

# STK

# Sperm Tracker

**A TOTAL RAPE CASE SCREENING**

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www.sperm-tracker.com

## AXO Science

### Based in Lyon, France

- Spin-off from University laboratory that invented Bluestar®
- Founded in 2010
- Highest quality standards (ISO 9001, ISO 13485, ISO 18385)
- Made in France
- Most recent equipment in its bioanalytical lab
- Focus on innovation: forensic solutions & In-Vitro diagnostic

### Forensic

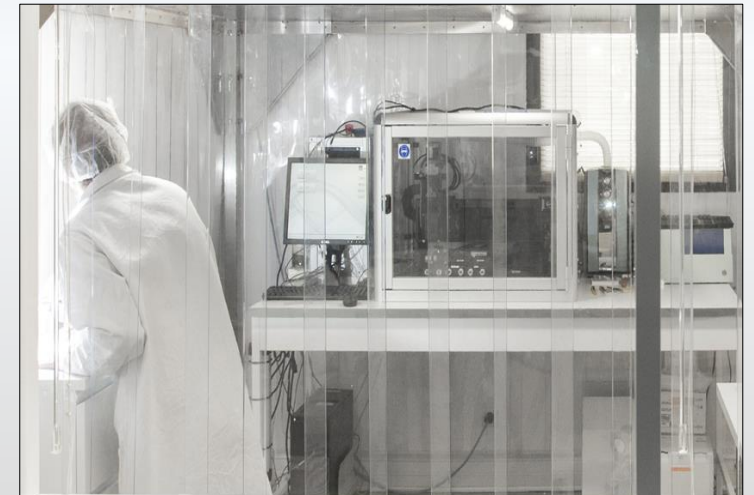
- Semen traces detection

### IVD

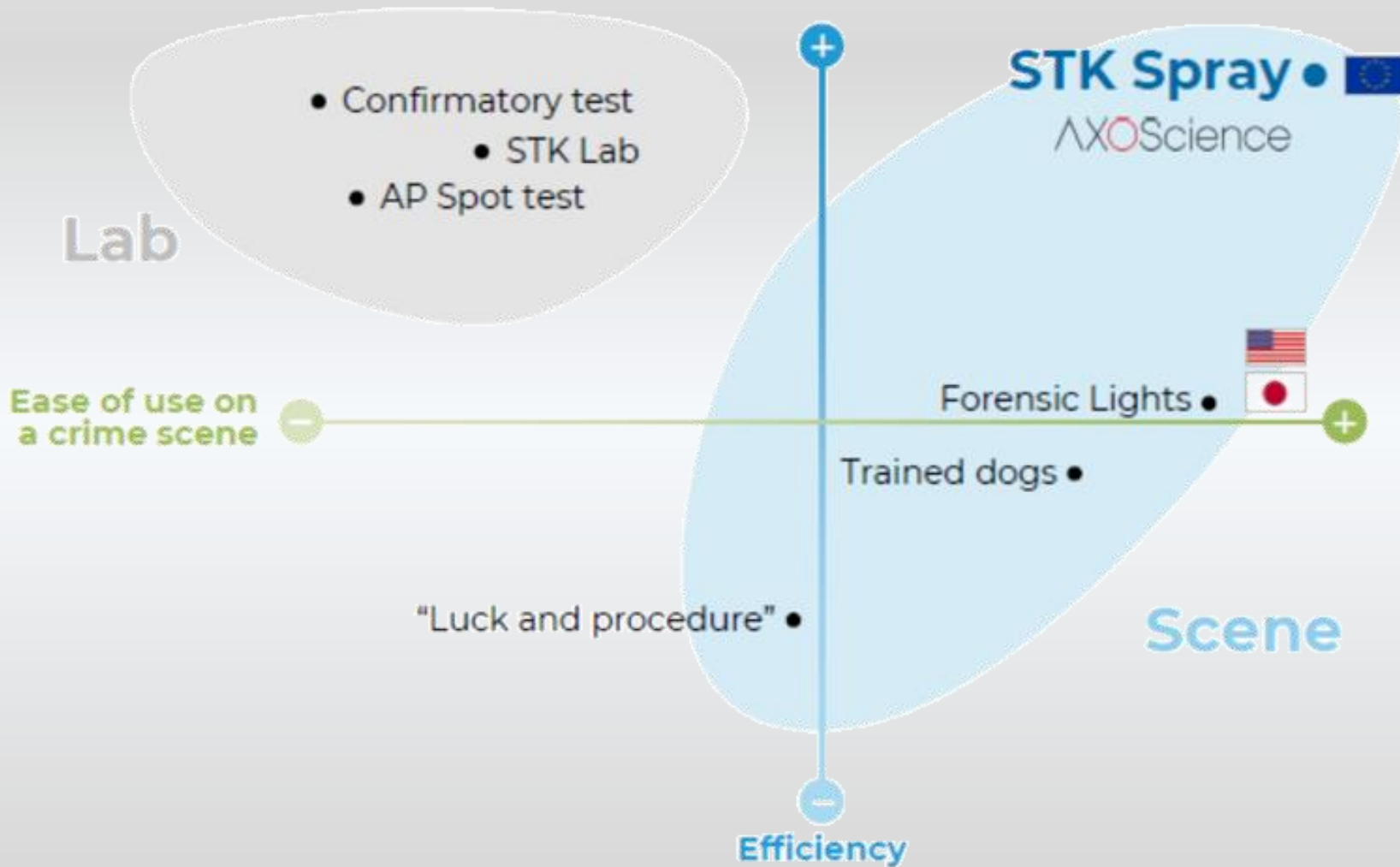
- Rare blood groups genotyping (CE-IVD)
- Cancer diagnosis
- Virus and pathogens diagnosis

### Research projects

- H20202, EIC, FUI, ANR...



