

Investigator[®] ESSplex SE Plus Kit

The Investigator ESSplex SE Plus Kit amplifies the full suite of 16 STR markers in the new European Standard Set (ESS), including SE33. Highly sensitive, with reliable results from trace DNA, this kit was developed specifically for forensic stains, blood, and buccal swabs. It is suitable for forensic applications and paternity testing.

The features of the Investigator ESSplex SE Plus Kit include:

- High sensitivity and inhibitor resistance
- No overlapping allelic ranges within a panel
- PCR reaction speed of approximately 90 minutes
- Ease of use thanks to the Fast Reaction Mix, which includes HotStarTaq[®] Plus DNA Polymerase

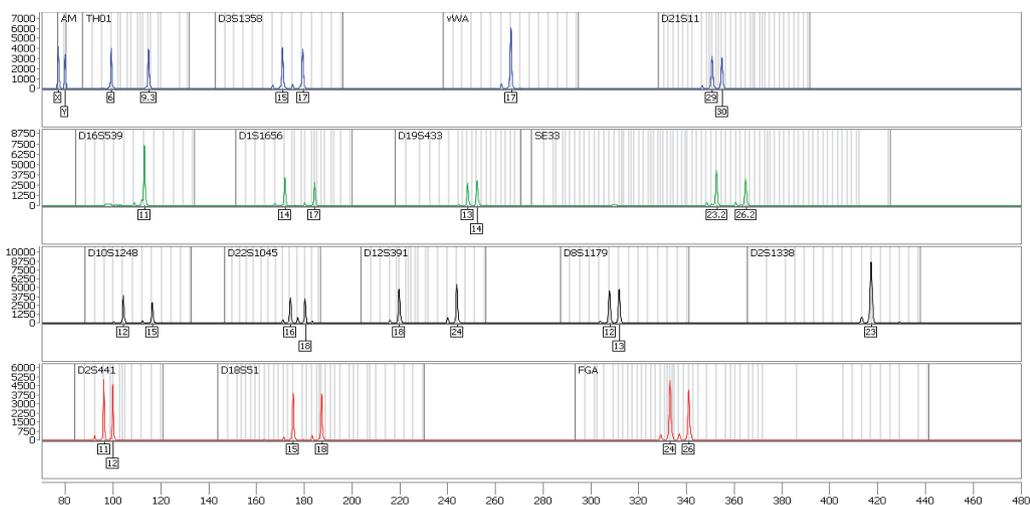
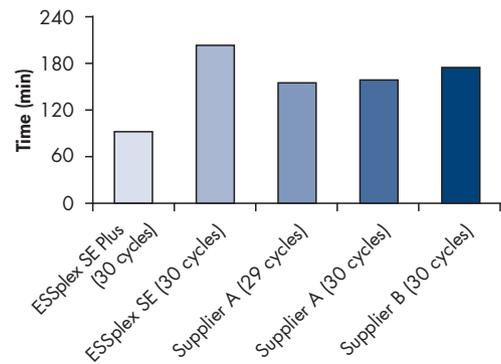


Figure 1. Electropherogram of the Investigator ESSplex SE Plus Kit. The analysis was performed on an Applied Biosystems[®] 3500 Genetic Analyzer using 500 pg Control DNA 9948. Allele assignment was performed using the Investigator IDproof Software.

The Investigator ESSplex SE Plus Kit makes use of QIAGEN's Fast Cycling Technology to provide reliable results in a shorter time (Figure 2). The reaction protocol run time is approximately 90 minutes, supporting an efficient and cost-effective workflow process.



Figure 2. PCR run time comparison. The effective run time is shown for the Investigator ESSplex SE Plus Kit, the Investigator ESSplex SE Kit, and products from other suppliers. The PCR was run on an Applied Biosystems GeneAmp® PCR System 9700 Thermal Cycler with Gold-plated Silver block.



The novel Fast Reaction Mix is based on proven QIAGEN Multiplex PCR Technology that has been further optimized to increase inhibitor tolerance. The assay performance was tested in the presence of increasing concentrations of 6 types of inhibitor (humic acid, hematin, tannic acid, indigo carmine, calcium, and collagen). Figure 3 shows an example profile generated during this performance validation. Figure 4 illustrates the capability of the Investigator ESSplex SE Plus Kit to generate profiles in the presence of increasing concentrations of inhibitors. The high level of sensitivity and inhibitor resistance enables the generation of reliable, high-quality results.

