



Introduction to **SPERM HY-LITER™** for Forensic DNA Laboratories

Monoclonal Antibody-Based
Fluorescent Detection of Human Sperm
from Sexual Assault Evidence

SPERM HY-LITER™



Forensic DNA laboratory

Accreditations: ISO 17025, NY-DOH, AABB, CLIA

Specialize in LCN / Trace Protocols
Profiles from < 0.1 ng

Products for Forensic Laboratories

Contract R & D

Laboratory personnel: MS and Ph.D. scientists

5,600 sq ft of combined laboratory and office space

Suburban Chicago – 18 minutes from O’Hare
– 30 minutes from The Loop



R & D contract from Federal Law Enforcement Agency

Lateral Flow Immunochromatographic Strip Tests

RSID™-SEMEN

RSID™-SALIVA

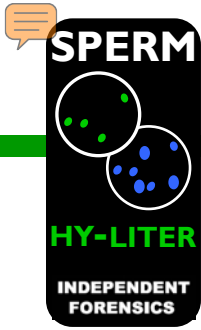
RSID™-BLOOD

Fluorescent Detection of Sperm from Sexual Assault evidence

SPERM HY-LITER™

SPERM TELLIGENCE™





SPERM HY-LITER™

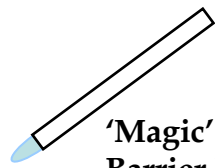
Test Format:	Microscopic Screening Method for Sperm
Antigen Detected:	Human Sperm Heads
Antibodies:	Mouse monoclonal
Labeling:	Sperm: Alexa 488 / Nuclei: DAPI
Sensitivity:	Single Human Sperm Head
Cross-reaction:	None detected - <i>Homo sapiens</i> specific
Test Read-out:	Visual
Preparation Time:	100 minutes - 10 minutes 'hands-on'



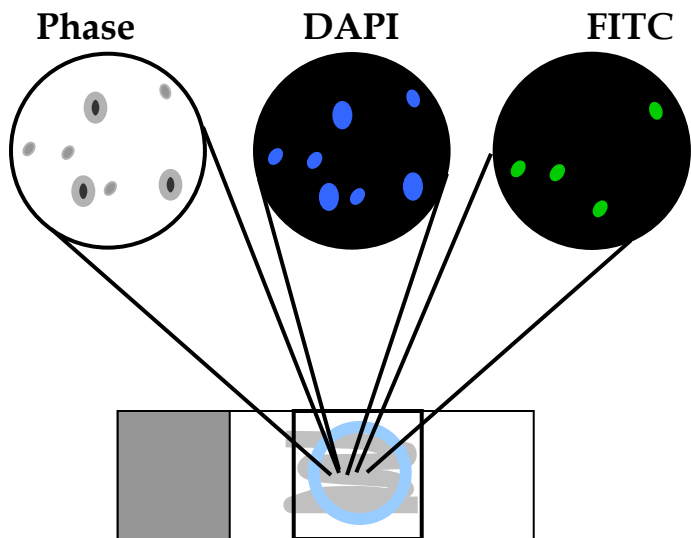
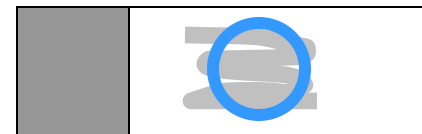


SPERM HY-LITER™

Sexual Assault
Smear Slide



'Magic' Hydrophobic
Barrier Ring Marker

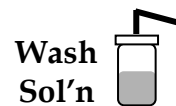


Stained, Mounted
Cover Slipped Slide

Step 1:



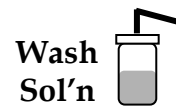
Fix
Permeabilize
10 min



Step 2:



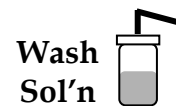
Sample
Preparation
30 min



Step 3:



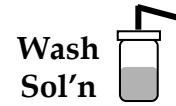
Blocking
Solution
30 min



Step 4:



