

Detection of resistance mechanisms using Neo-Sensitabs™ and Diatabs™

Detection of beta lactamases

Detection of beta-lactam resistance phenotypes in non-fermenters

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	TIC	TCC	PIP	CAZ	FEP	IMI	MRP	CAZ+CLAV FEP+CLAV	IMI+EDTA MRP+DPA	Remarks
1) Pseudomonas aeruginosa										
Penicillinase (TEM 1-2, PSE 1-4)	R	S/I	I/R	S	S	S	S			
Amp C partial derep.	S/I	any	I	I	S/I	S	S			
Amp C derepressed	I/R	R	I/R	R	I/R	S	S			CAZ < AZT TIC > CTAX
Oxacillinase	I/R	I/R	any	S	S/R (≤CAZ)	S	S			FEP ≤ CAZ TIC > CTAX
OXA-31, OXA 1, 4.	I/R	I/R	any	S	I/R	S	S			
Mex XY-OprM Efflux I/R (1)				S	I/R	S/R	S			CAZ ≥ FEP zone
PER 1-2, VEB-1 (ESBL)	R	S	S/I	R	R	S (PER-1) I/R (VEB-1)	S (PER-1) I/R (VEB-1)	Synergy		Phenotype PIP S, CAZ R indicates PER-1 enz.
ESBL	I/R	any	R	I/R	R	S	S	Synergy		
Metallo-β-lactamase	R	R	R	R	R	I/R	I/R		Synergy	AZT, S ^R
Carbapenemase Class A KPC	R	S/I	R	I/R	I/R	I/R	I/R			AZT, S ^R Syn. MRP+BOR
Increased efflux	I/R	I/R	I/R	I/R	I/R	S ^R	I			CAZ > AZT
Loss of Opr porin	S	S	S	S	S	I/R	S/I			
2) Stenotrophomonas maltophilia										
Beta-lactamase L-1	R	R	R	R	R	R	R	-	Synergy	AZT, S
Beta-lactamase L-2	-	S	I	R	R	S	-	-	-	AZT, R
Beta-lactamase L-1+L-2	R	R	R	R	R	R	R	-	Synergy	AZT, R
3) Acinetobacter baumannii										
	TIC	PIP	PTZ	CAZ	FEP	IMI	MERO			
Penicillinase (TEM 1-2)	R	R	S	S	S	S	S			
Oxacillinase (OXA 21, 37)	R	R	S	S	S	S	S			FEP ≤ CAZ
Amp C partial derep.	I	I	S/I	I	S/I	S	S			
Amp C derepressed	R	R	I/R	R	I/R	S	S			
PER-1, VEB-1 (ESBL)	R	any	S	R	R	S	S	Synergy		Syn. TIC+CLAV Syn. PIP+TAZO
ESBL	R	R	any	R	R	S	S	Synergy		
Metallo-β-lactamase	R	R	R	R	R	I/R	I/R		Synergy	AZT, S ^R

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Carbapenemase Class D (Oxa 23-27, 40, 51, 58)	R	R	I/R	I/R	I/R	S/I/R	S/I/R			AZT, S ^R
Loss of porins	S	S	S	S	S	I/R	S/I			

TIC; Ticarcillin, TCC; Ticarcillin+clavulanic acid, PIP; Piperacillin, PTZ; Piperacillin+tazobactam, CAZ; Ceftazidime, FEP; Cefepime, IMI; Imipenem, MRP; Meropenem, CAZ+CLAV; Ceftazidime + clavulanic acid, FEP+CLAV; Cefepime + clavulanic acid, IMI+EDTA; Imipenem + EDTA, AZT; Aztreonam; BOR=Boronic acid.

References:

1)Hocquet D. et al: Involvement of the MexXY-OprM Efflux system in emergence of Cefepime resistance in clinical strains of Ps. aeruginosa. Antimicrob. Ag. Chemother., 50, 1347-51, 2006.