GenTegra®

Active Chemical Protection

GenSolve™ Classic DBS Extraction

GenSolve Classic

GenSolve is a robust kit for extracting high quality, high yield double-stranded DNA preserved in GenPlates®, GenSaver™ cards, FTA paper. Guthrie cards and all filter papers. Existing generic methods of extracting DNA from the cellulose matrix include alkaline conditions, and high heat, both of which result in the recovery of single-stranded DNA; restriction digest or organic extractions yield double-stranded DNA but are labor intensive.

Advantages of GenSolve Classic:

- High yields of double stranded DNA
- >35 Kb molecular weight DNA
- Fast, only requires 90 minutes
- Simple easy process

More and Better DNA

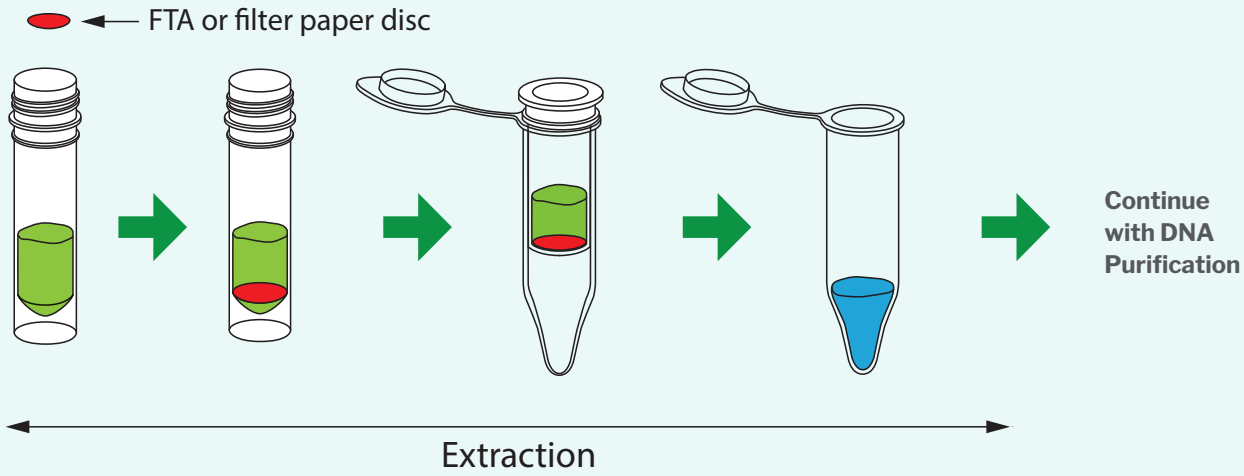
Paper is a fast and easy way to collect DNA from a variety of biological samples. Blood, buccal cells, plants, bacteria and many other sample types are applied to cards where the cells are instantly lysed and DNA is captured in the cellulose matrix. After drying, the samples are stable and ready for long term storage.

GenSolve Classic recovers the same high quality double stranded DNA from all papers, standard filter paper, GenSaver, or Guthrie cards, and the process is fast and easy. Any possible downstream interference by the FTA chemicals is eliminated as they are removed when using GenSolve Classic. GenSolve Classic also delivers the highest yields of DNA when compared to other generic extraction protocols.

Fast Simple Protocol

The GenSolve procedure consists of incubating 6 mm FTA discs at 65˚C with a protease combined with a proprietary high pH solution and 1% lithium dodecyl sulfate. The incubation releases DNA, proteins and cellular debris from the matrix in a highly efficient manner. After centrifugation the eluate can be purified by a standard bind-wash-elute method for DNA isolation and concentration. The entire process from punch to purified double stranded DNA takes less than 90 minutes.

From filter paper to purification in only 90 minutes



Recovery of high quality double stranded DNA using GenSolve Classic

GenSolve Performance

Yield of DNA

GenSolve recovers a significant amount of the DNA trapped within the matrix when whole blood is spotted to the FTA Cards. Yields are typically between 50 – 360 ng from 10 µL of whole blood. Yield varies depending on the white blood cell count of the initial sample and the normal variability between donors.

Reproducibility

GenSolve extraction is reproducible with an average CV of 11%. Over 90 discs containing 10 µL of whole blood from 30 unique samples were processed by the GenSolve method in triplicate. The % CV was calculated from the standard deviation for each triplicate.

High Molecular Weight DNA

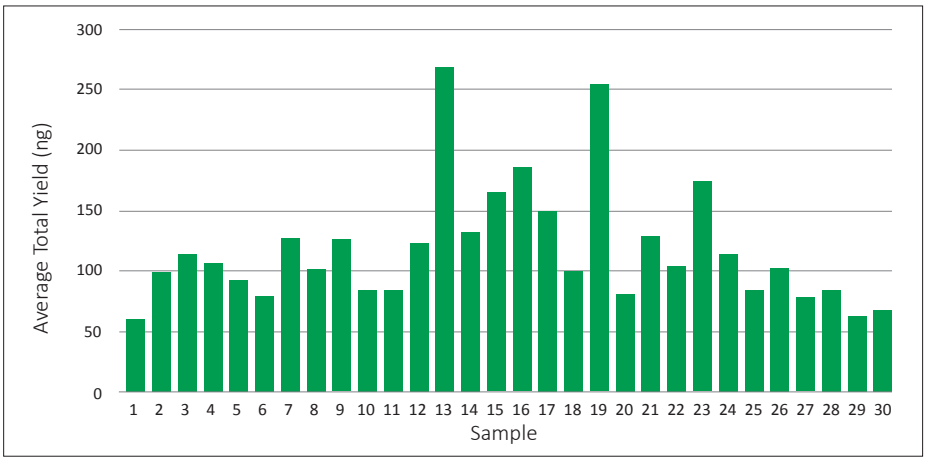
Double-stranded DNA recovered from FTA Cards via the GenSolve method is intact and approximately 35 kb in length.

Quality of Extracted DNA

Extracted DNA is comparable to DNA extracted using traditional methods.

- DNA recovered from FTA is of high quality, double stranded DNA with a MW of approximately 35 kb
- Serves as template for PCR, qPCR etc.
- Can be used in TagMan allelic discrimination SNP Genotyping assays
- Gives 100% concordance for GeneChip Human mapping 10 k array
- >95% DNA recovery when GenSolve Classic is used for DBS on GenSaver cards

Yield of DNA recovered from 30 unique DBS samples of FTA cards. The average DNA recovered was 132 ng per 6 mm disc. The yield ranged between 75 and 280 ng. Double-stranded DNA was quantitated by PicoGreen.



Product Specifications

Item	Description
Contents	Configured to any number of samples from one to 100
Storage	Protease solution must be stored at 4°C; all other components may be stored at ambient
Typical results of double stranded DNA* purified from 10 µL of blood spotted on FTA Cards.	
Yield	132 ng per 6 mm disc
Range	50-360 ng per 6 mm disc**
Overall CV	<20%
Concentration	0.5 to 2 ng/uL
Size	35 kb, size of the majority of fragments
PCR	Successful amplification
Shelf life.	
Protease	6-months @ 4˚C
All other	1-year @ ambient temperature

*DNA quantities by PicoGreen (Invirogen)
**DNA yield depends on white blood cell count

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