

STANTON TERRITORIAL HEALTH AUTHORITY

Yellowknife, Northwest Territories

TITLE: KOH StringTest	Revision Date:	Issue Date:
_	20-April-2018	20-April-2016
Document Number: MIC51100	Status: Approved	
Distribution: Microbiology Test Manual	Page: 1 of 4	
Approved by:	Signed by:	
S. Asmussen, Manager of Diagnostic Services	lands	Lucsen

PURPOSE:

A visible loopful of cells from a single, well-isolated colony is emulsified into a drop of 3% KOH. If the mixture becomes viscous and "strings" within 60 seconds of mixing (KOH-positive) then the colony is considered gram-negative. The reaction depends on the lysis of the gram-negative cell in the dilute alkali solution releasing cellular DNA to turn the suspension viscous. The formation of a string (DNA) in 3% KOH indicates that the isolate is a gram negative organism although it can be non-reactive while testing anaerobes.

REAGENTS and/or MEDIA:

• 40% KOH

SUPPLIES:

- 50mL conical tube
- Sterile blue loop
- Pipette
- Eppendorf

SPECIAL SAFETY PRECAUTIONS:

Containment Level 2 facilities, equipment, and operational practices for work involving infectious or potentially infectious materials or cultures.

Lab gown must be worn when performing activities with potential pathogens.

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- Gloves must be worn when direct skin contact with infected materials is unavoidable.
- Eye protection must be used where there is a known or potential risk of exposure to splashes.
- All procedures that may produce aerosols, or involve high concentrations or large volumes should be conducted in a biological safety cabinet (BSC).
- The use of needles, syringes, and other sharp objects should be strictly limited.

QUALITY CONTROL:

Performed each time the test is performed:

Positive control: P.aeruginosa ATCC2783
Negative control: S.aureus ATCC25923

A QC order is generated in the TQC system: Resulting Worklist → MICS → 3STR

PROCEDURE INSTRUCTIONS:

Step	Action
Prepa	ring the 3% KOH Solution
	Using the equation: C1V1=C2V2
	Calculate the amount of 40% KOH solution needed for a 3 mL solution with a final
	concentration of 3%
4	(40)X=(3)(3)
•	X=9/40
	X=0.225mLs of KOH needed
	Water needed: 3mLs-0.225mLs=2.8mLs
	Using an Eppendorf pipettor set to 225µL – pipette 40% KOH into a conical tube
2	Add 2.8 mL of sterile water and mix

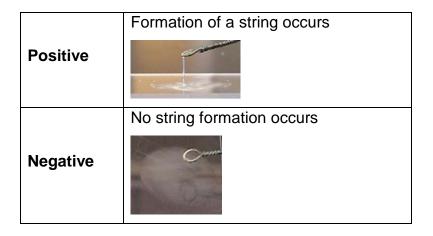
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PROCEDURE INSTRUCTIONS:

Step	Action
Perfo	rming the String Test
	Label 3 slides as follows:
1	1. TEST
•	2. POS Control
	3. NEG Control
2	Add 1 drop of 3% KOH to each slide
3	Emulsify a loopful of organism in the KOH
4	Stir for a maximum of 60 seconds and slowly lift the loop observing for string formation

EXPECTED RESULTS:



PRECAUTIONARY NOTES:

- False negatives can occur when using too light of an inoculums and/or testing anaerobes
- False positives can occur when testing mucoid organisms and using too heaving of an inoculum

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REFERENCES:

- Mount Sinai Microbiology Manual. (n.d.). Retrieved October 23, 2013, from http://microbiology.mtsinai.on.ca/manual/tech/tech22.pdf
- Scott Sutton, P. (n.d.). The Gram Stain. Retrieved October 23, 2013, from The Microbiology Network: http://www.microbiol.org/resources/monographswhite-papers/the-gram-stain/

REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	31Dec2013	Initial Release	A.Darrach
2.0	31Mar2016	Update of "Special Safety Precautions" to reflect risk assessment recommendations.	C. Russell
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