

Investigator[®] ESSplex SE QS Kit

Advanced European Standard Set STR solutions with a unique Quality Sensor

The Investigator ESSplex SE QS Kit amplifies the full suite of 16 STR markers in the European Standard Set (ESS), including SE33 and Amelogenin, as well as an innovative performance control known as Quality Sensor (QS) (Figure 1). The highly sensitive kit is suitable for all forensic applications and paternity testing, yielding rapid and reliable results from trace DNA.

The features of the Investigator ESSplex SE QS Kit include:

- Integrated Quality Sensor for better decision making and data interpretation
- Faster results owing to a PCR speed of approximately 60 minutes
- Simple analysis with minimal overlapping allele panels and an extended ladder
- High sensitivity and inhibitor resistance

For more information on the Investigator ESSplex SE QS Kit technical specifications and dyes, see Tables 1 and 2.

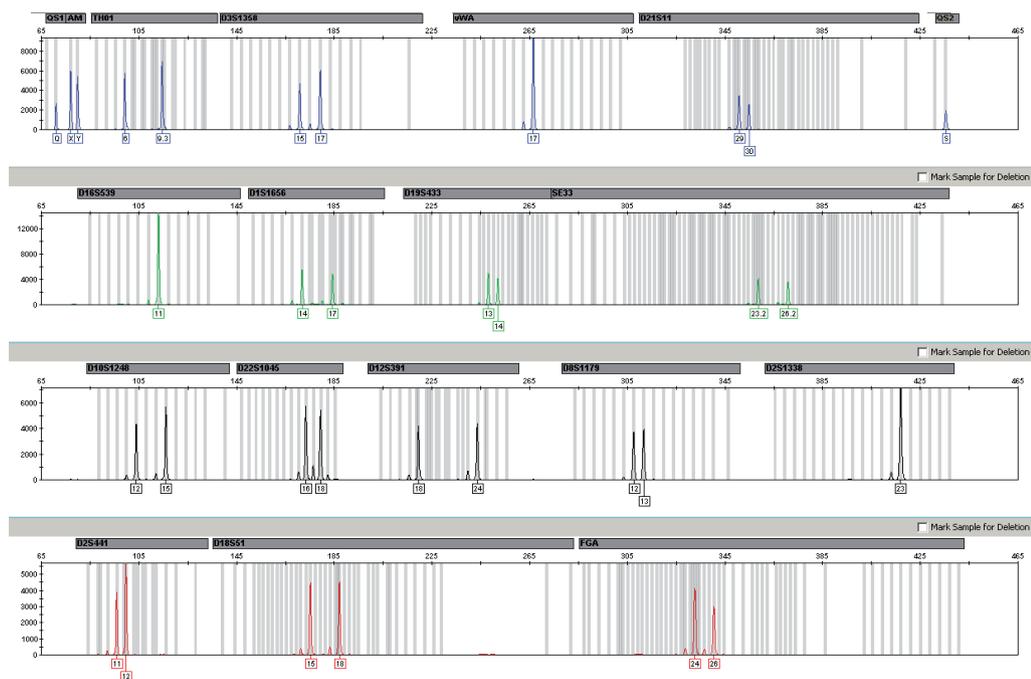


Figure 1. Electropherogram of the Investigator ESSplex SE QS Kit. The analysis was performed on an Applied Biosystems[®] 3500 Genetic Analyzer using 500 pg Control DNA 9948. The small amplicon Quality Sensor peak (QS1) and large amplicon Quality Sensor peak (QS2) are shown in the blue panel.

A Quality Sensor as an internal performance control

As part of our dedication to improving forensic workflows, we have developed a new feature to provide you with more information about your sample quality (Figures 2–4). The innovative Quality Sensor (QS) allows the Investigator ESSplex SE QS Kit to generate additional, valuable data for your quality control and performance checks.

