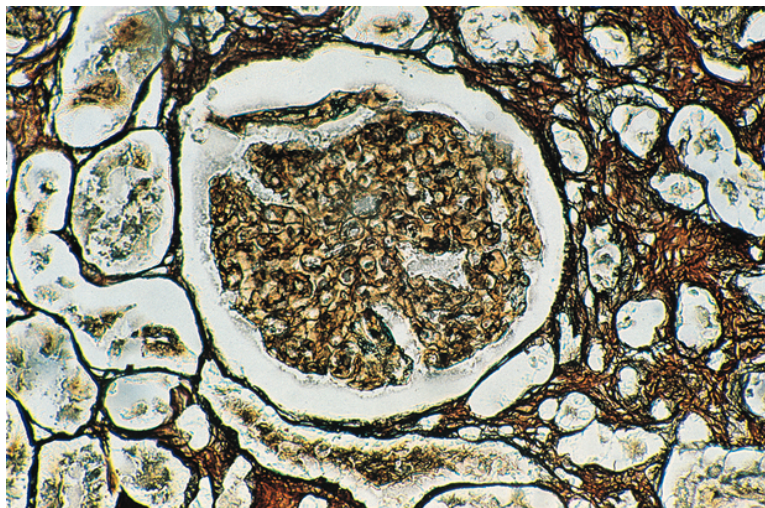


SILVER IMPREGNATION



Kidney

CODE	DESCRIPTION	TESTS NUMBER
04-040801	Silver impregnation	100 test



In Vitro Diagnostic – medical device



Manufacturer: Bio-Optica Milano S.p.A.

Date of issue: 10/07/2018
Rev. 02

Product for the preparation of cyto-histological samples for optical microscopy.

Recommended method to show argyrophilic reticular fibres in connective tissue, especially to differentiate collagen fibres from connective tissue.

PRINCIPLE

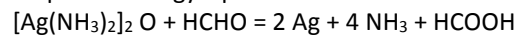
This method produces a selective evident impregnation in a very short time thanks to two factors: the preliminary impregnation with an iron salt and the use as silver source of an unstable diaminic complex (ammoniacal solution), which is more reactive than silver nitrate.

a) Pre-treatment with trivalent iron.

After a preparatory oxidation with potassium permanganate, the section is treated with trivalent iron (ferric ammonium sulphate). Iron ions, more reactive than silver ions, quickly bind affine functional groups in argyrophilic structures.

b) Treatment with ammoniacal solution.

Silver is present in ammoniacal solution in the form of complex hydrosoluble oxide - $[Ag(NH_3)_2]_2O$. This complex silver cation replaces iron previously bound to tissues. In the next step, formic aldehyde acts as reducing agent: it removes oxygen from the complex and releases metallic silver that deposits on argyrophilic structures.



Unreduced silverdiamine cation is then removed by sodium thiosulfate ($Na_2S_2O_3$). Both form a complex which is highly soluble but cannot be oxidized any more.

WARNING

For good results, follow these rules:

- Always use excellent and chlorine-free distilled or deionized water.
- Use only perfectly clean glassware.
- Avoid deposit of dust on sections. Never touch solutions with metallic objects (tweezers etc).

METHOD

- 1) Bring the section to distilled water.
- 2) Put on the section 5 drops of reagent A and 5 drops of reagent B: leave to act 5 minutes.
- 3) Wash the slide in distilled water.
- 4) Put on the section 10 drops of reagent C: leave to act 3 minutes.
- 5) Double washing in distilled water.
- 6) Put on the section 10 drops of reagent D: leave to act 3 minutes.
- 7) Double washing in distilled water.
- 8) Put on the section 10 drops of reagent E: leave to act 3 minutes.
- 9) Wash in distilled water.
- 10) Put on the section 10 drops of reagent F: leave to act 5 minutes.
- 11) Double washing in distilled water.
- 12) Put on the section 10 drops of reagent G: leave to act 5 minutes.
- 13) Wash in tap water 5 minutes.
- 14) Dehydrate through ascending alcohols: clear in xylene and mount.

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Technical details

Method specifications	Procedure time	35 minutes		
	Complementary equipment	Not requested		
	Results	Reticular and nervous fibres:	Black	
		Connective tissue	Brown	
Collagen:		Gold-yellow		
Components	A) Potassium permanganate solution	18 ml		
	B) Acid activation buffer	18 ml		
	C) Oxalic acid solution	30 ml		
	D) Ferric ammonium sulphate solution	30 ml		
	E) Ammoniacal silver solution	30 ml		
	F) Neutral formalin solution	30 ml		
	G) Sodium hyposulphite fixing solution	30 ml		
Storage	Storage	Store the preparation at 2-8°C. Keep the containers tightly closed		
	Storage temperature	2-8°C		
	Stability	After the first opening, the product is usable until the expiry date, if correctly stored.		
	Validity	1 year		
Warning	Product classification	<p>The product must be used exclusively by specialized technical operators. The product is classified as hazardous.</p> <p>Read with attention the information written on the label (dangerous symbols, risks and safety phrases). Consult always the safety data sheet where the information about the risks of the preparation, precautionary measures during use, first aid and disposal are available.</p> <p>Do not use if primary packaging is damaged.</p>		
	Disposal	Hazardous preparation: observe all state and local environmental regulations regarding waste disposal.		

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