



Comparison of 4 MRSA screening chromogenic plates using *mecC* strains at different level of concentrations and swabs from patients.

KEY POINTS :

- **chromID MRSA SMART** shows a **higher sensitivity & specificity** and the **low limit of detection** compared to the 3 other chromogenic media on strains.

This study covers a large number of strains of S.aureus with various resistant mechanisms.

Title and source:	Evaluation of commercial chromogenic media for the detection of meticillin-resistant <i>Staphylococcus aureus</i>. Brennan. G.I.et al. J.Hosp Infection http://dx.doi.org/10.1016/j.jhin.2015.10.019
Objective of the article:	In the context of changing epidemiology - some MRSA strains with a low level of oxacillin resistance [Borderline Oxacillin-Resistant S.aureus] or are even oxacillin S and MecA positive strains-evaluate the following chromogenic media - Colorex MRSA, MRSA Select II, chromID MRSA, and MRSA Brilliance 2 - for the detection of diverse strain types.
Study design:	- a diverse collection of <i>S. aureus</i>, including strains harbouring the <i>mecC</i> gene, strains expressing varying levels of meticillin resistance, and isolates recovered from patient samples - Limits of detection with 100µL of ten-fold dilution series prepared from 1.5×10^8-10^0 colony-forming units - Evaluation of chromogenic media using a diverse collection of <i>S. aureus</i> isolates - 228 swabs recovered from the nose, throat, and groin of 76 inpatients at a 936-bed tertiary referral hospital in Dublin, Ireland.

Results:

- On strains:

Table II

Sensitivity and specificity of the four chromogenic media using the MRSA and MSSA isolates

Variable	MRSA Select II	ChromID	Colorex	Brilliance 2
Sensitivity	99%	100%	100%	98%
Specificity	73%	85%	85%	82%
- Limits of detection:

<i>mec</i> gene	Lowest bacterial density (cfu/mL) at which growth was recorded ^a			
	MRSA Select II	ChromID	Colorex	MRSA Brilliance 2
<i>mecA</i>	1.5×10^1	1.5×10^1	1.5×10^1	1.5×10^4
<i>mecA</i>	1.5×10^1	1.5×10^1	1.5×10^1	1.5×10^4
<i>mecA</i>	1.5×10^1	1.5×10^1	1.5×10^1	1.5×10^4
<i>mecC</i>	1.5×10^1	1.5×10^1	1.5×10^1	1.5×10^1
- On swabs: no false positives or false negatives were detected using any of the four chromogenic agars.

The quite low specificity observed for all chromogenic media is explained by the challenging set of strains (Borderline oxacillin-resistant S.aureus (BORSA)).

Discussion:	MRSA Select II and MRSA Brilliance 2 failed to detect a small number of MRSA isolates exhibiting susceptible oxacillin MICs. As <i>these strains can cause problems in the routine diagnostic laboratory, their successful recovery using the chromogenic media is essential.</i> Colorex media and ChromID detecting the full collection of MRSA isolates investigated
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Conclusion:	Although false positives may be obtained with some strains of MSSA and BORSA, the high sensitivity of these media and their ability to recover almost all MRSA tested (including oxacillin-susceptible and <i>mecC</i>-positive strains) confirm the value of chromogenic agar in MRSA detection and appropriate management of MRSA positive patients.
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