## — Semen screening solutions overview



— *Sperm traces localization issues*

## Alternate Light Sources



Source: SNPS/LPS 69, blind test

STK Lab

**Non specific → lots of false positives**

- detergent, bleach, other body fluids, food...

**Non sensitive → false negatives**

- 30 to 40% sperm stains are missed in a lab, on a rape scene around 90% are missed by ALS!
- depending on the color or the material

## Acid Phosphatase “Classic” test

### Time consuming

- Lots of manual steps in the protocol
- Need to draw on the paper to find back the sample
- Specific equipment for toxic reagent handling
- Difficult process to analyse large evidences (ex: bedsheets)

### Error risk

- re-position the test on the evidence to find the sample

### Homemade solution

- Validation issue

### TOXIC! Carcinogenic reagents

- Fast blue B salt



**STK**   
Sperm Tracker  
**LAB**

**STK**   
Sperm Tracker  
**SPRAY**

**STK**   
Sperm Tracker  
**SKIN**

Forensic Grade

Forensic Grade

Forensic Grade



**ISO 18385**  
Forensic Grade

**STK**   
Sperm Tracker  
**LAB**

**— STK Lab, for clothes and any textile evidence**



## STK Lab



### Many advantages

- **Sensitive:** detectable even diluted or mixed
- **Specific:** only sperm will shine
- **Non Toxic**
- **Ready and easy to use:** 4 steps protocol
- **Several format:** possibility to screen small and large pieces of clothes (paper roll & A3 sheets)
- **Shelf life:** 12 months
- **Certified:** ISO 18385

Reagents are compatible with any extraction technic and DNA analysis

## STK Lab: 4 steps protocol



1

Using a sprayer, **wet absorbing side** of a piece of STK Lab with demineralized water



