

Investigator[®] ESSplex Plus Kit

The Investigator ESSplex Plus Kit amplifies the full suite of 15 STR markers in the new European Standard Set (ESS) of loci recommended by the European Network of Forensic Science Institutes (ENFSI) and approved by the European Union Council. Highly sensitive, with reliable results from trace DNA, this kit was developed specifically for forensic stains, blood, and buccal swabs. It is suitable for all forensic applications and paternity testing.

The features of the Investigator ESSplex 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 ready-to-use Fast Reaction Mix including HotStarTaq[®] Plus DNA Polymerase

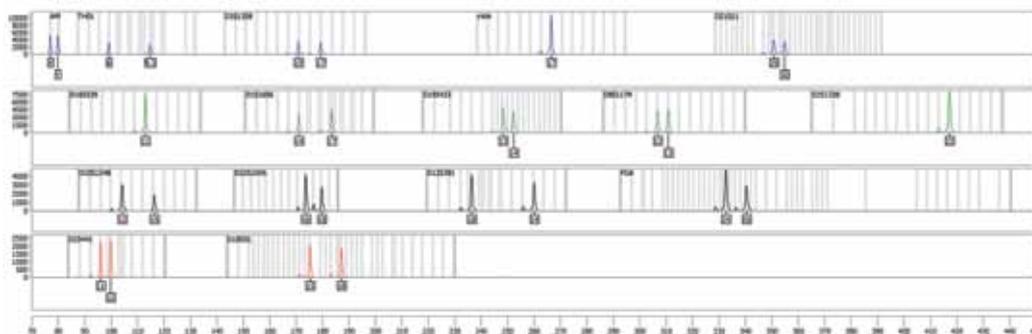


Figure 1. Electropherogram of the Investigator ESSplex Plus Kit. The analysis was performed on an Applied Biosystems[®] 3500 Genetic Analyzer using 500 pg Control DNA 9948. Allele assignment was performed using the Investigator IDproof Software.

The Investigator ESSplex 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 a time- and cost-effective workflow process.

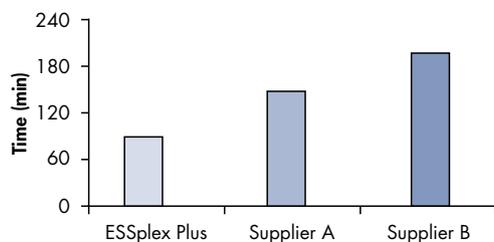


Figure 2. PCR run time comparison. The effective run time is shown for the Investigator ESSplex Plus Kit versus products from other suppliers. The PCR was run on an ABI GeneAmp[®] PCR System 9700 Thermal Cycler with Gold-plated Silver block.



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 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.

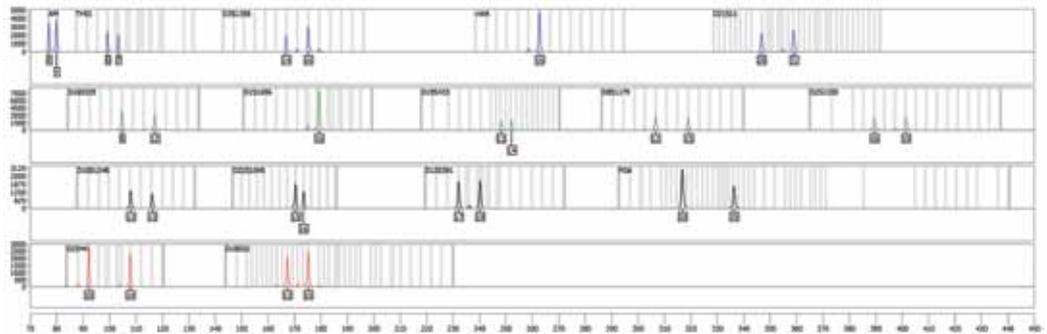


Figure 3. Investigator ESSplex Plus inhibitor resistance. The electropherogram displays a profile of 500 pg Control DNA XY5 generated in the presence of 500 µM Hematin. The analysis was performed on an Applied Biosystems 3500 Genetic Analyzer using the Investigator IDproof Software.

Inhibitor	Humic acid	Hematin	Tannic acid
Concentration	150 ng/µl 200 ng/µl 250 ng/µl	250 µM 500 µM 1000 µM	100 ng/µl 500 ng/µl 1000 ng/µl
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/µl 250 ng/µl 300 ng/µl
Profile	Full Full Partial	Full Full Partial	Full Full Partial

Figure 4. Investigator ESSplex 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 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 Kit on the Rotor-Gene® Q. The EZ1 Advanced, QIAgility, and the Investigator Quantiplex and ESSplex 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 µl
Matrix	BT5
Fluorescence labels	6-FAM™, BTG, BTY, BTR, BTO
Genetic Analyzers	ABI PRISM® 310, 3100-Avant/3100 or 3130/3130xl, 3500 Genetic Analyzer

Table 2. Dyes

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

Ordering Information

Product	Contents	Cat. no.
Investigator ESSplex Plus Kit (100)*	Primer mix, reaction mix including HotStarTaq <i>Plus</i> DNA Polymerase, Control DNA, allelic ladder ESSplex Plus, DNA size standard 550 (BTO), and nuclease-free water	381535
Investigator ESSplex Plus Kit (400)*	Primer mix, reaction mix including HotStarTaq <i>Plus</i> DNA Polymerase, Control DNA, allelic ladder ESSplex Plus, DNA size standard 550 (BTO), and nuclease-free water	381537
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

* Distributed worldwide, except in Australia, Canada, and the USA.

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Visit www.qiagen.com/Investigator.

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