Sperm
Staining
30 min

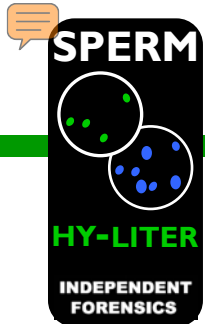


Step 5:



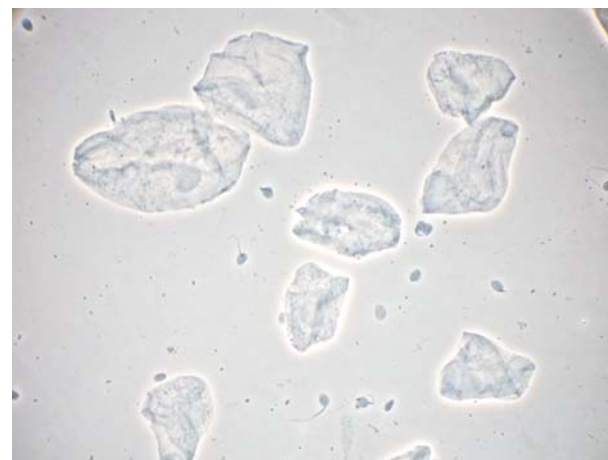
Mounting
Media
1 min





SPERM HY-LITER™

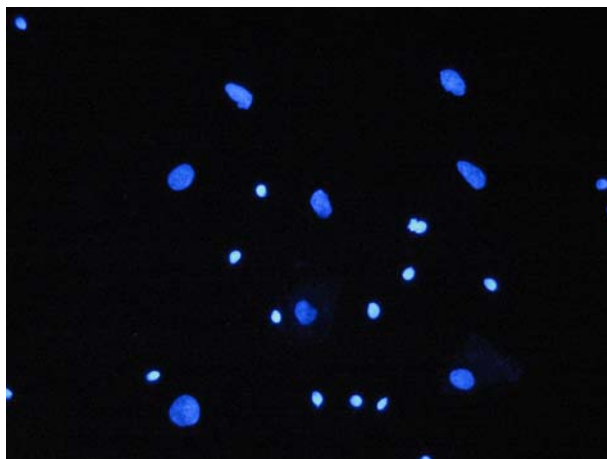
Phase Contrast



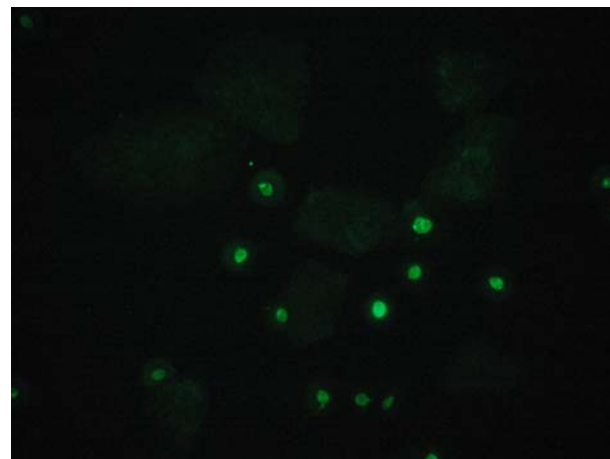
SPERM HY-LITER™ staining

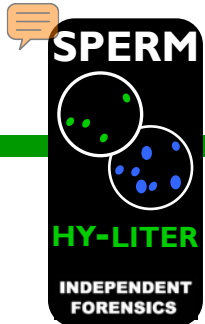
Cell Type Specificity
Buccal Extract, Smear slide
with Sperm

