

## >> Context

- The saliva is a biological stain often observed in forensic laboratories, coming from burglary cases or sexual assault cases for example.
- Saliva is an invisible stain, thus we cannot be certain that it is present on a support initially.
- To optimize saliva research and detection, orientation tests before DNA analysis have been proposed to be used systematically, by using methods that do not alter stains and do not interacting with further genetic profile analysis.

## >> Aim

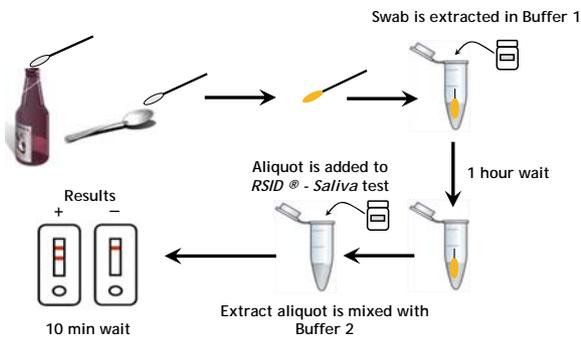
- Optimize genetic analysis.
- Observe the advantage supplied by the implementation of orientation tests in a police service, in terms of increase in exploitable profile.

## >> Materials and Methods

### Orientation tests used

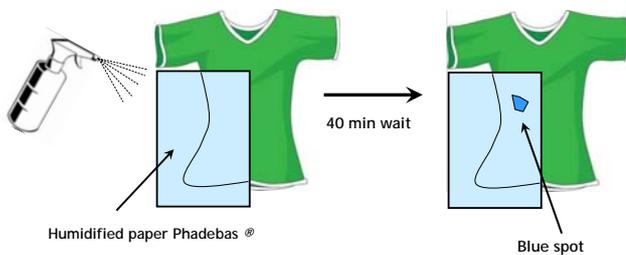
❖ **RSID® - Saliva** test for supports where the saliva can be swabbed or cut from substrate. This test is a lateral flow immunochromatographic strip test designed to detect the presence of human salivary α-amylase.

Saliva stains of 1µl can be detected.

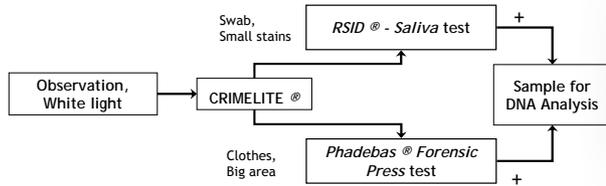


❖ **Phadebas® Forensic Press** test. It is a product that detects saliva stains by reacting with α-amylase. The detection is carried out through a transfer on a wet paper.

A blue spot occurs when the wet paper is pressed against a saliva stain.



## >> Protocol used in routine

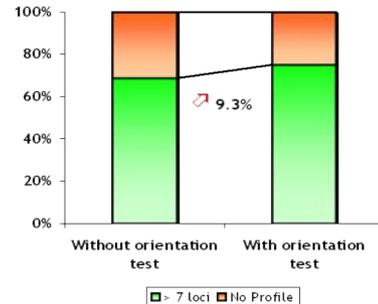


## >> Data analysed

- During 2008 and for the first six months of 2009, 299 stains supposed to contain saliva were submitted for DNA analysis. Some of these cases were beforehand submitted to the orientation tests.
- Two sorts of data were analysed:
  - ❖ Data concerning 154 saliva stains for which an orientation test should have been made (clothes, bottleneck...): comparison of genetic analysis results with and without orientation test before.
  - ❖ Data which concerns genetics analysis results for all saliva stains (also for those who do not need a test like butt or bubble gum) for 2008 and 2009.

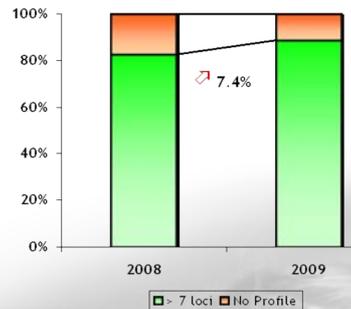
## >> Statistical results

▪ **Graphic 1:** Comparison of genetic analysis results with and without orientation test.



With the use of orientation test before genetic analysis, the number of exploitable profile increased (68,6 to 75 %).

▪ **Graphic 2:** Comparison of results of all saliva genetic analysis between 2008 and 2009.



Since January 2009, orientation tests are systematically used for saliva stains mentioned before.

The number of exploitable profiles for all saliva stains increase between 2008 and 2009 (82.6% to 88.7%).

## >> Conclusion and discussion

- The implementation of these tests is a mean to detect stains, to know their nature, and mainly to optimize the results for DNA analysis.
- This kind of test allow for locating exploitable traces and detecting evidence that, normally, would not be sent for DNA analysis. Furthermore, these tests allow a target analysis of the supports, where saliva is present.
- The location and detection of exploitable traces as made easier with this type of test. Indeed, evidence, which normally would not have been sent for DNA, is exploited.
- This work is a preliminary research and results can not be generalized. The results are encouraging and show that the use of orientation tests for saliva help to optimize the DNA analysis results.

## >> Contact

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