2

**Cover** area to be tested with wet absorbing side against the item. Sandwich the item to analyse both sides



3

**Press** for 3 minutes



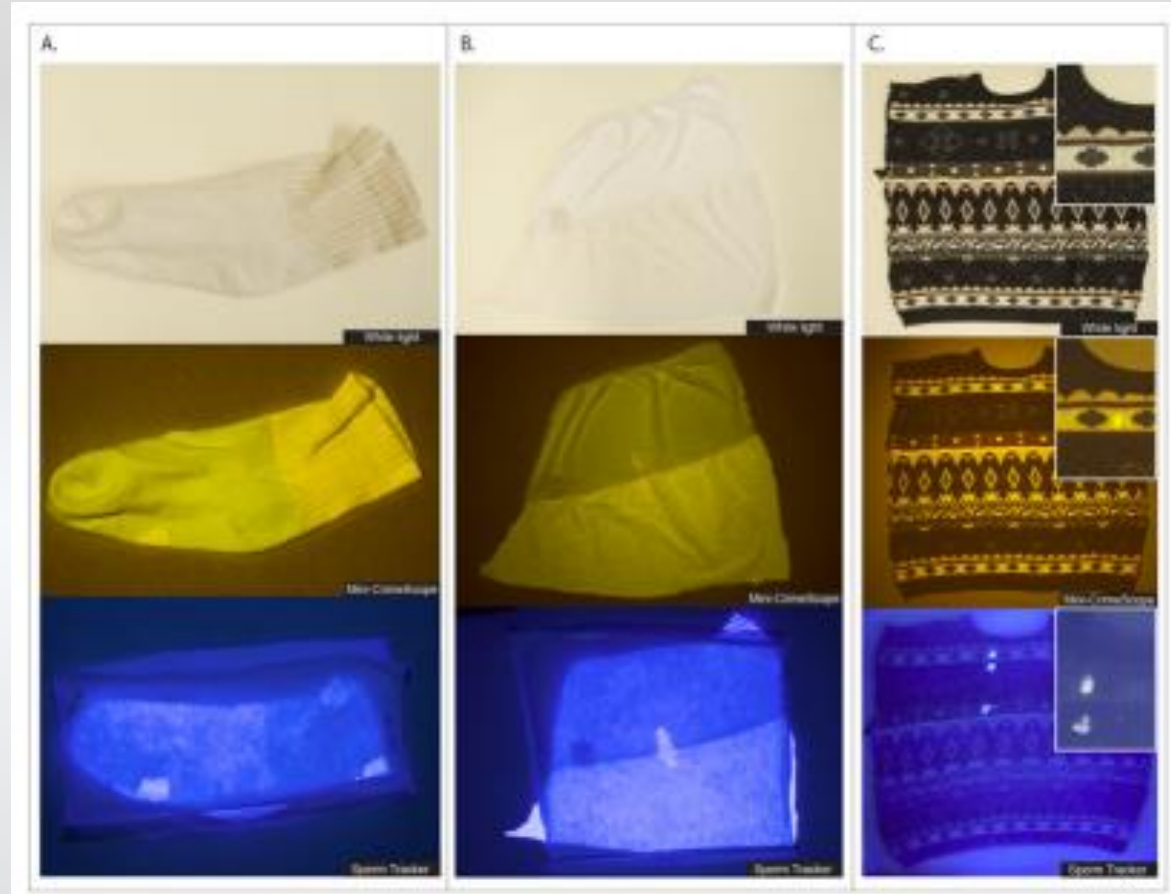
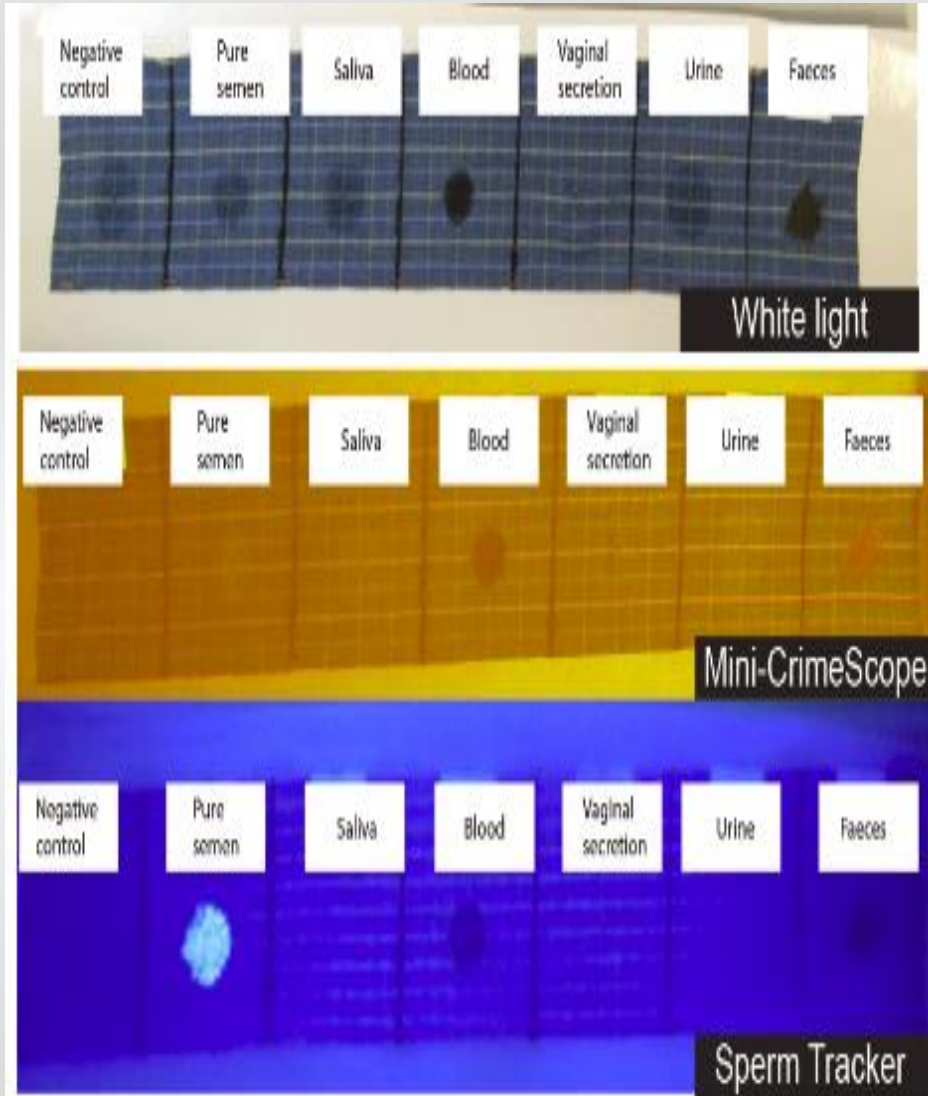
4