DAPI Filter



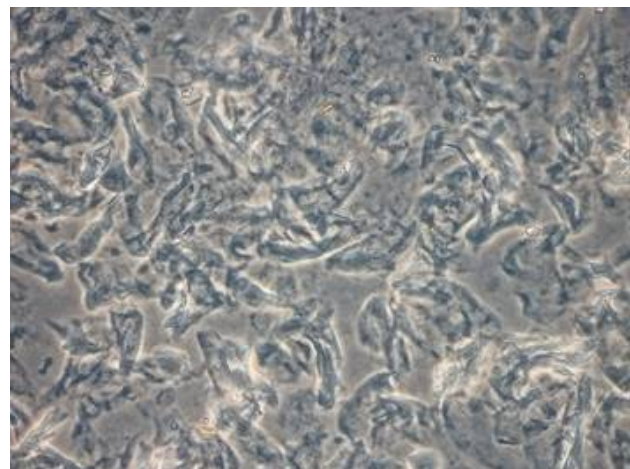
FITC Filter





SPERM HY-LITER™

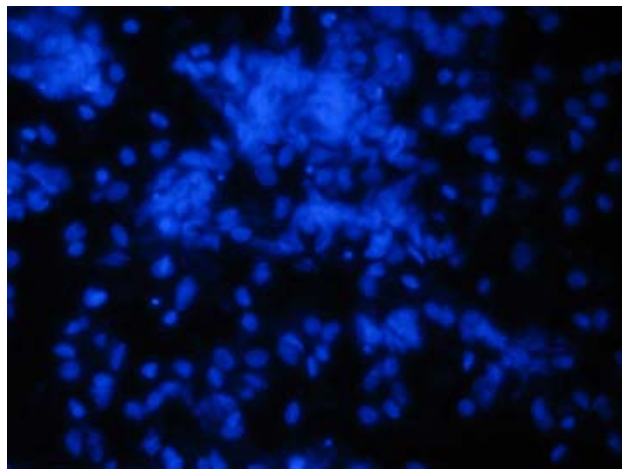
Phase Contrast View



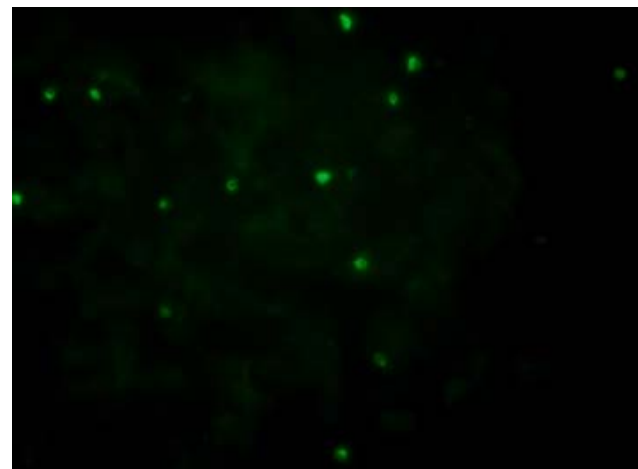
SPERM HY-LITER™ staining

Cell Type Specificity
Post-Coital Sample, Smear slide
with Sperm

DAPI Filter



FITC Filter

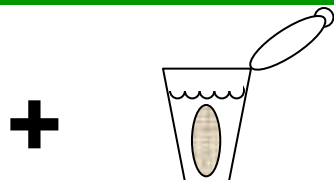




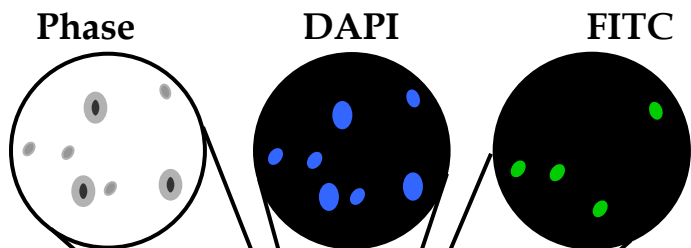
SPERM HY-LITER™



Two Position Masked Slide



Extract from Sexual Assault Evidence

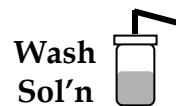


Stained, Mounted Cover Slipped Slide

Step 1:



Fix
Permeabilize
10 min



Step 2:



Sample
Preparation
30 min



Step 3:



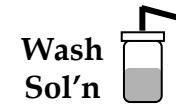
Blocking
Solution
30 min



Step 4:



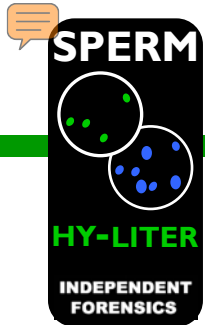
Sperm
Staining
30 min



Step 5:

