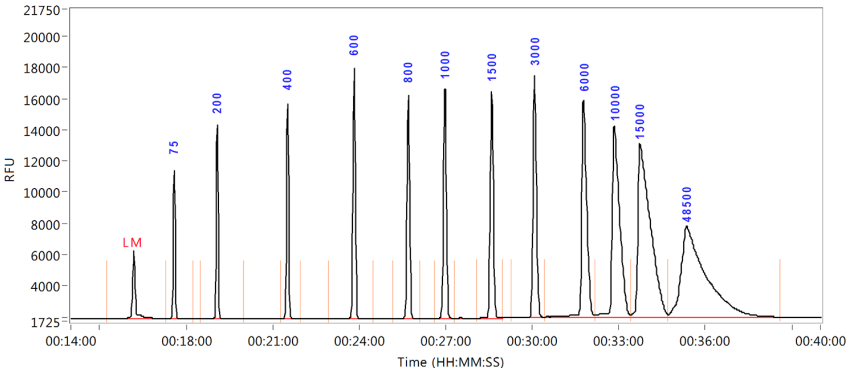
Genomic DNA Analysis

Fragment Analyzer™ Automated CE System

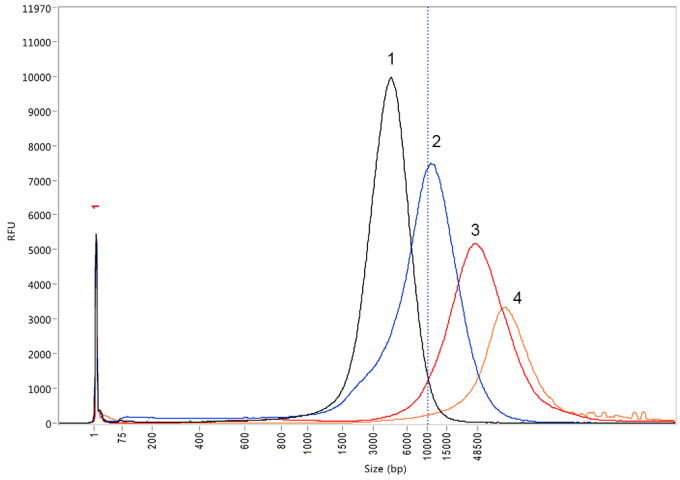
Assess Genomic DNA Size, Quality, and Quantity

Quality assessment of genomic DNA is essential in a number of downstream applications including PCR, genotyping, microarray, and next-generation long-read sequencing. Evaluating the viability of gDNA samples in a time efficient manner is essential prior to sequencing and other downstream applications.

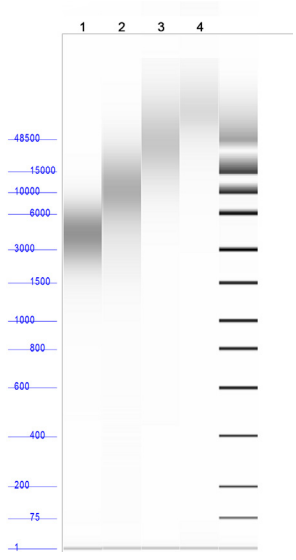
The Fragment Analyzer streamlines gDNA analysis with the **DNF-467 Genomic DNA 50 Kb Analysis Kit**, allowing the operator to size, qualify, and quantify high concentration samples with a single 200-fold dilution, requiring an input concentration range of 25 ng/µL - 250 ng/µL.



Extended Genomic DNA Ladder allows for accurate and precise sizing of large DNA fragments and smears (left).