This performance control is amplified simultaneously with the DNA in your sample, to show you if you are dealing with:

- Successful PCR amplification
- Degraded DNA
- Inhibited DNA
- Absence of DNA
- Failed PCR amplification

Innovative Quality Sensor for additional information and better results

What do you do when your PCR amplification run does not produce optimal profiles? In the absence of QS, repeating a failed PCR run is the usual course of action. With QS, you will always know when repeating the run will not yield better results, and how to adjust your PCR setup to get the most out of your precious samples. This performance control allows you to focus your resources on the most promising of your DNA samples. QS informs you whether sample dilution could yield better results by eliminating PCR inhibition (Figure 3). Additionally, it allows for the determination

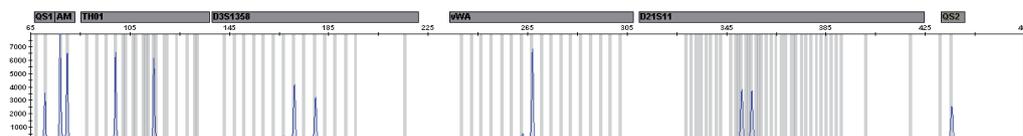


Figure 2. Confirmed successful PCR amplification. Small amplicon Quality Sensor peak (QS1) and large amplicon Quality Sensor peak (QS2) appear at similar heights. Sample allele peaks have balanced height across the profile.

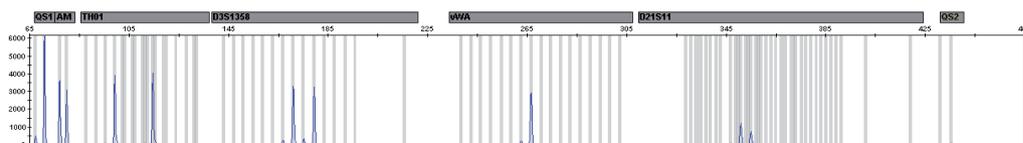


Figure 3. Inhibited DNA. Small amplicon Quality Sensor peak with normal peak height (QS1) and large amplicon Quality Sensor peak (QS2) with decreased peak height can be seen if inhibitors are affecting PCR. Sample allele peaks for the markers show decreasing height towards the larger markers.

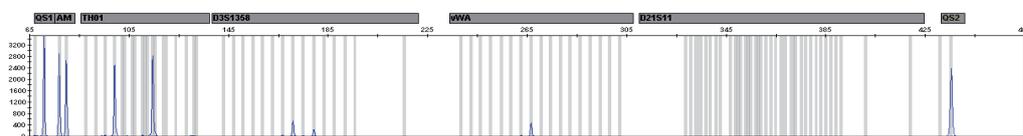


Figure 4. Degraded DNA. Small amplicon Quality Sensor peak (QS1) and large amplicon Quality Sensor peak (QS2) appear at similar heights. Sample shows allele peaks for the STR loci with decreasing height towards the larger STR loci.

of degraded DNA in your sample, which if present, can prevent better PCR amplification results with sample dilution (Figure 4). Furthermore, when using QS, you will be able to examine whether handling errors or the absence of DNA were the cause of your failed PCR run. Once you've tried it, you'll always insist on Quality Sensor!

Latest QIAGEN PCR chemistry for fast and robust PCR success

The novel Fast Reaction Mix 2.0 is based on proven QIAGEN Multiplex PCR Technology that has been further optimized to increase speed (Figure 5) and provides highest success rates, even for the most challenging samples (Figure 6). The high level of sensitivity and inhibitor resistance enables the generation of reliable, high-quality results.

The optimized features of the kit include:

- Convenient manual and automated pipetting
- Even higher convenience and stability
- PCR speed of ≤ 1 hour for faster results
- Higher inhibitor tolerance

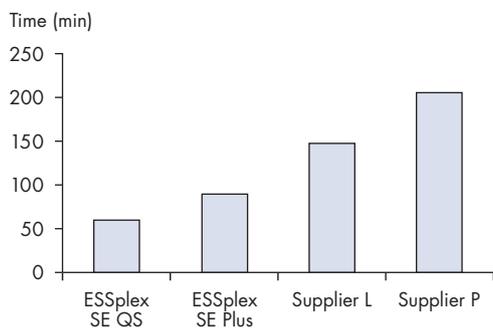


Figure 5. PCR run time comparison. The effective run time is shown for the Investigator ESSplex SE QS Kit and products from other suppliers. The PCR was performed using an Applied Biosystems GeneAmp® PCR System 9700 Thermal Cycler with a gold-plated silver block.