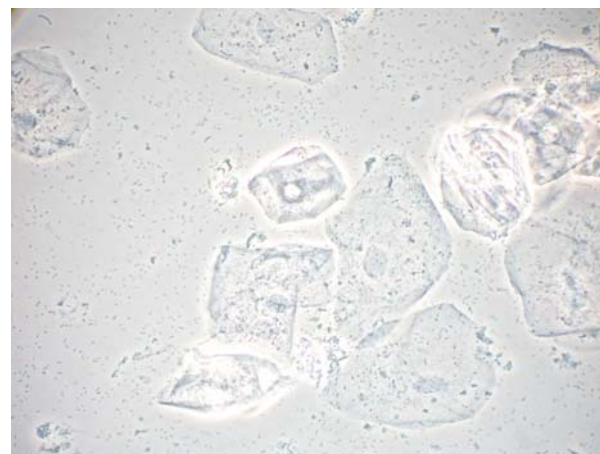


Mounting
Media
1 min



SPERM HY-LITER PLUS™

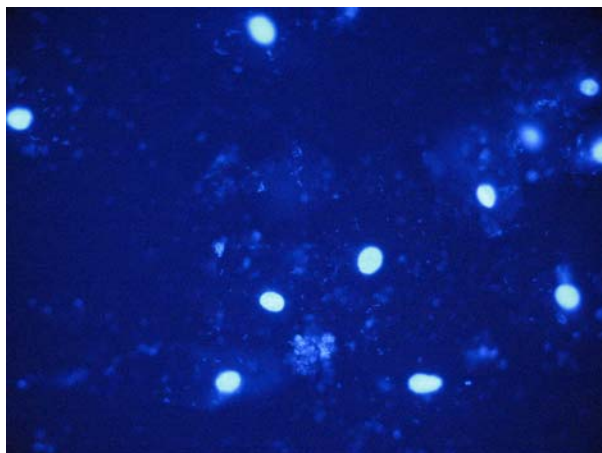
Phase Contrast



SPERM HY-LITER PLUS™ staining

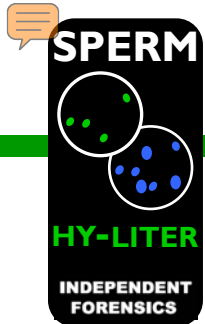
Cell Type Specificity
Buccal, Urine & Blood extracts
without Sperm

