



# SZABO SCANDIC

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# Instructions For Use

## SSK-IFU

205 South 600 West Logan, Utah 84323, U.S.A. – Tel. (800) 729-8350 – Tel. (435) 755-9848 – Fax (435) 755-0015 – www.scytek.com Rev. 4, 7/26/2022

## Steiner Stain Kit (For Spirochetes)

### Description and Principle

The Steiner Stain Kit (For Spirochetes) is designed for demonstrating Fungi, *Helicobacter Pylori*, *Legionella pneumophila*, and Spirochete infected tissue. Kit may be used on formalin fixed, paraffin-embedded tissue.

Bacteria are sensitized with Zinc Formalin making the organisms receptive to uptake silver from a silver nitrate solution. Silver is then chemically reduced to a visible metallic form with a reducing solution containing hydroquinone. Pretreatment with Oxidizer Solution improves homogenous staining of bacteria and reduces background silver staining.

### Expected Results

|                                 |                |
|---------------------------------|----------------|
| Spirochetes:                    | Black to Brown |
| <i>Helicobacter Pylori</i> :    | Black to Brown |
| Fungi:                          | Black to Brown |
| <i>Legionella pneumophila</i> : | Black to Brown |
| Background:                     | Yellow to Tan  |

### Kit Contents

| Kit Contents                      | Storage |
|-----------------------------------|---------|
| 1. Oxidizer Solution              | 18-25°C |
| 2. Zinc Formalin Solution         | 18-25°C |
| 3. Gum Mastic Solution            | 2-8°C   |
| 4. Hydroquinone                   | 18-25°C |
| 5. Silver Nitrate Solution (0.2%) | 2-8°C   |
| 6. Silver Nitrate Solution (1%)   | 2-8°C   |

### Suggested Controls (not provided)

*Helicobacter Pylori* infected stomach.

### Uses/Limitations

For In-Vitro Diagnostic use only.

Do not use if reagents become cloudy or precipitate

Do not use past expiration date.

Use caution when handling reagents.

Non-Sterile

Intended for FFPE sections cut at 5-10µm.

This procedure has not been optimized for frozen sections.

Frozen sections may require protocol modification.

### Storage

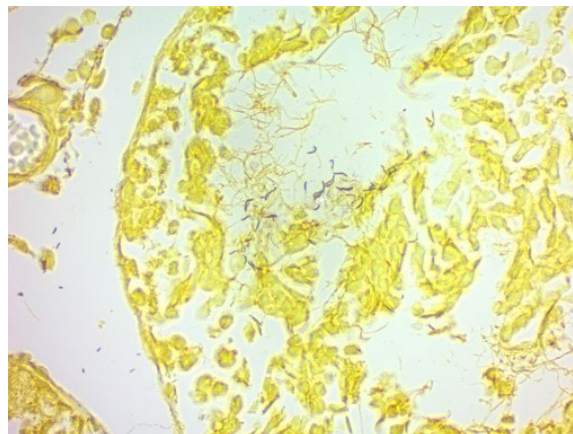
Mixed storage conditions. Store according to individual label instructions.

### Safety and Precautions

Please see current Safety Data Sheets (SDS) for this product and components GHS classification, pictograms, and full hazard/precautionary statements.

### Important Notes:

- All glassware/containers used in this procedure should be chemically cleaned (bleach or acid) and rinsed thoroughly in distilled water.
- Do not use metal forceps to remove slides from reagents. Use plastic forceps only.
- Equilibrate all reagents to room temperature prior to use.



*Treponema Palidum* spirochetes in Rabbit testes stained with the Steiner Stain Kit (For Spirochetes)

### Procedure:

#### Prepare Reducing Solution at Step #10 of this Procedure:

Combine:

25ml 1% Hydroquinone (0.25gm Hydroquinone in 25ml Distilled Water)  
15ml Gum Mastic Solution (2.5%)

Mix thoroughly and filter through medium filter paper.

Then Add: 6 Drops (240µl) Silver Nitrate Solution (1%). Mix thoroughly.

- Preheat Water Bath to 70° Centigrade.
- Deparaffinize sections if necessary and hydrate to distilled water.
- Incubate slide in Oxidizer Solution for 20 minutes.
- Rinse thoroughly in distilled water.

**Note:** Place 20 ml of Silver Nitrate Solution (0.2%) in water bath to preheat.

- Incubate slide in Zinc Formalin Solution for 5 minutes.
- Rinse thoroughly in distilled water.
- Incubate slide in preheated Silver Nitrate Solution (0.2%) for 5 minutes at 70° Centigrade. (Note: Discard solution after this step)
- Rinse slide thoroughly in distilled water.
- Dehydrate slide in 2 changes of Absolute Alcohol.

**Note:** Prepare Reducing Solution (above) and place in water bath to preheat.

- Incubate slide in Gum Mastic Solution for 3 minutes.
- Air dry slide for 1 minute or until gum mastic is completely dry.
- Incubate slide in preheated Reducing Solution for 10-15 minutes or until section is tan to brown at 70° Centigrade. (Note: Discard solution after this step)

13. Rinse slide quickly in distilled water.
14. Dehydrate quickly in 3 changes of absolute alcohol.
15. Clear, and mount in synthetic resin.

### **References**

1. Carson, F.L., (2009), Histotechnology; A Self-Instructional Text, 3rd Edition. ASCP Press, Chicago, IL. Pages 249-250
2. Margeson, L.S., & Chapman, C.M., (1996) Use of Zinc Formalin as a Sensitizer in Silver Stains for Spirochetes, Journal of Histotechnology, 19:2, 135-138, DOI: 10.1179/his.1996.19.2.135
3. Swisher, B.L., (1987) Modified Steiner Procedure for Microwave Staining of Spirochetes and Nonfilamentous Bacteria, Journal of Histotechnology, 10:4, 241-243, DOI: 10.1179/his.1987.10.4.241



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