AN EFFICIENT AND EFFECTIVE PROTOCOL FOR IDENTIFYING SPERM AND ANAL SWABS USING SPERM HY-LITER EXPRESS

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Microscopical sperm searching has long been a painful, slow and less than robust task for forensic analysts. Searching for sperm from anal/rectal swabs poses an even more difficult challenge due to the interference of fecal matter. Recently, a far more specific, sensitive and scientifically defensible method of microscopical sperm searching using SPERM HY-LITER and the related SPERM HY-LITER EXPRESS kits have provided the first scientifically defensible identification of sperm from sexual assault evidence (SAE). These immunofluorescent-based staining kits have made the detection of sperm from SAE considerably faster, easier and more robust; however, even this technique can be stymied by fecal contamination which among other factors, increases the background fluorescence seen from anal/rectal swab extracts.
Here we report an update on the staining /processing of anal/rectal swabs that considerably improves the ability of SPERM HY-LITER and SPERM HY-LITER EXPRESS to provide clear signals from samples containing fecal matter thus making sperm searches from these samples far easier. The updated protocol, specific for fecal contaminated samples, was developed from anal/rectal samples obtained from an academic collaboration studying receptive anal intercourse. Briefly, the presence of fecal matter on the collection swabs was visually scored as: (1) little to no visible fecal matter, or (2) some fecal matter, or (3) significant fecal matter. Based on the score, the cell pellet from the anal/rectal swab was resuspended in increasing volume of PBS, with higher volumes being used for the higher scored swabs; essentially diluting the effects of the fecal matter. This simple approach greatly increased the final immunofluorescent signal to noise making sperm easily identifiable regardless of the amount of fecal matter present on the initial anal/rectal swab. Full details of the procedure and representative images are shown.