DAPI Filter



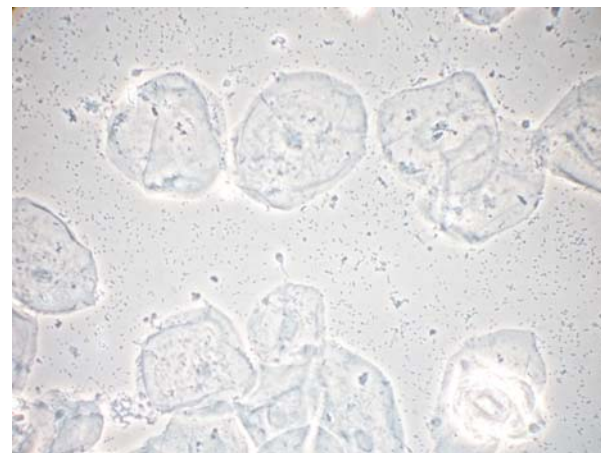
FITC Filter





SPERM HY-LITER™

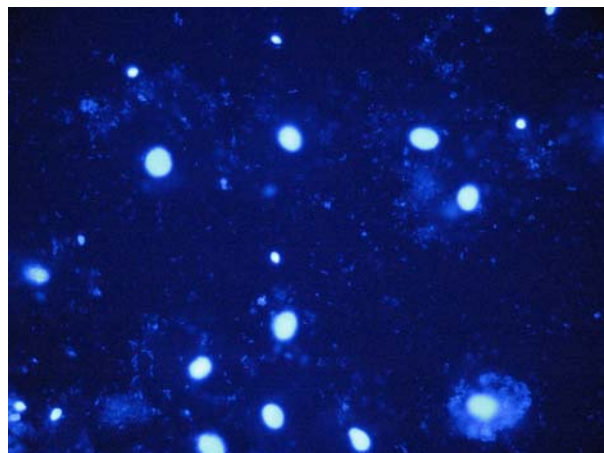
Phase Contrast



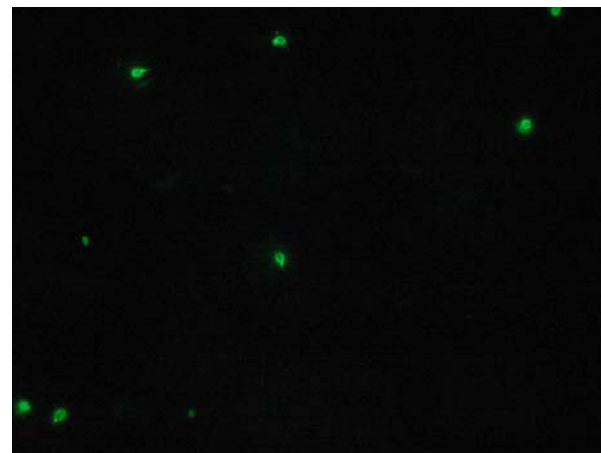
SPERM HY-LITER™ staining

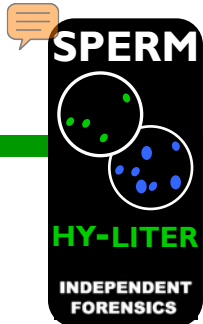
Cell Type Specificity
Buccal, Urine & Blood extracts
with Sperm

DAPI Filter



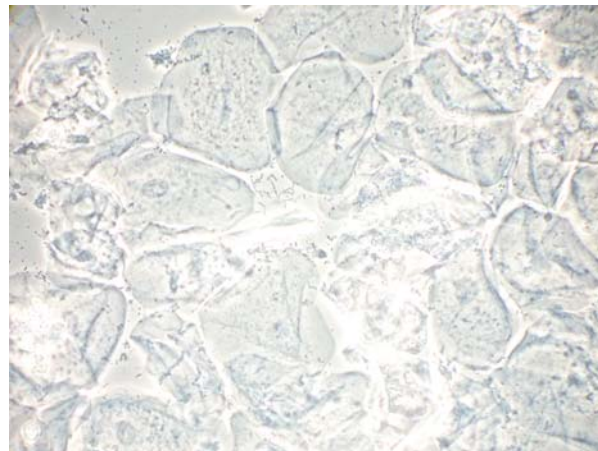
FITC Filter





SPERM HY-LITER™

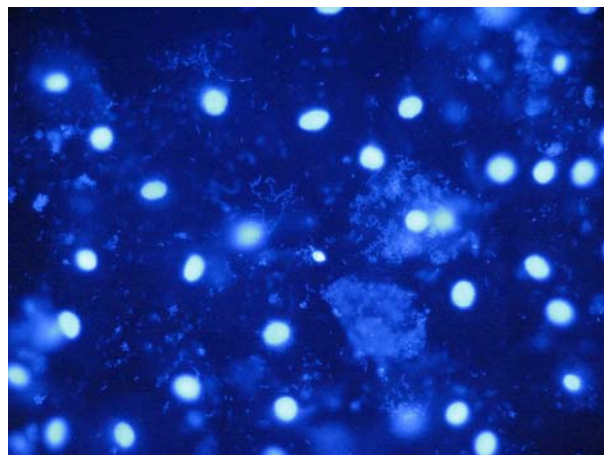
Phase Contrast



SPERM HY-LITER™ staining

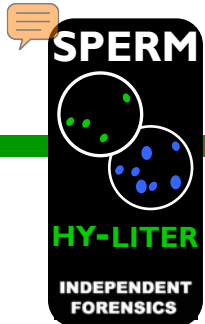
Sensitivity & Specificity
Buccal, Urine & Blood Extracts
Down to a Single Sperm

