



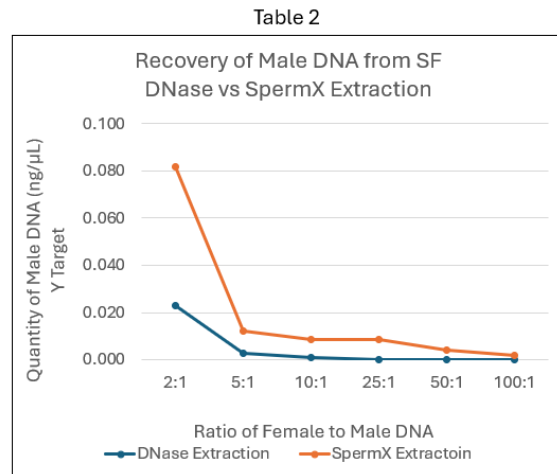
SpermX™ with GenSpin™ Outperforms the DNase Differential Extraction Method

DNA Solutions validated the use of SpermX™ differential extraction system using GenSpin™ columns. The sensitivity testing during validation demonstrated that the SpermX™ differential extraction workflow consistently recovered interpretable male DNA profiles across decreasing sperm input levels, including conditions with low male DNA quantities in mixtures with high female DNA input. The results below indicate that SpermX improves sensitivity for male DNA recovery compared with the traditional DNase method. The enhanced sensitivity supports the use of SpermX™ as a robust differential extraction method for challenging sexual assault samples where conventional approaches may fail to yield probative results.

Tables 1 & 2: Male DNA Recovery from Sperm Fractions (SF) of Mixed Female/Male DNA Samples using DNase vs SpermX Extraction

Table 1

Sample # Sperm Fraction (SF)	Female:Male Ratio	Quantifiler Trio Target Name	DNase Extraction	SpermX Extractoin
			Quantity (ng/uL)	Quantity (ng/uL)
1-SF	2:1	T.Large Autosomal	0.026	0.141
		T.Small Autosomal	0.022	0.096
		T.Y	0.023	0.082
2-SF	5:1	T.Large Autosomal	0.004	0.022
		T.Small Autosomal	0.002	0.016
		T.Y	0.003	0.012
3-SF	10:1	T.Large Autosomal	0.002	0.017
		T.Small Autosomal	0.001	0.014
		T.Y	0.001	0.008
4-SF	25:1	T.Large Autosomal	0.000	0.016
		T.Small Autosomal	0.000	0.011
		T.Y	0.000	0.009
5-SF	50:1	T.Large Autosomal	0.000	0.009
		T.Small Autosomal	0.001	0.009
		T.Y	0.000	0.004
6-SF	100:1	T.Large Autosomal	0.000	0.006
		T.Small Autosomal	0.000	0.006
		T.Y	0.000	0.002



Analysis of sexual assault kit (SAK) casework at DNA Solutions demonstrates that implementation of the SpermX™ differential extraction system resulted in a measurable and sustained improvement in the generation of CODIS-eligible male DNA profiles compared to the previously used DNase-based workflow. DNA Solutions observed a ~30% increase in CODIS-eligible profiles from Y-screen positive cases with the SpermX™ kit.

Graphical comparisons below show that samples processed with SpermX™ yielded a higher proportion of CODIS-eligible profiles, particularly among Y-screen positive cases. Batch-level performance data over time further illustrates a consistent increase in CODIS eligibility following SpermX™ implementation, indicating improved recovery of probative male DNA.

Tables 3 & 4: Comparison of CODIS Eligible Male Profile Percentage obtained from DNase vs SpermX Extraction Methods



While the DNase method more aggressively reduces female DNA carryover, SpermX’s enhanced sperm capture technology translates to greater evidentiary value overall. Collectively, the data demonstrate that SpermX™ improves the likelihood of obtaining CODIS-eligible male DNA profiles from challenging sexual assault evidence, enhancing the probative value of forensic testing and supporting more effective investigative outcomes for victims and the criminal justice system.

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