**Read results** with a 365nm UV light with visible light filter: only semen stains will glow in a blue color



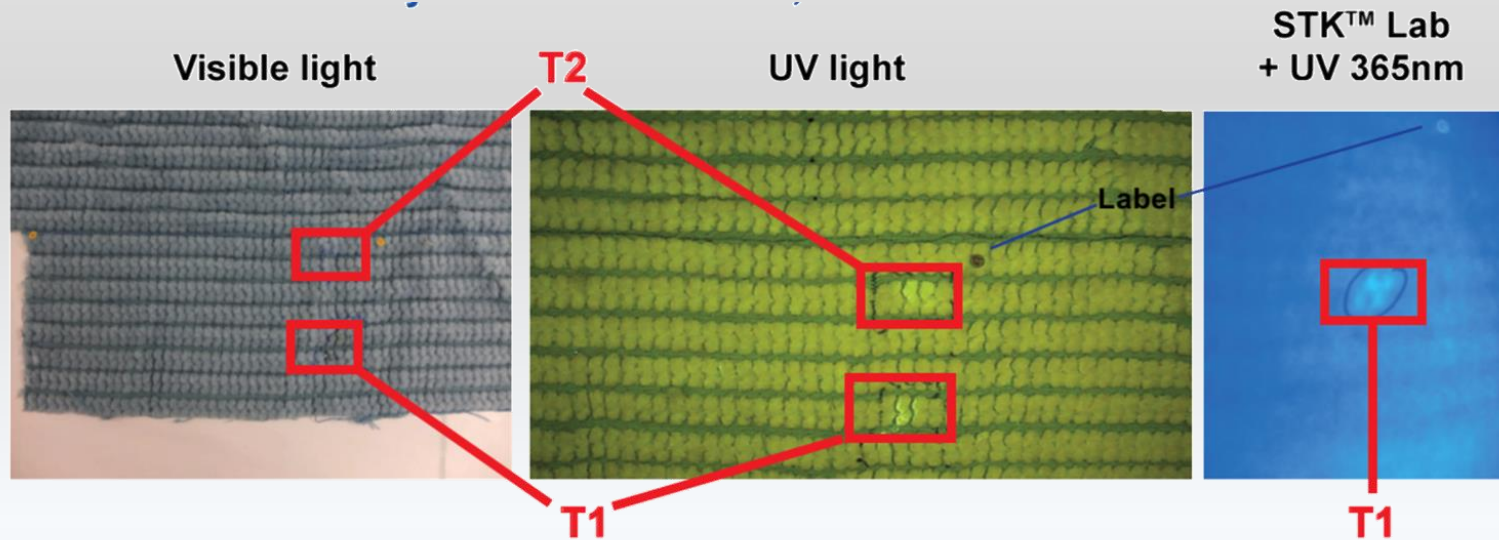
## *Performances*

## STK Lab specificity



*Source: SNSP/LPS 69, Specificity UV light CrimeScope & STK Sperm Tracker*

## IRCGN Poster: a 25 years old cold case



► Positive revelation with **STK™ Lab on a 25 years old case**: confirmed with spermatozoid observation and **human male genetic profile** determination. T1 shows a clear specific signal

### Conclusion

STK™ Lab is an innovative strategy to detect specifically sperm traces on swab and fabrics in real sexual assault cases. By targeting the human Acid Phosphatase, STK improves the performance by reducing the false positive number, and by avoiding missing stains compare to regular lamps examination.

STK™ Lab can be used in cold case (> 25 years).

**ISO 18385**  
Forensic Grade

**STK**   
Sperm Tracker  
**SPRAY**



 **STK Spray, for the rape scene**

## STK Spray

- Can be used indoor & outdoor (door handle, floors, walls, bathrooms, grass, trees...)
- Sensitive and specific: no false positive & no false negative
- Save time & money
- 1 pouch ~10m<sup>2</sup>
- Ready to use and easy protocol
- Compatible with extraction and DNA analysis
- Non toxic reagents (non-carcinogenic)

