

MIC Test Strip Technical Sheet Dalbavancin

Dalbavancin is an antibiotic used to treat acute bacterial skin and skin structure infections (ABSSSI) in adults caused by susceptible Grampositive organisms, including methicillin-resistant *Staphylococcus aureus* (MRSA). MRSA infections have become problematic in the community and in healthcare settings due to resistance to many available antibiotics.

This lipoglycopeptide interferes with cell wall synthesis having strong activity against many Grampositive bacteria, including methicillin-sensitive and methicillin-resistant *Staphylococcus aureus*, *Streptococcus pyogenes*, *Streptococcus agalactiae*, *Streptococcus anginosus*, *Streptococcus intermedius*, and *Streptococcus constellatus*.

Based on MIC data and other studies, dalbavancin is more potent and bactericidal and therefore requires lower concentrations than vancomycin against these organisms. Dalbavancin also shows in vitro activity against vancomycin-susceptible *Enterococcus faecium* and *Enterococcus faecalis*.

Other Gram-positive organisms belonging to the *Bacillus* spp, *Listeria* spp, and *Corynebacterium* spp may show in vitro susceptibility, and dalbavancin may exhibit activity against enterococci expressing the VanB or VanC phenotype of acquired resistance against vancomycin.

There is no clinically significant activity against Gram-negative bacteria.

Structure of Dalbavancin

MIC Test Strip Dalbavancin is an accurate alternative procedure to the broth microdilution assay when susceptibility tests are performed on isolates of *Staphylococcus aureus* and *Enterococcus* spp.

TEST PROCEDURE

Before using MIC Test Strip Dalbavancin from an unopened package, visually inspect to ensure the package is intact. Do not use the strips if the package has been damaged.

When removed from the refrigerator, allow the package or storage container to reach room temperature for about 30 minutes. Moisture condensing on the outer surface must evaporate completely before opening the package.

Materials required but not provided:

- Mueller Hinton II Agar, 90 (ref. 10031) or 140 mm (ref. 10231) plates
- Sterile saline (0.85% NaCl) (ref. 20095)
- Sterile loops, swabs (not too tightly spun), test tubes, pipettes and scissors
- Forceps
- 0.5 McFarland turbidity standard (ref. 80400)
- Incubator $(35 \pm 2^{\circ}C)$
- Quality control organisms
- Additional technical information from <u>www.liofilchem.net</u>

Inoculum preparation

Suspend well-isolated colonies from an overnight agar plate into saline to achieve a 0.5 McFarland standard turbidity.

A confluent or almost confluent lawn of growth will be obtained after incubation, if the inoculum is correct.

In order to verify that your procedure gives the correct inoculum density in terms of CFU/mL, performing regular colony counts is recommended.

Inoculation

Dip a sterile swab in the broth culture or in a diluted form thereof and squeeze it on the wall of the test tube to eliminate excess liquid. Alternatively, use a rotation plater to efficiently streak the inoculum over the agar surface. Allow excess moisture to be absorbed so that the surface is completely dry before applying MIC Test Strip.

Application

Apply the strip to the agar surface with the scale facing upwards and code of the strip to the outside of the plate, pressing it with a sterile forceps on the surface of the agar and ensure that whole length of the antibiotic gradient is in complete contact with the agar surface. Once applied, do not move the strip.

Incubation

Incubate the agar plates in an inverted position at $35 \pm 2^{\circ}$ C for 16-20 hours in ambient atmosphere. Extend the incubation for up to 48 hours in case of slow growing organisms.

EVALUATING THE RESULTS

Reading

Observe where the relevant inhibition ellipse intersects the strip and read the MIC at complete inhibition. Growth along the entire gradient i.e. no inhibition ellipse indicates that the value is greater than or equal to (\geq) the highest value on the scale. An inhibition ellipse that intersects below the lower end of the scale is read as less than (<) the lowest value.

Interpretation

Use EUCAST breakpoints shown below. Always round up MIC Test Strip half dilution values to the next upper two-fold value before categorization. For example a *S. aureus* dalbavancin MIC of 1.5 μ g/mL is reported as 2 μ g/mL.

See page 2 for example of results. Also consult the MIC Test Strip Photographic Guide.

QUALITY CONTROL

The following CLSI-recommended quality control strains are used as outlined under TEST PROCEDURE:

S. aureus ATCC® 29213, E. faecalis ATCC® 29212.

Organism	Breakpoint (µg/mL)		Quality Control MIC Pango (ug/ml)		
	S ≤	R >	Quality Control Mile Range (µg/iiic)		
Staphylococcus spp	0.125	0.125	<i>S. aureus</i> ATCC [®] 29213 <i>E. faecalis</i> ATCC [®] 29212	0.03-0.12	

MIC Test Strip Dalbavancin Reading Guide



MIC 0.064 µg/mL.



MIC 0.094 $\mu g/mL$, reported as 0.125 $\mu g/mL$



MIC 0.094 µg/mL, reported as 0.125 µg/mL



MIC 0.047 $\mu g/mL$, reported as 0.064 $\mu g/mL$

REFERENCES

- CLSI M100-S26 (2016) Performance Standards for Antimicrobial Susceptibility Testing.
- EUCAST (2016) Breakpoint tables for interpretation of MICs and zone diameters, version 6.0 http://www.eucast.org
- CLSI M07-A10 (2015) Methods for Dilution Antimicrobial Susceptibility Tests for Bacteria That Grow Aerobically: Approved Standard Tenth Edition.
 Boucher H W. et al. (2014) Once-Weekly Dalbavancin versus Daily Conventional Therapy for Skin Infection. N Engl J Med. 370:2169-2179
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 Billeter M. et al (2008) Dalbavancin: a Novel Once-Weekly Lipoglycopeptide Antibiotic. Clin Infect Dis. 46:577-83.

Billeter M. et al (2000) Babavalen, a Porer Once Weekly Elpogrycopeniae Antibiotic. enn intere Bis. 10.577-05.							
PRESENTATION	l	µg/mL	Code	Packaging	Ref.		
				10	921371		
MIC Test Strip	Dalbavancin	0.002-32	DAL	30	92137		
				100	921370		

MIC Test Strip, Patent No. 1395483

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