DAPI Filter



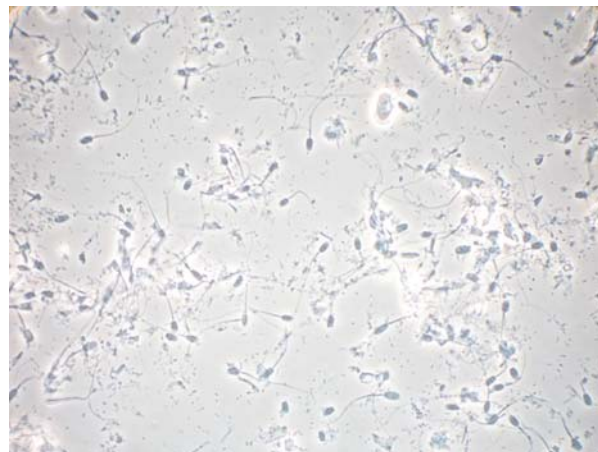
FITC Filter





SPERM HY-LITER PLUS™

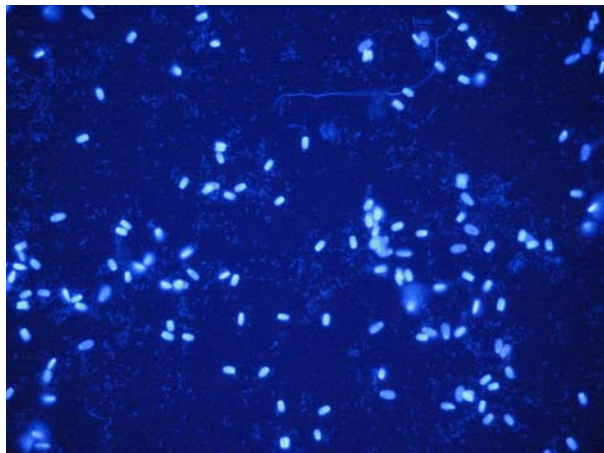
Phase Contrast



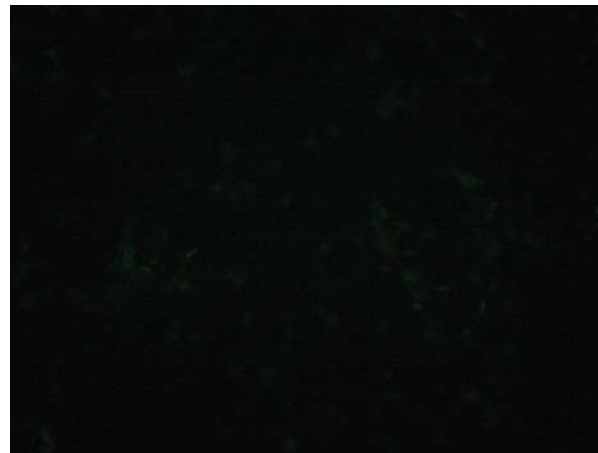
SPERM HY-LITER™ staining

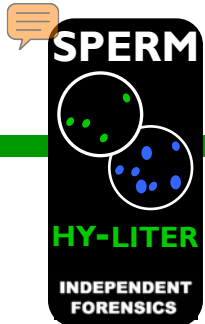
Species Specificity
Animal Semen (various)
without Human Semen

