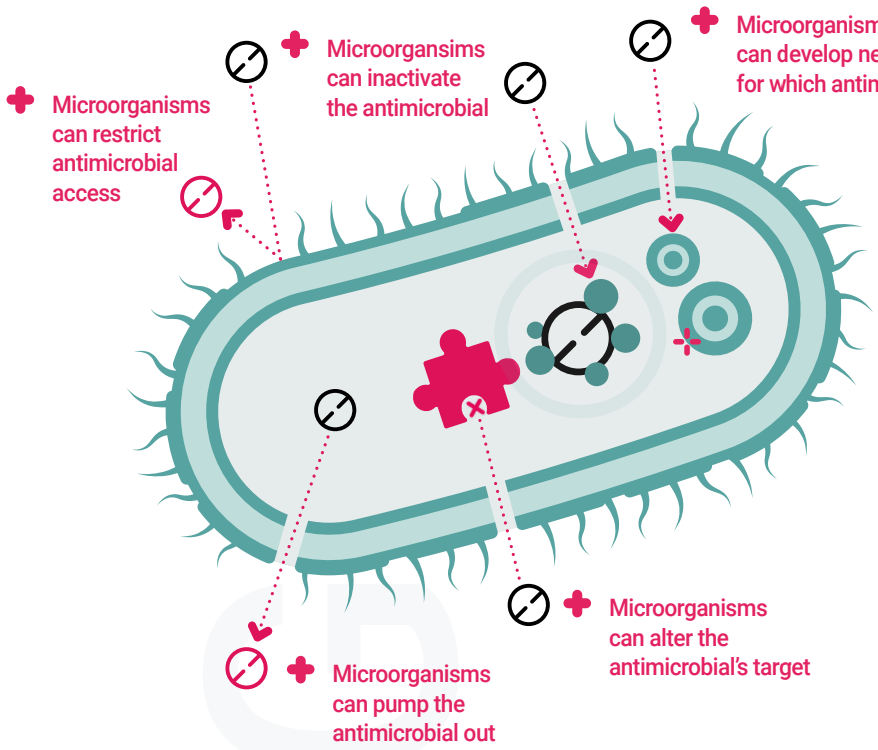
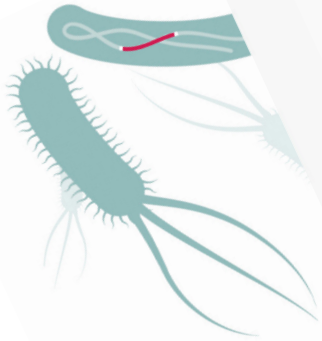
Acūtis

PCR Detects Bacterial and Fungal Antimicrobial Resistance Genes

Antimicrobials fight bacteria and fungi.

Bacteria and fungi have developed **Resistance Mechanisms** to fight against antimicrobials and survive. **Antibiotic Resistance Genes** (ARGs) contain the DNA instructions by which microorganisms build their resistance mechanisms.





- **Only bacteria and fungi become resistant to antibiotics** – not people.

ARG identification empowers the prescriber to prescribe an empiric antimicrobial not effected by the microorganism's resistance mechanisms

	ARG Guided Prescribing with Acutis Reveal™	Non-ARG Guided Prescribing
Identify the microorganism with PCR	✓	✓
Identify ARGs in the microorganisms	✓	✗
Prescribe empiric antimicrobial not effected by the microorganism's resistance mechanisms	✓	Potentially prescribe empiric antimicrobial effected by the microorganism's resistance mechanisms

