

HIGH THROUGHPUT SOLUTION TO SPERM SEARCHING COUPLED WITH MICROPRESSOR CONTROLLED PICKING OF SPERM CELLS. SPERM HY-LITER™ + AUREKA® + ZEISS AXIO-ZOOM

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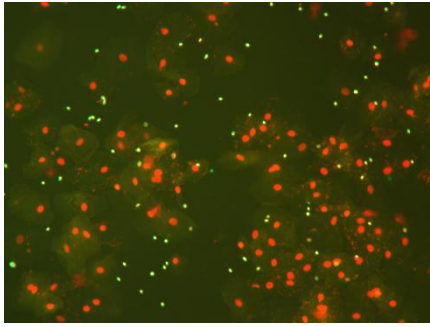
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DNA forensic laboratories allocate substantial time, effort and funds to the analysis of sexual assault evidence (SAE). As the ultimate goal of this effort is to obtain a DNA profile from the (presumed male) assailant, a significant fraction of this effort is devoted to identifying the item(s) of evidence with the most sperm cells as these cells are the most likely source of male DNA in sexual assault evidence.

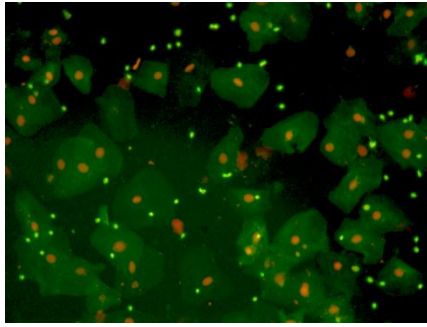
SPERM HY-LITER™ is an immunofluorescent detection kit specifically designed and optimized for the microscopical identification of sperm from SAE. The kit has two fluorescent dyes, one specific for human sperm heads (Alexa 488 coupled to a human sperm head-specific monoclonal antibody), and the other a non-specific nuclear stain (DAPI). Slides stained with **SPERM HY-LITER™** can be efficiently screened for sperm with a fluorescent capable compound microscope. The method has built in confirmation steps to verify that the observed fluorescence derives from sperm heads containing DNA.

It is well established that many SAE cases do not have a sufficient number of sperm cells for the development of a DNA profile from the male (F2, sperm fraction) of differentially extracted evidence, swabs or stains. Recent research efforts to develop methods to address this problem of insufficient number of sperm in SAE have focused on two micro-techniques: laser capture microdissection and single cell hand-picking.

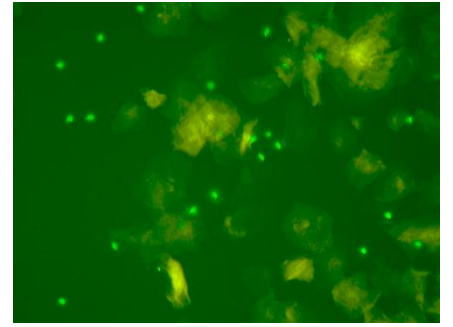
Here we introduce a new **SPERM HY-LITER™** kit designed for use with these two techniques and demonstrate the capability of a new macro-stereoscope (Zeiss Axio-Zoom) for the very rapid screening of SAE for the identification of sperm. Axio-Zoom can accommodate the use of a fully integrated, micro-processor controlled micromanipulator for the isolation of sperm from preparations stained with this new kit. Current work has demonstrated the ability to consistently obtain full DNA profiles from twenty (20) hand isolated sperm using an abbreviated extraction method and PowerPlex® ESX. This new kit is fully compatible with all laser capture microdissection membrane slides with no change in specificity or sensitivity. The method, kit and instrumentation will be available for demonstration.



DUAL Fluorescence -Low mag



DUAL Fluorescence -High mag



Single Fluorescence -High mag

Images acquired with Zeiss Axio-Zoom and **SPERM HY-LITER™-PI**