**STK Spray** allows a full rape case screening and to multiply chances to find **rapist's DNA**



## STK Spray protocol



1

**Dilute 1 pouch of STK Spray**  
in 100 ml (~3 US fl oz)  
of demineralized water



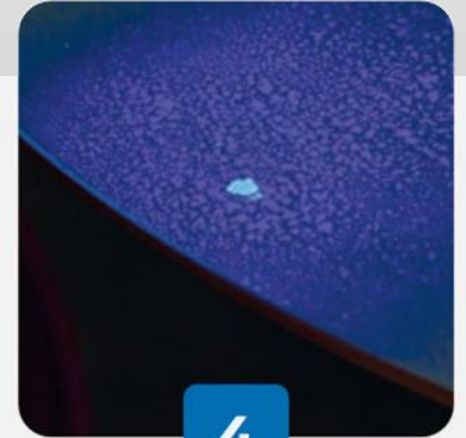
2

**Shake lightly,**  
wait 30 seconds.  
Solution is ready-to-use



3

**Spray the scene**  
at a distance of ~20 cm  
(~8 inches)



4

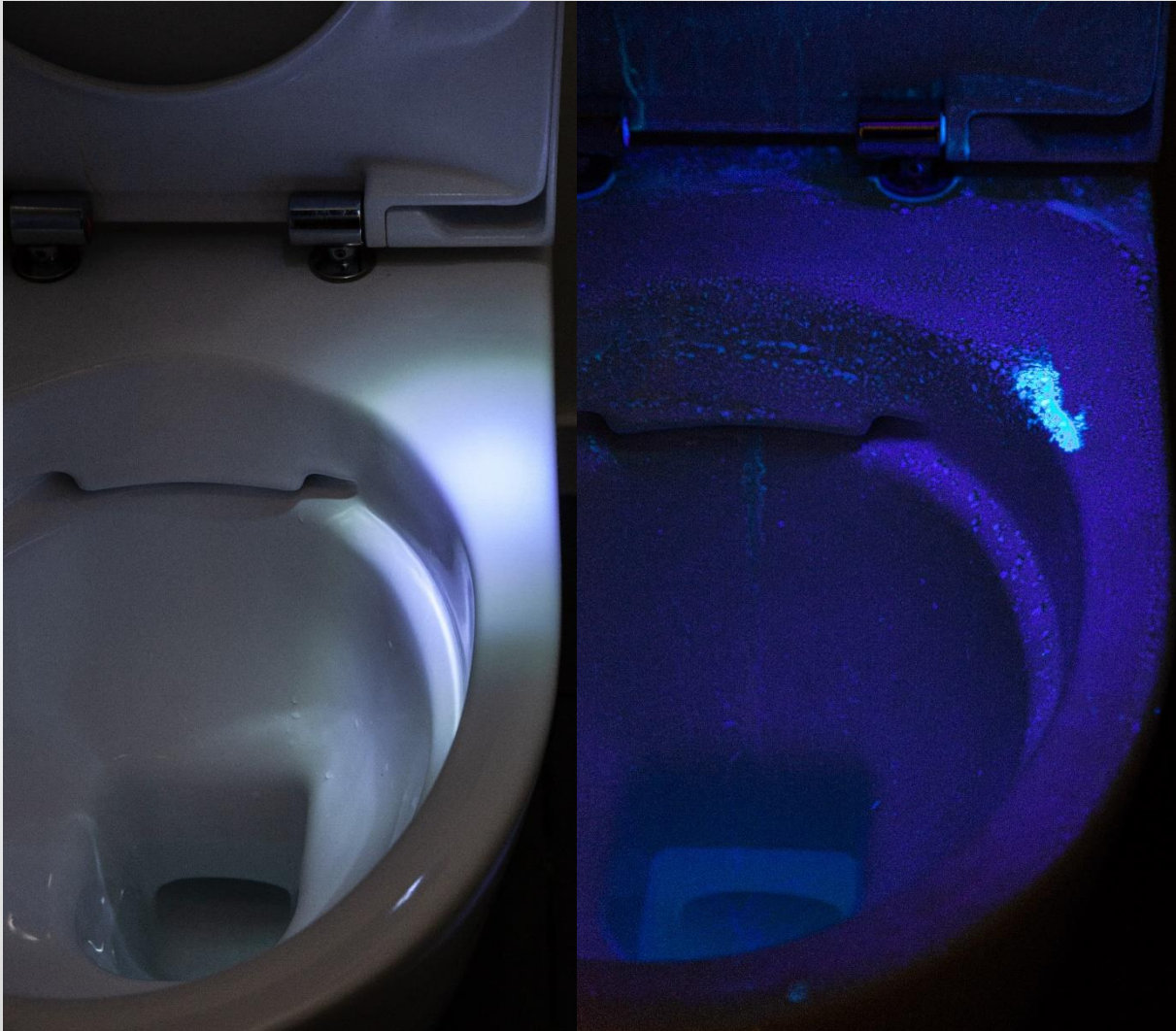
**Read results** with a 365nm  
UV light with visible light  
filter: only semen stains  
will glow in a blue color