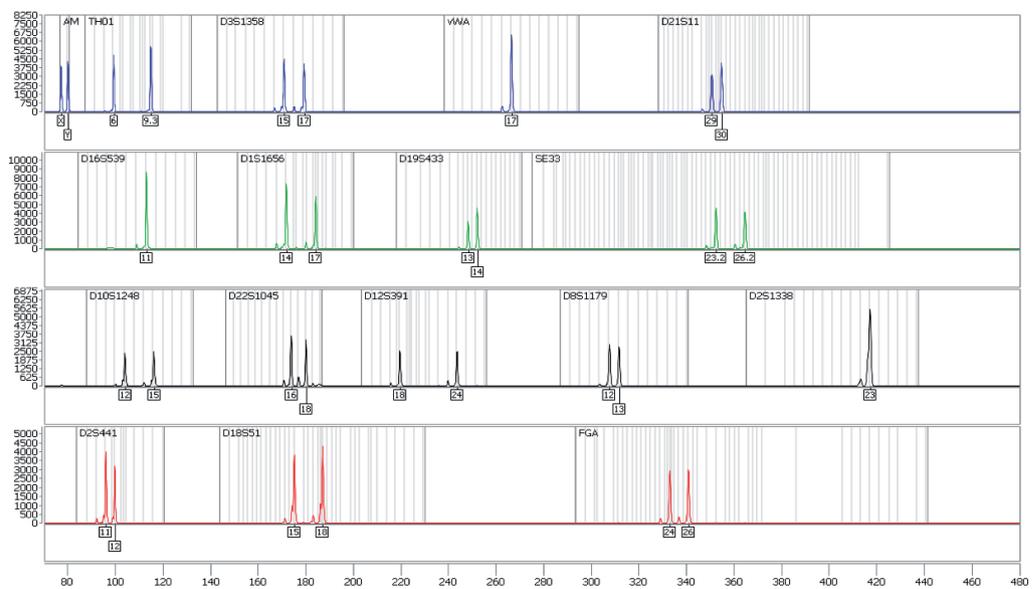


Figure 3. Investigator ESSplex SE Plus inhibitor resistance. The electropherogram displays a profile of 500 pg Control DNA 9948 generated in the presence of 500 µM hematin. The analysis was performed on an Applied Biosystems 3500 Genetic Analyzer using the Investigator IDproof Software.



Inhibitor	Humic acid	Hematin	Tannic acid
Concentration	150 ng/ μ l 200 ng/ μ l 250 ng/ μ l	250 μ M 500 μ M 1000 μ M	100 ng/ μ l 500 ng/ μ l 1000 ng/ μ l
Profile	Full Full Full	Full Full Full	Full Full Full

Inhibitor	Indigo carmine	Calcium	Collagen
Concentration	2 mM 6 mM 10 mM	1 mM 2 mM 3 mM	200 ng/ μ l 250 ng/ μ l 300 ng/ μ l
Profile	Full Full Full	Full Full Partial	Full Full Full

Figure 4. Investigator ESSplex SE Plus inhibitor resistance. The assay performance was tested in the presence of increasing concentrations of 6 types of inhibitor. 500 pg of Control DNA 9948 was added to the master mix and PCR was performed under standard conditions. The analysis was performed on an Applied Biosystems 3500 Genetic Analyzer using the Investigator IDproof Software. 100 RFU was used as the threshold for allele calling.

The Investigator ESSplex SE Plus Kit functions as part of an optimized forensic workflow together with QIAGEN’s innovative upstream applications — DNA extraction from samples on the EZ1® Advanced; reaction setup on the QIAgility®; and DNA quantification with the Investigator Quantiplex and Quantiplex HYres Kits on the Rotor-Gene® Q. The EZ1 Advanced, QIAgility, and the Investigator Quantiplex and ESSplex SE Plus Kits each offer high process speed and significant time- and cost-savings. In combination, they streamline the workflow with faster processes and a reduction of hands-on time without any reduction in quality or performance, maximizing the first-time success rates.

Table 1. Technical specifications

Volume per PCR reaction	25 μ l
Matrix	BT5
Fluorescence labels	6-FAM™, BTG, BTY, BTR, BTO
Genetic Analyzers	ABI PRISM® 310, ABI PRISM 3100/3100-Avant, Applied Biosystems 3130/3130xl, or Applied Biosystems 3500 Genetic Analyzers

Table 2. Dyes

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

Ordering Information

Product	Contents	Cat. no.
Investigator ESSplex SE Plus Kit (100)*	Primer mix, Fast Reaction Mix including HotStarTaq <i>Plus</i> DNA Polymerase, Control DNA, allelic ladder ESSplex SE Plus Plus, DNA size standard 550 (BTO), and nuclease-free water	381545
Investigator ESSplex SE Plus Kit (400)*	Primer mix, Fast Reaction Mix including HotStarTaq <i>Plus</i> DNA Polymerase, Control DNA, allelic ladder ESSplex SE Plus Plus, DNA size standard 550 (BTO), and nuclease-free water	381547
Matrix Standard BT5 single cap. (5x25)	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
DNA Size Standard 550 (BTO) (100)	DNA Size Standard 550 (BTO) for 100 reactions	386015

* Not available in all countries.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

Visit www.qiagen.com/Investigator.

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