STANTON TERRITORIAL HEALTH AUTHORITY

Yellowknife, Northwest Territories

TITLE: **Serology – Salmonella Serology**	**Revision Date:** 20-April-2018	**Issue Date:** 20-April-2016
Document Number: MIC51915	**Status: Approved**	
Distribution: Microbiology Test Manual	**Page:** 1 of 5	
Approved by: S. Asmussen, Manager of Diagnostic Services	**Signed by:** 	

PURPOSE:

The genus *Salmonella* contains a wide variety of human pathogens. Identification requires culture isolation, biochemical characterizations and serological identifications. Serological identification involves mixing the suspected organism with antiserum containing specific *Salmonella* antibodies and observing for agglutination. Polyvalent “O /Vi” antisera are intended to aid in initial serogrouping. Factor Vi antisera is intended for further identification of *Salmonella typhi*

SAMPLE INFORMATION:

Type	24 hour old culture on Blood Agar; NLF, TSI: K/A, VITEK ID: *Salmonella sp*
Source	Any clinical sample

REAGENT INFORMATION:

Source	Pro-Lab Diagnostics REF: PL6000 and PL.6040
Stability	Stable until expiry date
Storage Requirements	2-8°C

SUPPLIES:

- Glass slides
- Sterile loop
- Magnifying lamp
- Normal saline

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.
- 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:

A QC order is generated in the TQC system:

- Resulting Worklist→MICS→POLYO

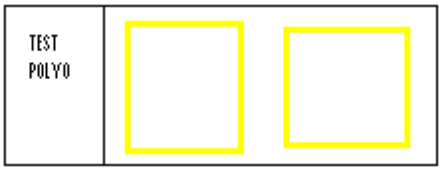
A saline control is run with every test, see following Procedure

A positive control is run with every **Poly O** test

- *Salmonella enterica* ATCC14028

PROCEDURE INSTRUCTIONS:

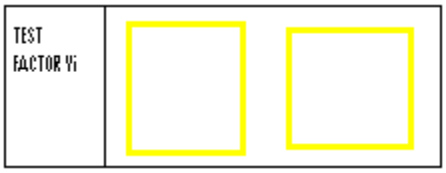
Step	Action
Performing the Poly O Test	
1	Performed on isolates previously identified biochemically and by VITEK as *Salmonella sp* Label the frosted end of a glass slide with: **TEST POLYO**

2	Using a wax pencil make two square boxes on the glass slide 
3	Add one drop of sterile saline to each square
4	Using a sterile loop, emulsify half of one suspect *Salmonella* colony from a 24hr culture into one drop of saline. Repeat for the other drop Mix to get a smooth suspension
5	Add one drop of the "Poly O and Vi" anti-serum to one box Add one drop of sterile saline to the other box to use as a control
6	Mix the antisera into the suspension with a sterile loop
7	Using the magnifying lens, gently rock the slide for one minute to observe for agglutination

IF	THEN
POLYO and Vi: Agglutination **SALINE CONTROL:** No Agglutination	• Test is **Positive**. • Probable *Salmonella sp.* • Proceed to Step 8 for FactorVi testing
POLYO and Vi: No Agglutination **SALINE CONTROL:** No Agglutination	• Test is **Negative**. • *Salmonella sp* NOT isolated
POLYO and Vi: Agglutination **SALINE CONTROL:** Agglutination	• Organism is auto-agglutinating. • Reaction is **not specific**. Test is **invalid**

PROCEDURE INSTRUCTIONS:

Step	Action
Performing the Vi Test	
1	Label the frosted end of a glass slide with: **TEST POLYVi**

2	Using a wax pencil make two square boxes on the glass slide 
3	Add one drop of sterile saline to each square
4	Using a sterile loop, emulsify half of one suspect *Salmonella* colony from a 24hr culture into one drop of saline. Repeat for the other drop Mix to get a smooth suspension
5	Add one drop of the Factor Vi anti-serum to one box Add one drop of sterile saline to the other box to use as a control
6	Mix the antisera into the suspension with a sterile loop
7	Using the magnifying lens, gently rock the slide for one minute to observe for agglutination

IF	THEN
Factor Vi: Agglutination **SALINE CONTROL:** No Agglutination	• Test is **Positive**. • Probable *Salmonella typhi* • Send to ProvLab Calgary for confirmation • See Procedure MIC52815 Microbiology Isolate Referrals
Factor Vi: No Agglutination **SALINE CONTROL:** No Agglutination	• Test is **Negative** for *Salmonella typhi* • Send to ProvLab Calgary for speciation • See Procedure MIC52815 Microbiology Isolate Referrals
Factor Vi: Agglutination **SALINE CONTROL:** Agglutination	• Organism is auto-agglutinating. • Reaction is **not specific**. Test is **invalid**. • Send to ProvLab Calgary for speciation • See Procedure MIC52815 Microbiology Isolate Referrals

LIMITATIONS OF PROCEDURE:

1. Use on cultures previously characterized biochemically as *Salmonella* ,as other organisms have similar antigens and can give false positives
2. Sensitivity of the slide may be reduced if volumes of greater than 10µL are used

REFERENCES:

- Pro-Lab Diagnostics. (2008, 06). Salmonella Antisera.

REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	31Dec2013	Initial Release	A.Darrach
2.0	31 Mar 2016	Update of “Special Safety Precautions” to reflect risk assessment recommendations.	C. Russell