**Ready to use in 1 min, stable for 24h**

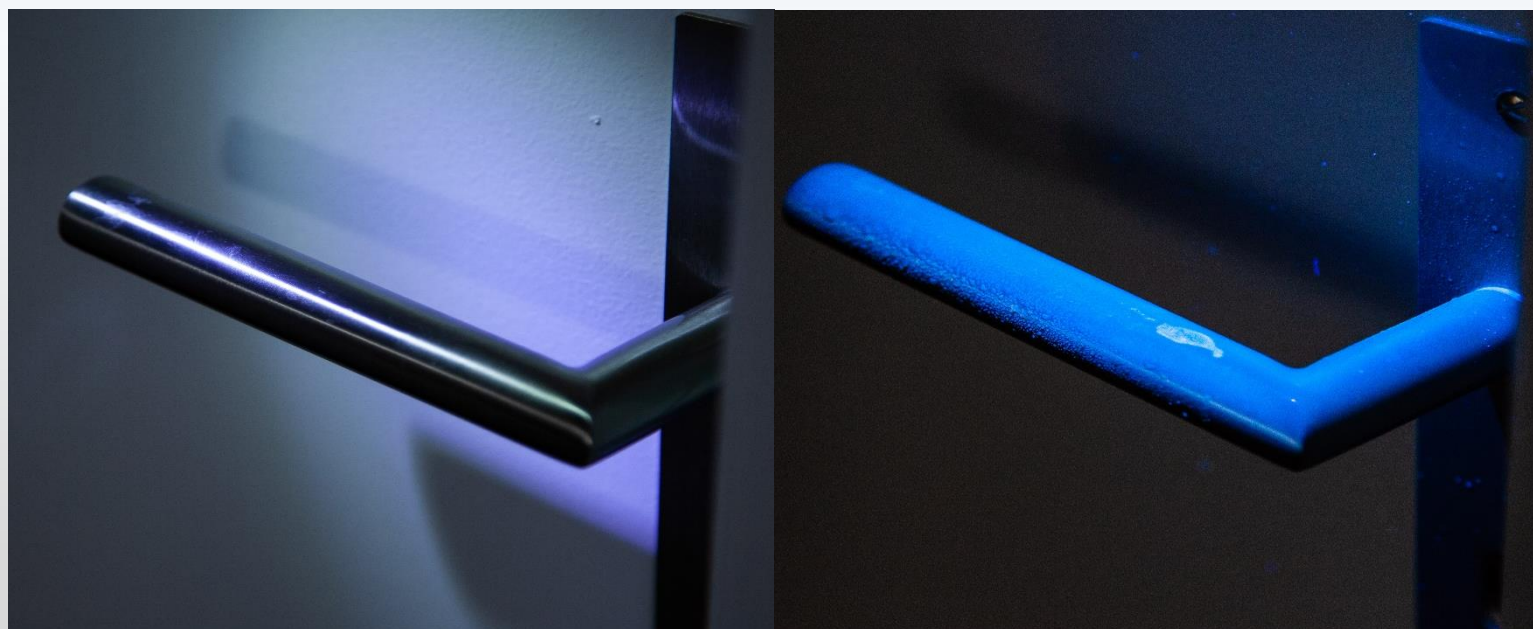
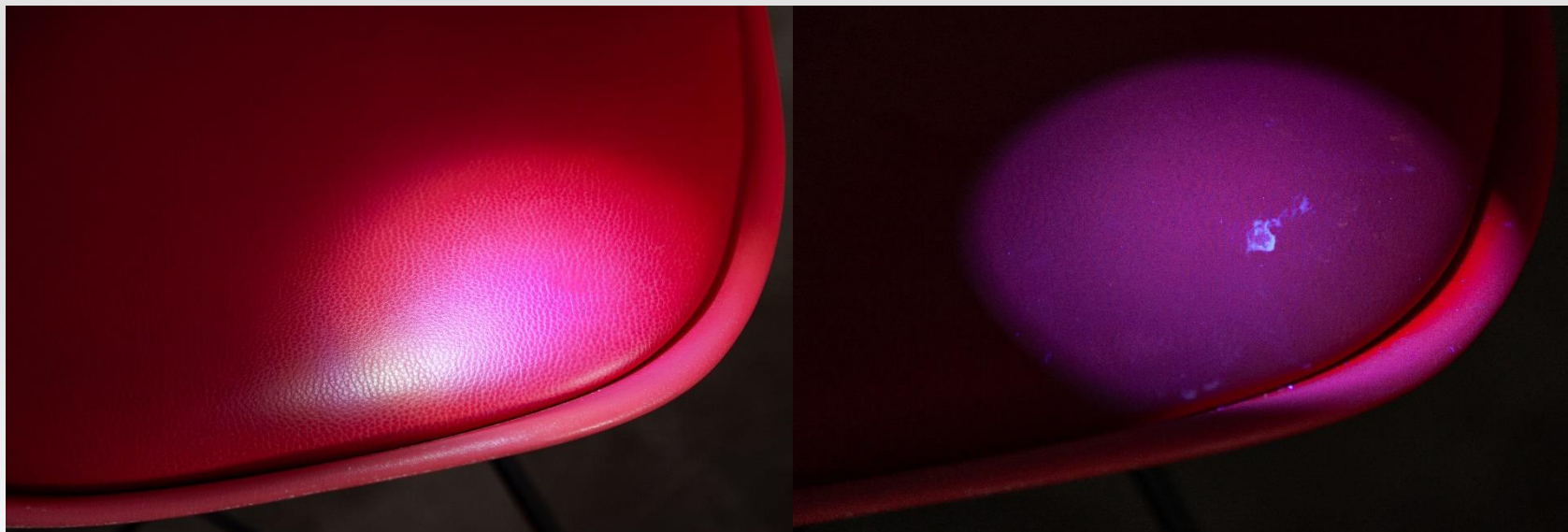
**Immediately revealed on the scene using a 365nm UV lamp**



