

## DNA Analyst Training Laboratory Training Manual

Protocol 2.04  
Semen Stain Identification:  
Acid Phosphatase Mapping (Indication)



This laboratory protocol (or part thereof) has been provided as an example of a laboratory SOP, courtesy of the Illinois State Police. It has been included for training and example purposes only.

PRESIDENT'S  
**DNA**  
INITIATIVE



## INTRODUCTION

This test allows the analyst to chemically detect and locate semen stains on garments.

## SAFETY CONSIDERATIONS

Mapping

Masks, gloves, and protective covering should be worn when spraying reagents.

Sodium *a*-naphthyl phosphate: Caution! Irritant!

Naphthanil diazo blue B: Caution! Irritant!

Glacial Acetic Acid: Danger! Corrosive!

Caution! Moderately Toxic!

Caution! Combustible!

## PREPARATIONS

Whatman 1 filter paper

Acid Phosphatase reagents-(Solutions A and B)

plastic sheeting

flat board or sheet of glass for pressing

DH<sub>2</sub>O in spray bottle

### Solution A: (Substrate)

100 ml	DH <sub>2</sub> O
2 g	sodium acetate anhydrous (.24m)
1 ml	glacial acetic acid

Mix above chemicals completely then add: 0.25 g sodium alpha-naphthyl phosphate, 0.25% w/v. Mix completely.

### Solution B: (Dye)

100 ml	DH <sub>2</sub> O
2 g	sodium acetate anhydrous (.24m)
1 ml	glacial acetic acid

Mix above chemicals completely then add: 0.5 g. Naphthanil diazo blue B dye, 0.5% (w/v).

Mix completely. Filter.

Store solution A and solution B in refrigerator. Reagents can then be used for AP mapping. If solutions are kept in spray bottles, cover Solution B bottle to prevent exposure to light.

## **INSTRUMENTATION**

No Instruments Required.

## **MINIMUM STANDARDS & CONTROLS**

A semen stain should be tested and processed at the same time as the questioned garment.

## **PROCEDURE OR ANALYSIS**

Lay out garment to be mapped. Staple the appropriate size of filter paper to a piece of plastic sheeting. Spray the paper with water until damp. Lay flat onto item under examination, marking the position. Plastic sheeting should be on top. Lay a flat board or sheet of glass on top of sheeting. Press for ten minutes (fifteen minutes if blood is mixed with semen). A semen standard should be pressed beside item also.

After pressing, remove board, hang paper still attached to plastic sheeting in a fume hood. Spray the paper with Solution A getting an even covering. Spray with Solution B covering the entire paper. Let set and develop for ten minutes. Positive stained areas appear purple. Semen standard should react within one minute. Positive stains should appear by three minutes. Weaker stains may take longer to appear. Paper may not be overlaid on item and stained areas outlined and marked.

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