

## Antimicrobial agents with bactericidal and bacteriostatic modes of action

### General recommendations for reading of Etest® MIC endpoints:

Cidal drugs – at complete inhibition

Static drugs – at 80-90% inhibition

**Important observation:** Antimicrobial agents can exhibit a mixture of static and cidal effects depending on the drug concentration, organism load and type of organism being affected.

Antimicrobial Class	Antimicrobial Subclass	Agent	Code	Mode of action
<b>Antibiotic</b>				
Penicillins	Penicillin	Benzylpenicillin	PG	Bactericidal
	Aminopenicillin	Amoxicillin	AC	Bactericidal
		Ampicillin	AM	Bactericidal
	Ureidopenicillin	Piperacillin	PP	Bactericidal
	Carboxypenicillin	Ticarcillin	TI	Bactericidal
	Methoxypenicillin	Temocillin	TMO	Bactericidal
	Isoxazolyl penicillin	Oxacillin	OX	Bactericidal
	Amidinopenicillin	Mecillinam	MM	Bactericidal
	Phenoxympenicillins	Phenoxymethylpenicillin	PV	Bactericidal
$\beta$ -lactam/ $\beta$ -lactamase inhibitor combinations		Amoxicillin/clavulanic acid	XL	Bactericidal
		Ampicillin/sulbactam	AB	Bactericidal
		Piperacillin/tazobactam	PTc	Bactericidal
		Ticarcillin/clavulanic acid	TLc	Bactericidal
		Cefoperazone/sulbactam	CPS	Bactericidal
$\beta$ -lactamase inhibitor	Penicillanic acid sulfone	Sulbactam	SUL	Bactericidal
Cephems (parenteral)	Cephalosporin I	Cephalothin	CE	Bactericidal
	Cephalosporin II	Cefuroxime	XM	Bactericidal
	Cephalosporin III (extended spectrum cephalosporins)	Cefoperazone	CP	Bactericidal
		Cefotaxime	CT	Bactericidal
		Cefodizime	FZ	Bactericidal
		Ceftizoxime	CZ	Bactericidal
		Ceftazidime	TZ	Bactericidal
		Ceftriaxone	TX	Bactericidal
	Cephalosporin IV (extended spectrum cephalosporins)	Cefepime	PM	Bactericidal
		Cefpirome	CR	Bactericidal
Cephameycin	Cefotetan	CN	Bactericidal	
	Cefoxitin	FX	Bactericidal	
Cephems (oral)	Cephalosporin	Cefaclor	CF	Bactericidal
		Cefdinir	CD	Bactericidal
		Cefditoren	FD	Bactericidal
		Cefixime	IX	Bactericidal

Antimicrobial Class	Antimicrobial Subclass	Agent	Code	Mode of action
<b>Antibiotic</b>				
Cephems (oral) cont.		Cefpodoxime Cefprozil Ceftibuten Cefalexin	PX FP CB CX	Bactericidal Bactericidal Bactericidal Bactericidal
Monobactams		Aztreonam	AT	Bactericidal
Penems	Carbapenems	Ertapenem Imipenem Meropenem	ETP IP MP	Bactericidal Bactericidal Bactericidal
Aminocyclitols		Spectinomycin	SC	Bactericidal
Aminoglycosides		Amikacin Gentamicin Kanamycin Netilmicin Streptomycin Tobramycin	AK GM KM NC SM TM	Bactericidal Bactericidal Bactericidal Bactericidal Bactericidal Bactericidal
Ansamycins	Rifamycin B	Rifampicin	RI	Bactericidal
Quinolones	Quinolone Fluoroquinolone	Nalidixic acid Ciprofloxacin Gatifloxacin Gemifloxacin Levofloxacin Moxifloxacin Norfloxacin Ofloxacin Pefloxacin Sparfloxacin Enrofloxacin	NA CI GA GEM LE MX NX OF PE SO EF	Bactericidal Bactericidal Bactericidal Bactericidal Bactericidal Bactericidal Bactericidal Bactericidal Bactericidal Bactericidal Bactericidal
Folate pathway inhibitors	Diaminopyrimidine  Sulphonamide	Trimethoprim Trimethop./sulfamethoxazole Sulfadiazine Sulfamethoxazole	TR TS SU SX	Bacteriostatic Bacteriostatic Bacteriostatic Bacteriostatic
Phosphonic acids		Fosfomycin	FM	Bacteriostatic
Lincosamides		Clindamycin	CM	Bacteriostatic
Cyclic peptides	Lipopeptide Polymyxin	Bacitracin Daptomycin Colistin (polymyxin E) Polymyxin B	BA DPC CO PO	Bactericidal Bactericidal Bactericidal Bactericidal
Macrolides	Azalide Macrolide	Azithromycin Clarithromycin Dirithromycin Erythromycin Roxithromycin	AZ CH DT EM RO	Bacteriostatic Bacteriostatic Bacteriostatic Bacteriostatic Bacteriostatic
Nitrofurans		Nitrofurantoin	NI	Bactericidal

Antimicrobial Class	Antimicrobial Subclass	Agent	Code	Mode of action
<b>Antibiotic</b>				
Nitroimidazoles		Metronidazole	MZ	Bactericidal
Oxazolidinones		Linezolid	LZ	Bacteriostatic
Glycopeptides	Glycopeptide	Vancomycin	VA	Bactericidal
	Lipoglycopeptide	Teicoplanin	TP	Bactericidal
Phenicol		Chloramphenicol	CL	Bacteriostatic
Streptogramins		Quinupristin/dalfopristin	QDA	Bacteriostatic
Tetracyclines		Doxycycline	DC	Bacteriostatic
		Minocycline	MC	Bacteriostatic
		Tetracycline	TC	Bacteriostatic
Glycylcyclines		Tigecycline	TGC	Bacteriostatic
Fusidanes		Fusidic acid	FU	Bacteriostatic
Pseudomonic acids		Mupirocin	MU	Bacteriostatic
<b>Antifungal</b>				
Polyenes		Amphotericin B	AP	Fungicidal
Azoles	Imidazole Triazole	Ketoconazole	KE	Fungistatic
		Fluconazole	FL	Fungistatic
		Itraconazole	IT	Fungistatic
		Voriconazole	VO	Fungistatic
		Posaconazole	POS	Fungistatic
Echinocandins		Caspofungin	CS	Fungistatic
		Anidulafungin	AND	Fungistatic
Pyrimidines	Fluorinated pyrimidine	Flucytosine	FC	Fungistatic
<b>Antimycobacterial</b> (Various classes of antibiotics may also be active against mycobacteria)				
		Ethambutol	EB	Bactericidal
		Ethionamide	ET	Bactericidal
		Isoniazide	IZ	Bactericidal
		Pyrazinamide	PY	Bactericidal

Further information on Etest endpoint selection can be found in CIS 007 available at [www.abbiodisk.com](http://www.abbiodisk.com)