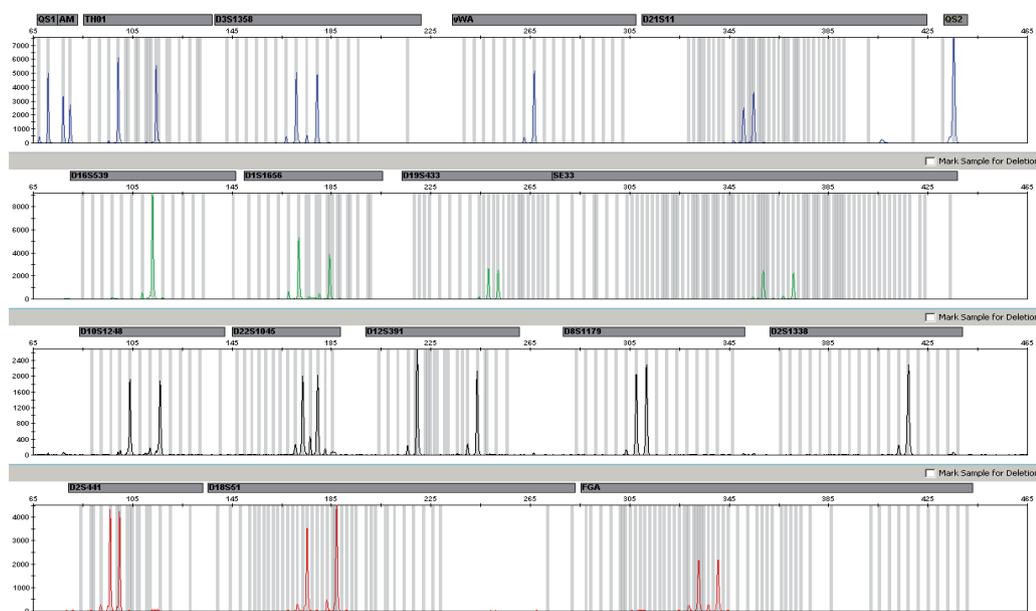


Figure 6. Inhibitor resistance.

The electropherogram displays a profile of 500 pg Control DNA 9948 generated in the presence of 500 μ M hematin, which did not interfere with amplification, meaning that a high-quality profile was obtained. This can be seen by the Quality Sensor fragments QS1 and QS2 in the top blue panel that were not adversely affected, indicating a successful run.

Table 1. Technical specifications

Volume per PCR	25 µl
Matrix	BT5
Fluorescence labels	6-FAM™, BTG, BTY, BTR, BTO
Genetic analyzers	ABI PRISM® 3100/3100-Avant, Applied Biosystems 3130/3130xl or Applied Biosystems 3500 Genetic Analyzers

Table 2. Dyes

Dye	Marker						
6-FAM	QS1	Amelogenin	TH01	D3S1358	vWA	D21S11	QS2
BTG	D16S539	D1S1656	D19S433	SE33			
BTY	D10S1248	D22S1045	D12S391	D8S1179	D2S1338		
BTR	D2S441	D18S51	FGA				

Ordering Information

Product	Contents	Cat. no.
Investigator ESSplex SE QS Kit (100)	Primer Mix, Fast Reaction Mix 2.0 including Taq DNA Polymerase, Control DNA, Allelic Ladder ESSplex SE QS, DNA Size Standard 550 (BTO), Nuclease-Free Water	381575
Investigator ESSplex SE QS Kit (400)	Primer Mix, Fast Reaction Mix 2.0 including Taq DNA Polymerase, Control DNA, Allelic Ladder ESSplex SE QS, DNA Size Standard 550 (BTO), Nuclease-Free Water	381577
Matrix Standard BT5 single cap. (5 x 25)	Matrix Standard 6-FAM, BTG, BTY, BTR and BTO	386113
Matrix Standard BT5 multi cap. (25)	Matrix Standard 6-FAM, BTG, BTY, BTR and BTO	386123
Matrix Standard BT5 multi cap. (50)	Matrix Standard 6-FAM, BTG, BTY, BTR and BTO	386125

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Once you've tried it, you'll always insist on Quality Sensor! Visit www.qiagen.com/Investigator.

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