**STK Spray – for any kind of hard surface on the scene**



**STK Spray – for any kind of hard surface on the scene**



## STK Spray – wiped sperm stain



## STK Spray, for an outdoor use



*Source: Elina NYQUIST, NFC Sweden*

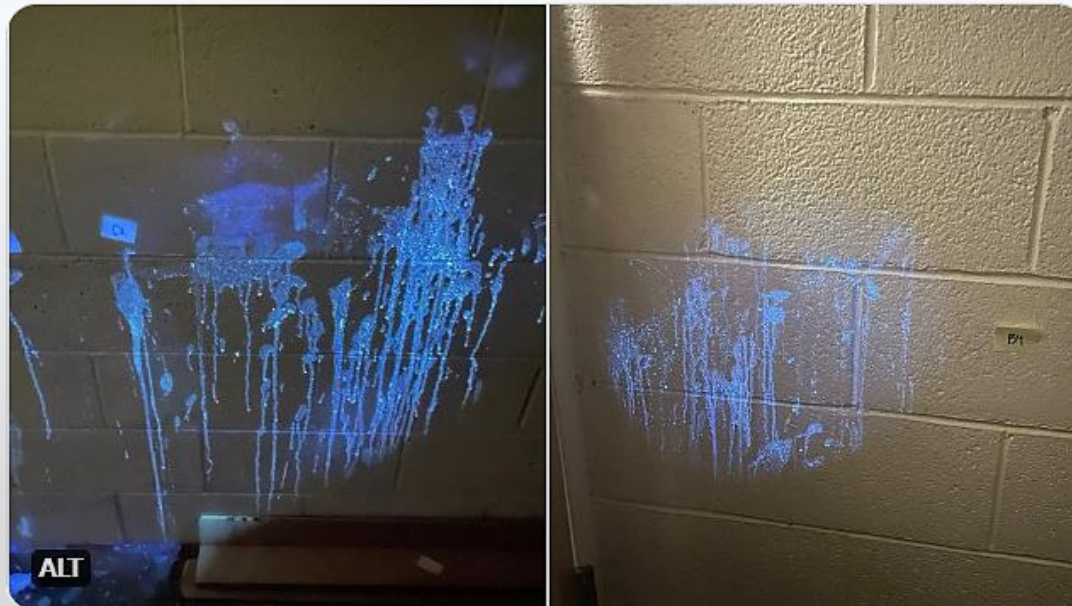
## Cold Case: Reno Police Department

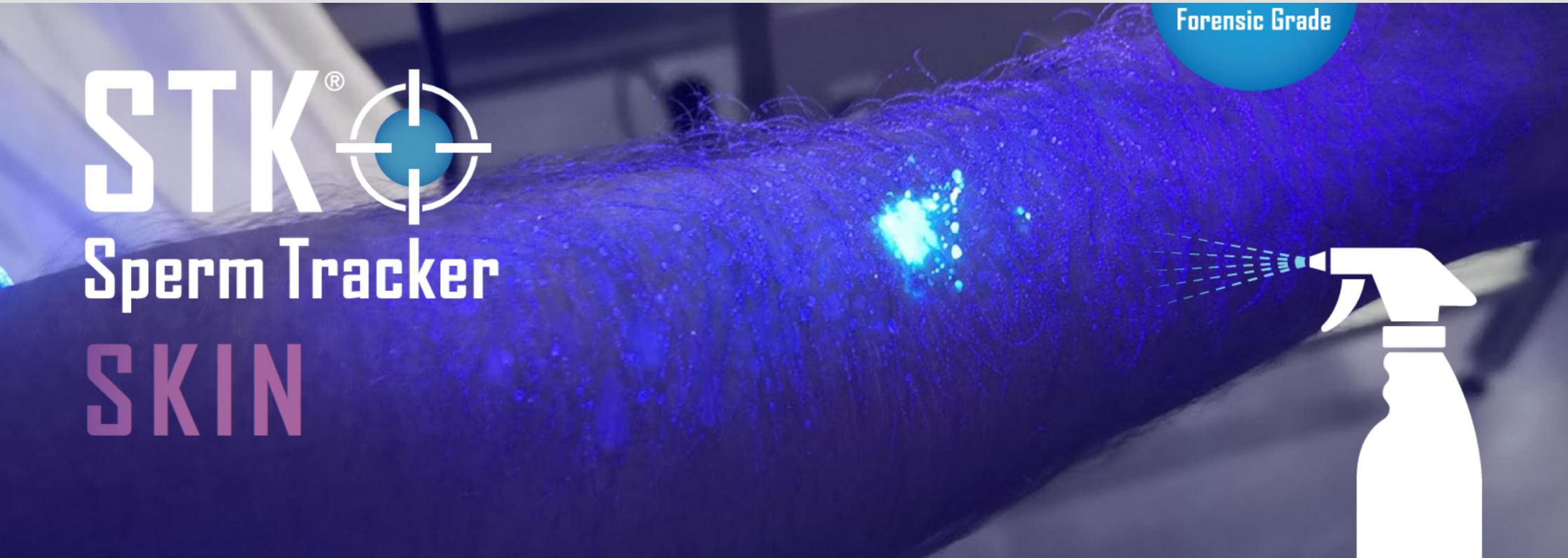
 **AXO Science**  
@AxoScience

...

[STK Spray - COLD CASE]- Reno Police Department found semen traces on a 4 to 8 years old sexual assault scene that led to identify and arrest alleged assailant.

We are glad STK Spray could spot semen traces that were not initially visible  
Congratulations to Reno PD on this case!





