

## 5. STAPHYLOCOCCI

MH agar, McFarland 0.5, incubation air 35°C ± 1°C, incubation time 18h ± 2 h (24 h for glycopeptides).  
 QC strain: *Staphylococcus aureus* ATCC 29213.

• **STANDARD PANEL** (all specimen types)

**MDRO setting:** methicillin resistant *Staphylococcus aureus* (MRSA), methicillin resistant coagulase negative staphylococci (90% of all coagulase negative staphylococci with possible variations depending on the type of species considered).

PRIMARY TESTING	SUGGESTED REPORTING (NON MDRO SETTING)	SUGGESTED REPORTING (MDRO SETTING)
Cefoxitin <sup>1</sup> .	Oxacillin or flucloxacillin.	Oxacillin or flucloxacillin.
Erythromycin	+	+
Clindamycin <sup>2</sup> .	+	+
Ciprofloxacin <sup>3</sup> or levofloxacin <sup>3</sup> .		+
Minocycline <sup>4</sup> or doxycycline <sup>4</sup> .	+	+
Cotrimoxazole	+	+
Vancomycin <sup>5</sup> .		+
Gentamicin <sup>6</sup> .		

SUPPLEMENTAL TESTING	SUGGESTED REPORTING (NON MDRO SETTING)	SUGGESTED REPORTING (MDRO SETTING)
Rifampicin.	+	+
Moxifloxacin <sup>3</sup> .	+	+
Teicoplanin <sup>5</sup> .		+
Linezolid.		+
Ceftaroline.		+
Tigecycline.		+
Daptomycin.		+
Kanamycin <sup>6</sup> .		
Fusidic acid <sup>7</sup> .	+	+
Mupirocin high level <sup>8</sup> .		+
Nitrofurantoin <sup>9</sup> .	+	

- Cefoxitin (best by disk diffusion) should be used in place of oxacillin for screening/detection of methicillin (oxacillin) resistance. Resistance to cefoxitin infers resistance to all betalactam antibiotics except ceftaroline.
- Inducible clindamycin resistance can be detected by antagonism of clindamycin activity by a macrolide agent.
- Ciprofloxacin or levofloxacin alone sufficient for testing staphylococci (results can be extrapolated from one agent to the other). Reporting to be limited to specific clinical settings (i.e. orthopedic device associated infections). Moxifloxacin has a higher intrinsic activity than ciprofloxacin and levofloxacin, should be tested if particular clinical setting (e.g. osteoarticular infections).
- Higher intrinsic activity of minocycline and doxycycline versus tetracycline (minocycline may be the preferred tetracycline drug for testing against staphylococci).
- Report teicoplanin or vancomycin susceptibility only for methicillin resistant isolates; disk diffusion unreliable to detect decreased susceptibility to glycopeptides (GISA), use a MIC method (broth microdilution should be preferred over gradient strip diffusion method).
- Very limited indications of aminoglycosides for the treatment of staphylococcal infection (endocarditis). Resistance to gentamicin infers resistance to all clinically available aminoglycosides (tobramycin, amikacin). Resistance to kanamycin infers resistance to amikacin.
- Fusidic acid for topical use.
- Mupirocin high level: only for MRSA decolonization in chronic/acute institution setting.
- Nitrofurantoin: only for urinary tract *Staphylococcus saprophyticus*.