DAPI Filter



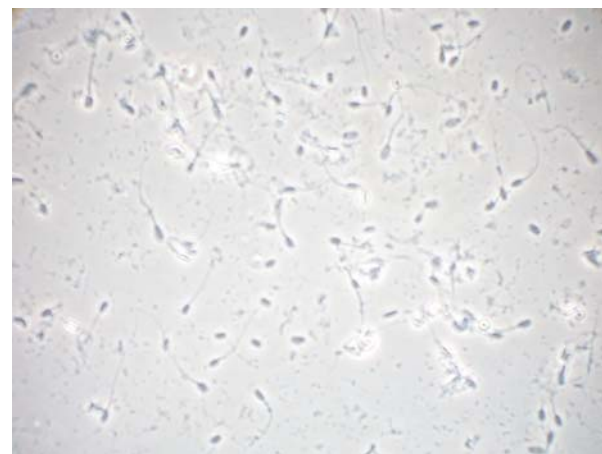
FITC Filter





SPERM HY-LITER™

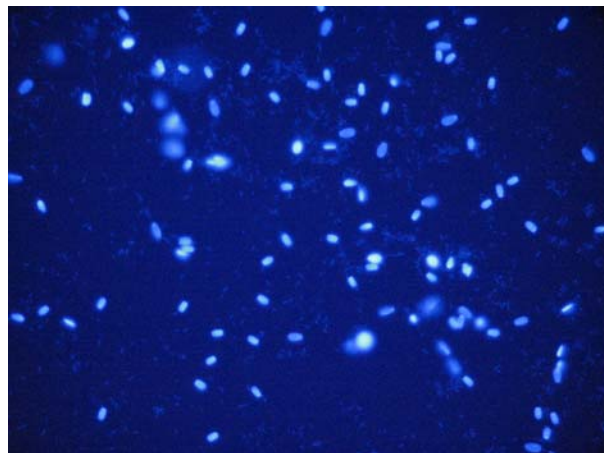
Phase Contrast



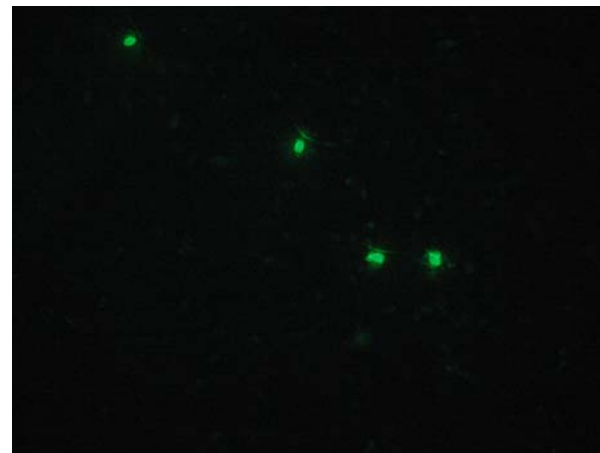
SPERM HY-LITER™ staining

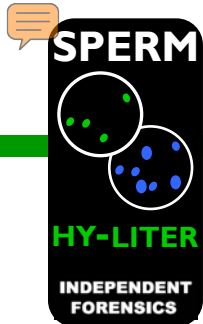
Species Specificity
Animal Semen (various)
with Human Semen

DAPI Filter



FITC Filter





First *Positive* Identification for Human Sperm

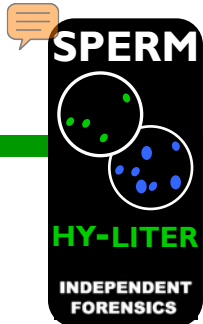
First *Specific* Identification for Human Sperm

Sensitivity down to a single sperm

Fully Compatible with Automated Methods

Scan slides at lower magnification: 100X or 200X





Ideal for *both* smear and extract slides

Does not obscure or destroy morphology, if present

Does not interfere with DNA extraction, PCR
or DNA-STR analysis

Forty-one (41) installs, thirteen validations (13) and
four (4) released for case work (as of 3/2010)
and counting!





Acknowledgements:

SPERM HY-LITER™

Jennifer Old, Ph.D.

Brett Schweers, Ph.D.

P.W. Boonlayangoor, Ph.D.

Chicago

Liz Graffy, MS

Marisa Farhner, M.S



Test For	Current	Issue/Problem
Semen	p30/PSA	specificity / sensitivity
Blood	hemoglobin	specificity
Saliva	amylase activity	specificity
Sperm	KPIC / morphology	specificity / sensitivity

Test For	New	Issue/Problem
Semen	RSID-SEMEN™ semenogelin	Solved
Blood	RSID-BLOOD™ glycophorin A	Solved
Saliva	RSID-SALIVA™ α-amylase	Better
Sperm	SPERM HY-LITER™ sperm head	Solved





Questions

Comments

Samples

Gripes

Karl Reich

Tel 708.234.1200

Fax 708.978.5115

karl@IFI-test.com

www.IFI-test.com