— Our latest solution, STK Skin, for victim's body and hair

## STK Skin

To spray on victim's body and hair

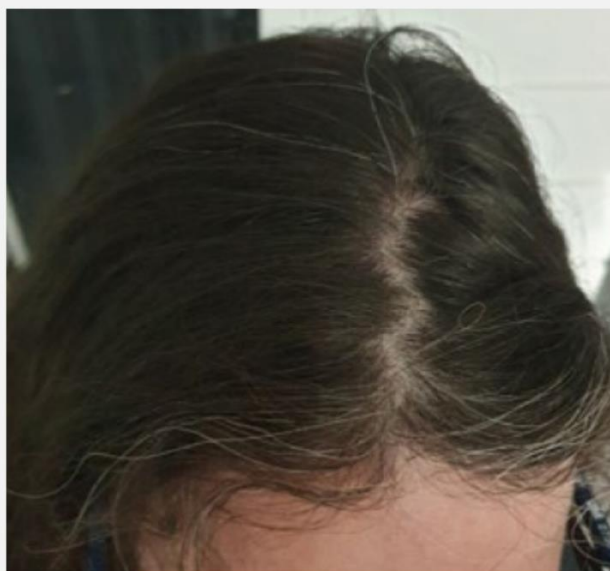
For victims and dead bodies

Spray version

Non Toxic

Shelf life: 12 months

Ongoing validation tests & scientific articles



## STK Skin protocol



1

Dilute 1 pouch of STK Skin  
in 100 ml (~3 US fl oz)  
of demineralized water



2

Spray victim's body at a  
distance of ~20 cm (~8 inches)



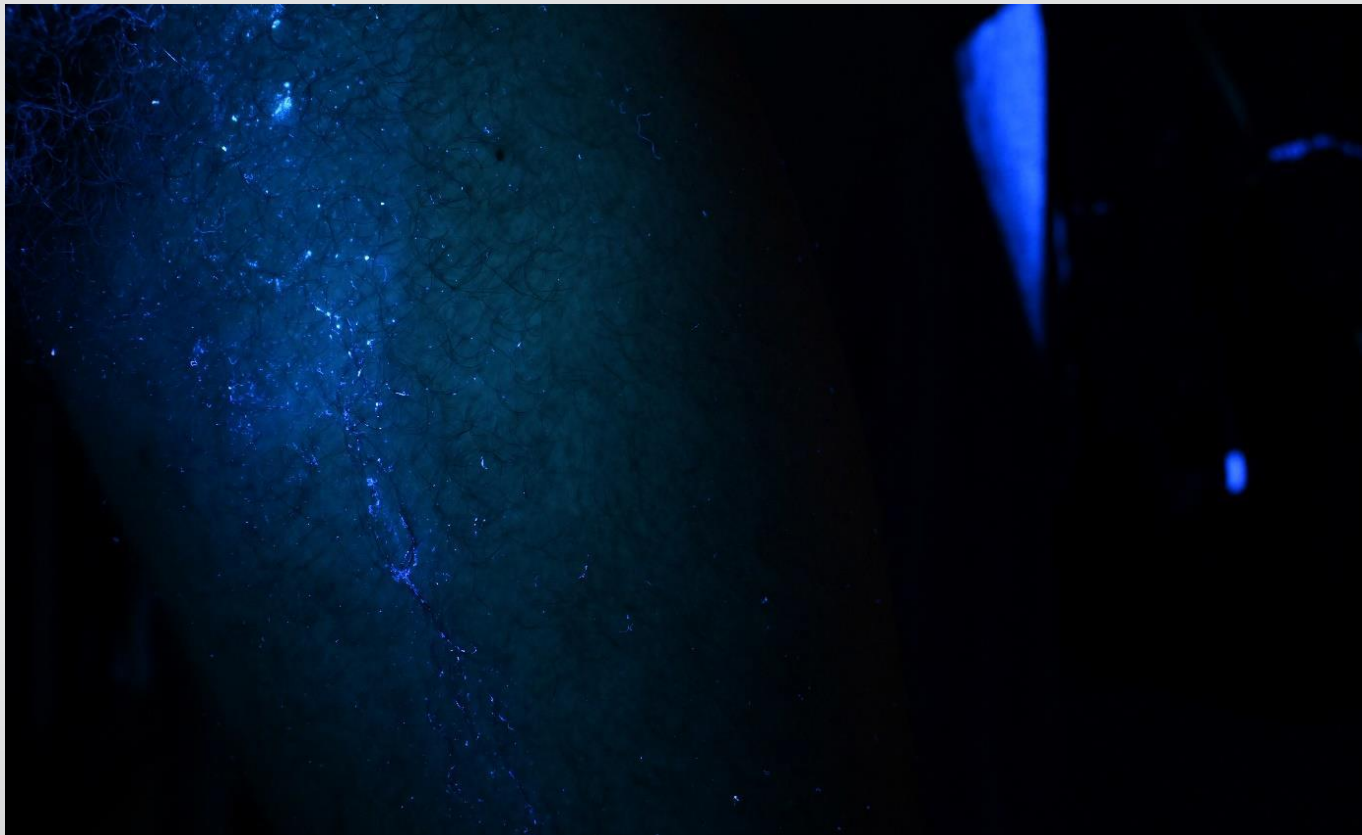
3

Read results with a 365nm UV light  
with visible light filter: only semen  
stains will glow in a blue color



## STK Skin – Preliminary results

After a shower and a wash of 5 min with soap (drip along the thigh):





Credit: SCPTS



**More information?**

**[www.sperm-tracker.com](http://www.sperm-tracker.com)**