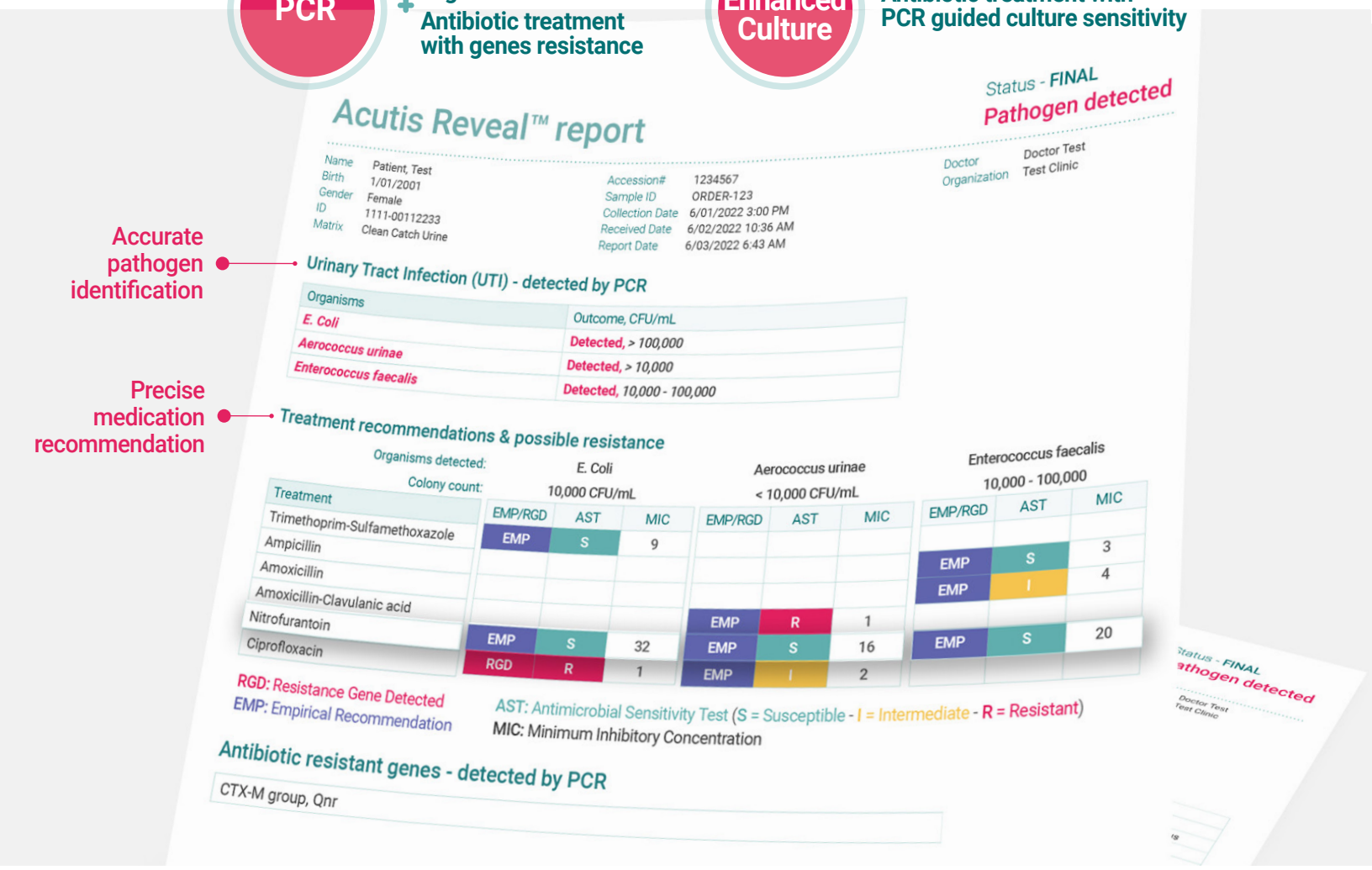
The Clinical Significance of
Antimicrobial Resistance Gene Identification

PCR + **Organism detection**
Antibiotic treatment with genes resistance

Enhanced Culture **Antibiotic treatment with PCR guided culture sensitivity**

Accurate pathogen identification

Precise medication recommendation



Acutis Reveal™ report

Status - FINAL
Pathogen detected

Name Patient, Test
Birth 1/01/2001
Gender Female
ID 1111-00112233
Matrix Clean Catch Urine

Accession# 1234567
Sample ID ORDER-123
Collection Date 6/01/2022 3:00 PM
Received Date 6/02/2022 10:36 AM
Report Date 6/03/2022 6:43 AM

Doctor Doctor Test
Organization Test Clinic

Urinary Tract Infection (UTI) - detected by PCR

Organisms	Outcome, CFU/mL
E. Coli	Detected, > 100,000
Aerococcus urinae	Detected, > 10,000
Enterococcus faecalis	Detected, 10,000 - 100,000

Treatment recommendations & possible resistance

Organisms detected:	E. Coli			Aerococcus urinae			Enterococcus faecalis		
Colony count:	10,000 CFU/mL			< 10,000 CFU/mL			10,000 - 100,000		
Treatment	EMP/RGD	AST	MIC	EMP/RGD	AST	MIC	EMP/RGD	AST	MIC
Trimethoprim-Sulfamethoxazole	EMP	S	9						
Ampicillin							EMP	S	3
Amoxicillin							EMP	I	4
Amoxicillin-Clavulanic acid									
Nitrofurantoin				EMP	R	1			
Ciprofloxacin	EMP	S	32	EMP	S	16	EMP	S	20
	RGD	R	1	EMP	I	2			

RGD: Resistance Gene Detected
EMP: Empirical Recommendation

AST: Antimicrobial Sensitivity Test (S = Susceptible - I = Intermediate - R = Resistant)
MIC: Minimum Inhibitory Concentration

Antibiotic resistant genes - detected by PCR

CTX-M group, Qnr

Talk to a specialist

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