

Y-STR ANALYSIS IN CHILD SEXUAL ABUSE CASES IN THE PHILIPPINES

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Y-chromosome short tandem repeats (Y-STRs) are valued for their applicability in forensic casework particularly in sexual assault cases that require the detection and identification of a male DNA source. The specificity of Y-STRs for male DNA allows them to be used in the analysis of forensic mixtures without having to separate DNA (male-female) components. Furthermore, Y-STR specificity to a particular male lineage allows distinction of multiple unrelated male assailants.

In the Philippines, a considerable number of child sexual abuse incidents occur. Child Protection Units located in different cities conduct physical examination on the victims including microscopy of collected smears for sperm detection. However these procedures are limited in that physical signs of sexual abuse may be obscured and sperm cells may not remain intact for microscopic examination. In contrast, DNA is relatively stable thus making DNA typing a powerful tool for identifying the child's assailant.

We report here the preliminary application of Y-STRs to the evaluation of evidence from 26 child sexual abuse cases. Vaginal and anal swabs were collected from 2-17 year-old victims, 9-51 hours after incident. DNA was extracted without separation of fractions using a one-step lysis-organic DNA extraction procedure. DNA was independently amplified at eight Y-STRs namely DYS19, DYS385, DYS389I, DYS389II, DYS390, DYS391, DYS392 and DYS393. Amplified Y-STR fragments were detected on an ALFexpress™ DNA sequencer.

We were able to detect Y-STRs in 24 of the 26 cases, equivalent to a 92.3% success rate. Varying detection rates for each Y-STR locus were also observed, DYS390 being the most sensitive at 92.3%, followed by DYS19 (61.5%), DYS389I (57.7%), DYS393 (50.0%), DYS392 (34.6%), DYS389II (30.8%), DYS385 (23.1%) and DYS391 (7.7%). Samples in two cases involving more than one reported assailant correspondingly produced multiple Y-STR peaks. The results generated demonstrate the applicability of Y-STR typing for the detection of male DNA in forensic mixtures particularly when only small amounts of biological evidence are available. Y-STR typing may be performed on stored samples provided samples are properly collected from victims within 72 hours after the assault. More importantly, the detection of male DNA in intimate samples collected from children accelerates the investigation thus sparing a child from additional psychological trauma brought about by a lengthy investigation and subsequent litigation in Court. The present study has provided the basis for a national study to incorporate Y-STR typing in routine medical examination of child sexual victims from different Child Protection Centers in the country.