



MIC Test Strip Technical Sheet Enterococci

Specimen

Blood, wounds and sterile sites (tissues, peritoneal fluid), urines (urosepsis)

	Enterococci (general)	HLAR (High level Aminoglycoside Resistance)	VRE (Vancomycin-resistant Enterococci) Macro gradient test
Medium	Mueller Hinton II Agar (Ref. 10031)	Mueller Hinton II Agar (Ref. 10031) MIC Test Strip range: Gentamicin and Streptomycin 0.064-1024 µg/ mL	Brain Heart Infusion Agar (Ref. 10060)
Inoculum	Suspension in physiological solution to 0.5 McFarland turbidity (Ref. 80400)	Suspension in physiological solution to 0.5-1 McFarland (heavier inoculum preferable), 1 McFarland Ref. 80401	Suspension in broth to 2 McFarland. Dispense 0.1 mL per 90 mm agar plate and streak evenly.
Incubation	35 ± 2°C, ambient, 16-20 hours; interpret vancomycin at 24 hours.	35 ± 2°C, ambient, 24 hours (interpret streptomycin at 48 hours).	35 ± 2°C, ambient, 24-48 hours; interpret at 48 hours.
Evaluating the results	Bactericidal drugs: interpret at complete inhibition of all growth including microcolonies, hazes and isolated colonies. Bacteriostatic drugs: interpret at 80% inhibition when trailing is seen.	Read at complete inhibition including microcolonies, hazes and isolated colonies.	Look for hazes, microcolonies and isolated colonies. Use a magnifying glass, oblique light and/or tilt the plate to look for all growth.

	Quality Control (MIC µg/mL)		CLSI INTERPRETATION MIC Criteria (µg/mL)			EUCAST INTERPRETATION MIC Criteria (µg/mL)		Examples of ANTIBIOGRAM Detection of VRE (BHI) 90 mm petri dish Other antibiotics and HLAR (Mueller Hinton) Observe: QDA for <i>E. faecium</i> only. 140 mm petri dish
	<i>E. faecalis</i> ATCC® 29212	<i>E. faecalis</i> ATCC® 51299*	S	I	R	S	R	
AMP AMPICILLIN	0.5-2		≤8	-	≥16	≤4	>8	✓
LEV LEVOFLOXACIN	0.25-2		≤2	4	≥8	≤4	>4	
LNZ LINEZOLID	1-4		≤2	4	≥8	≤4	>4	✓
TEC TEICOPLANIN	0.25-1		≤8	16	≥32	≤2	>2	
TE TETRACYCLINE	8-32		≤4	8	≥16			✓
VA VANCOMYCIN	1-4		≤4	8-16	≥32	≤4	>4	
HLAR								
CN GENTAMICIN	≤500	>500	≤500	-	>500	≤128	>128	✓
S STREPTOMYCIN	<500	≥1000	<500	-	≥1000	≤512	>512	✓

* Resistant to vancomycin (*VanB*) and high level aminoglycosides.

Susceptible (S), Intermediate (I), Resistant (R)

Disclaimer: The table is intended for general guidance only and may not contain all the necessary information. Also reported interpretive criteria and QC MIC ranges might be out of date. Always current guidelines from CLSI and/or EUCAST should be consulted.

Macro gradient test for determining Vancomycin-resistant Enterococci (VRE)

Phenotype	MIC (µg/mL)			Species
	VANCOMYCIN		TEICOPLANIN	
<i>VanA</i>	≥32 (R)	and	≥16 (I-R)	<i>E. faecalis</i> <i>E. faecium</i>
<i>VanB</i>	≥8-256 (I-R)	and	≤4 (S)	<i>E. faecalis</i> <i>E. faecium</i>
<i>VanC1</i>	4-16 (S-I)	and	≤4 (S)	<i>E. gallinarum</i>
<i>VanC2</i>	4-16 (S-I)	and	≤4 (S)	<i>E. casseliflavus</i> <i>E. flavescens</i>
<i>VanD</i>	64 (R)	and	≤4 (S)	<i>E. faecium</i>
<i>VanE</i>	16 (I)	and	≤4 (S)	<i>E. faecalis</i>

This test gives an indication of reduced vancomycin susceptibility but note that the readings are not MICs.

References

1. CLSI M100. Performance Standards for Antimicrobial Susceptibility Testing. 31st Edition, 2021.
2. EUCAST. Breakpoint tables for interpretation of MICs and zone diameters. Version 11.0, 2021.
3. Routine and extended internal quality control for MIC determination and disk diffusion as recommended by EUCAST. Version 11.0, 2021.
4. CLSI M07. Methods for Dilution Antimicrobial Susceptibility Tests for Bacteria That Grow Aerobically. 11th Edition, 2018.
5. EUCAST guidelines for detection of resistance mechanisms and specific resistances of clinical and/or epidemiological importance. Version 2.0, 2017.

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