

# **PLEX-**STR - multiplex STR kit for 18 STR loci and Amelogenin

A. Sinelnikov (alex@ifi-test.com) and K. A. Reich (karl@ifi-test.com) Independent Forensics, 500 Waters Edge, Suite 210, Lombard, IL 60148, USA

Sensitivity and Stability of iPLEX-STR kit

50 pg of purified DNA is sufficient to obtain full STR DNA profile

## **Key features**

 5 dye system compatible with all current 5- and 6-dye DNA analyzers

### lyophilized format

shipping and storage at room temperature *extended shelf life - >1 yr at room temperature* 

#### easy work flow and PCR setup

PCR tubes contain lyophilized master mix just add activator solution (included in the kit) and DNA

# i PLEX-STR Kit Loci

Locus	Dye Label	Chromosomal Location	Alleles included in iPLEXSTR Allelic Ladder	Size Range (bp)
Amelogenin	blue	Xp22.1-22.3 and Yp11.2	х, ү	81, 84
D3S1358	blue	3p21.31	11, 12, 13, 14, 15, 16, 17, 18, 19, 20	92 - 148
TH01	blue	11p15.5	4, 5, 6, 7, 8, 9, 9.3, 10, 11, 13.3	155 - 198
D125391	blue	12p12	15, 16, 17, 18, 18.3, 19, 20, 21, 22, 23, 24, 25, 26	206-270
D151656	blue	1q42	10, 11, 12, 13, 14, 14.3, 15, 15.3, 16, 16.3, 17, 17.3, 18, 18.3, 19.3, 20.3	280 - 332
D10S1248	blue	10q26.3	10, 11, 12, 13, 14, 15, 16, 17	340 - 392
D25441	green	2p14	8, 9, 10, 11, 11.3, 12, 13, 14, 15, 16	84 - 128
D75820	green	7q21.11	5, 6, 7, 8, 9, 10, 11, 12, 13, 14	138-182
D135317	green	13q31.1	7, 8, 9, 10, 11, 12, 13, 14, 15, 16	190-242
FGA	green	4q28	16, 17, 18, 18.2, 19, 19.2, 20, 20.2, 21, 21.2, 22, 22.2, 23, 23.2, 24, 24.2, 25, 25.2, 26, 27, 28, 29, 31, 33.2, 43.2, 44.2, 45.2	250-390
TPOX	yellow	2p25.3	6, 7, 8, 9, 10, 11, 12, 13	76 - 116
D18551	yellow	18q21.33	7, 8, 9, 10, 10.2, 11, 12, 12.2, 13, 13.2, 14, 15, 16, 17, 18, 18.2, 19, 20, 21, 22, 23, 24, 25, 26, 27	124-212
D165539	yellow	16q24.1	8, 9, 10, 11, 12, 13, 14, 15	222 - 262
D851179	yellow	8q24.13	8, 9, 10, 11, 12, 13, 14, 15, 16, 17	268-316
CSF1PO	yellow	5q33.1	8, 9, 10, 11, 12, 13, 14, 15	328 - 368
D55818	yellow	5q23.2	6, 7, 8, 9, 10, 11, 12, 13, 14, 15	374 - 422
vWA	red	12p13.31	8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22	84 - 152
D21511	red	21q21.1	23.2, 24, 24.2, 25, 25.2, 26, 27, 28, 28.2, 29, 29.2, 30, 30.2, 31, 31.2, 32.2, 33, 33.2, 34, 34.2, 35, 35.2, 36, 37	158-230
SE33	red	6q14	4.2, 5.3, 6.3, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 20.2, 21, 21.2, 22.2, 23.2, 24.2, 26.2, 27.2, 28.2, 29.2, 30, 30.2, 31.2, 32.2, 33.2, 34, 34.2, 35, 36, 37, 39, 41, 43	240-412









### 6.25 µL PCR reaction volume





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A. Sinelnikov and K. A. Reich Independent Forensics, 500 Waters Edge, Suite 210, Lombard, IL 60148, USA 708-234-1200 www.ifi-test.com

## Abstract

Multiplex PCR of short tandem repeats (STR) analyzed by capillary electrophoresis has become a valuable tool for cell line authentication, monitoring cell line stability and cross-contamination, not to mention the uses for forensic and paternity DNA tests. iPLEX-STR is a multiplex PCR kit that interrogates 18 human STR loci and the gender determination locus Amelogenin. The 18 STR loci include 13 CODIS (Combined DNA Index System) loci and 5 ESS (European Standard Set) loci. iPLEX-STR PCR primers generate amplification products between 75 and 420 bp and are labeled with blue, green, yellow and red fluorescent dyes, making the kit compatible with all standard 5 and 6-dye capillary sequencers including ABI Genetic Analyzers, GE/Amersham MegaBACE DNA Analysis System, and Hitachi FMBIO instrumentation.

The iPLEX-STR kit offers several unique features due to the lyophilized format of its components. The kit is shipped at room temperature and can be stored at room temperature for over a year without loss of sensitivity. Full DNA-STR profiles can be obtained from as little as 50 pg of purified DNA using an iPLEX-STR kit that has been stored at room temperature for 18 months. The iPLEX-STR kits provide robust, reproducible DNA profiles from a range of PCR reaction volumes (6  $\mu$ L -25  $\mu$ L) and can accommodate both purified DNA templates and unpurified TE-Chelex extracts of buccal swabs, i.e., essentially direct PCR amplification.

Recently NCBI has incorporated the loci and binning information for iPLEX-STR into OSIRIS (Open Source Independent Review and Interpretation System) – an open source STR DNA analysis software program. OSIRIS is an excellent and inexpensive (free) alternative to commercial STR DNA analysis software. Together, iPLEX-STR and OSIRIS provide researchers and core facilities with cost effective access to human genetic identity testing.