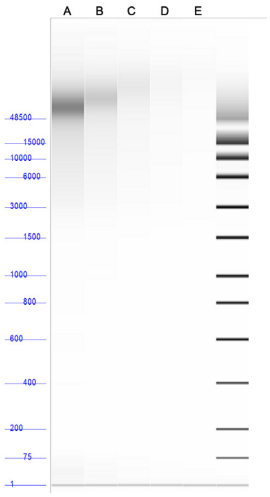
Sample	gDNA Size, bp	GQN 10,000 bp
1	4,334	0.2
2	10,301	4.3
3	44,526	8.7
4	>60,000	9.1

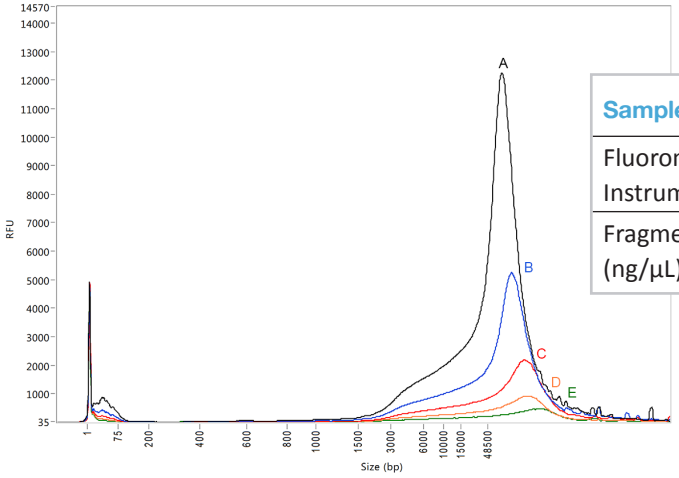


An electropherogram overlay of genomic DNA samples is shown above with the corresponding digital gel image. Assessment of sample quality can be handled efficiently through the use of the Genomic Quality Number (GQN). The user designates a threshold in PROSize® *Data Analysis Software, which then assesses each sample as it relates to the threshold assigning a value between 0 and 10. Values are determined based on how much of the sample exceeds the threshold. In the example above, a GQN threshold of 10,000 bp was defined (designated by the dotted blue line) with calculated values shown in the table above.*

Dynamic Range Reproducibility

Of the Genomic DNA 50 Kb Analysis Kit

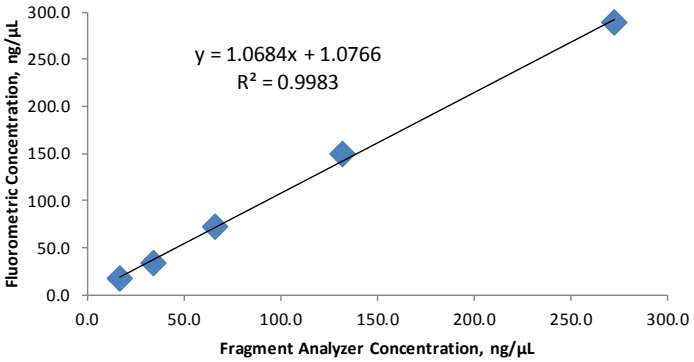




Sample	A	B	C	D	E
Fluorometric Instrument (ng/µL)	289	150	72	37	17
Fragment Analyzer (ng/µL)	272	132	66	37	17

Two-fold serial dilutions of gDNA were made and subsequently analyzed by the Fragment Analyzer and a fluorometric instrument. The electropherogram and digital gel image depicting these dilutions are shown above along with a table showing the associated concentration values. Genomic DNA concentrations obtained by both instruments were compared and plotted on a graph. The results showed a one-to-one linear relationship between the fluorometric instrument and the Fragment Analyzer. The accuracy of the Fragment Analyzer was <15% and precision was <20%.

Reproducibility of gDNA Quantification



Features and Benefits

Analyze gDNA at High Sample Concentrations
The kit is designed to streamline genomic DNA analysis at high input concentrations by using a single 200-fold dilution.

Extended DNA Sizing Range
Accurately and precisely sizes gDNA samples from 75 bp through 60 Kb.

Short Run Times
12, 48, or 96 samples can be analyzed in 60 minutes or less.

Determine Genomic DNA Integrity
A user-defined threshold that allows users to decide what qualifies as good gDNA for their purposes.

ADVANCED ANALYTICAL®
Automating genomic discovery

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