

PCR amplification kits for forensic DNA profiling

Locus guide—loci amplified by kit, approximate size ranges (bp), dye set, and probability of identity.

Locus	Chromosome location	Identifiler™, Identifiler™ Plus, and Identifiler™ Direct kits	MiniFiler™ kit	NGM SElect™ and NGM SElect™ Express kits	NGM Detect™ kit	GlobalFiler™ IQC kit	GlobalFiler™ and GlobalFiler™ Express kits	VeriFiler™ Express kit	VeriFiler™ Plus kit
CSF1PO	5p33.3-34	302–349	84–133			277–325	277–325	277–325	277–325
D5S818	5q21-31	128–180				133–190	133–190	133–190	360–420
D7S820	7q11.21-22	251–299	141–194			256–305	256–305	256–305	255–302
D13S317	13q22-31	205–250	90–139			197–249	197–249	197–249	199–253
TPOX	2p23-2per	216–261				332–385	332–385	332–385	358–415
D3S1358	3p	98–148		114–169	105–162	90–147	90–147	90–147	82–142
D8S1179	8q24.13	118–184		117–175	85–160	108–177	108–177	108–177	113–177
D16S539	16q24-qter	255–302	70–122	223–278	65–119	221–274	221–274	221–274	221–274
D18S51	18q21.3	264–350	122–211	259–348	121–215	255–348	255–348	255–348	255–348
D21S11	21p11.2-q21	184–248	180–251	178–250	191–260	179–247	179–247	179–247	179–247
FGA	4q28	206–360	136–297	221–372	163–330	221–380	221–380	221–380	204–366
THO1	11p15.5	159–205		176–222	218–268	174–220	174–220	174–220	164–211
vWA	12p12-pter	151–215		149–215	119–186	151–215	151–215	151–215	145–215
D2S1338	2q35-37.1	304–370	111–180	281–356	80–170	275–356	275–356	275–356	275–356
D19S433	19q12	101–148		122–167	166–235	115–174	115–174	115–174	130–202
D1S1656	1q42.2			170–224	262–323	154–210	154–210	154–210	140–197
D2S441	2p14			74–114	328–380	75–114	75–114	75–114	80–125
D10S1248	10q26.3			72–127	296–355	80–132	80–132	80–132	367–423
D12S391	12p13.2			225–287	273–342	211–271	211–271	211–271	213–273
D22S1045	22q12.3			76–120	239–291	83–127	83–127	83–127	83–127
SE33	6q14			295–440	180–351	306–444	306–444		
D6S1043	6q16.1							306–384	327–415
Amelogenin	X: p22.1-22.3, Y: p11.2	106–114	99–110	100–108	105–117	97–108	97–108	97–106	100–111
Y-indel	Yq11.221				87–100	79–88	79–88	79–88	79–88
DYS391	Yq11.21					359–395	359–395		
IQCS	NA				64–73	64–73			64–72
IQCL	NA				445–453	445–453			445–453
Penta D	21q							370–455	78–162
Penta E	15q							349–465	304–425
Dye set†		G5	G5	G5	J6-T	J6	J6	J6	J6-T
Probability of identity*		1.31 x 10 ⁻¹⁶	6.52 x 10 ⁻¹¹	8.12 x 10 ⁻²²	8.12 x 10 ⁻²² **	6.18 x 10 ⁻²⁷	6.18 x 10 ⁻²⁷	2.55 x 10 ⁻³⁰	2.13 x 10 ⁻³⁰
African American		5.01 x 10 ⁻¹⁶	8.21 x 10 ⁻¹¹	2.35 x 10 ⁻²¹	2.35 x 10 ⁻²¹ **	3.71 x 10 ⁻²⁶	3.71 x 10 ⁻²⁶	1.09 x 10 ⁻²⁸	1.24 x 10 ⁻²⁸
US Caucasian		7.65 x 10 ⁻¹⁶	1.05 x 10 ⁻¹⁰	3.16 x 10 ⁻²¹	3.16 x 10 ⁻²¹ **	3.09 x 10 ⁻²⁶	3.09 x 10 ⁻²⁶	2.95 x 10 ⁻²⁹	2.29 x 10 ⁻²⁹
US Hispanic		3.62 x 10 ⁻¹⁷	2.08 x 10 ⁻¹⁰						
Native American						3.34 x 10 ⁻²⁴	3.34 x 10 ⁻²⁴	4.69 x 10 ⁻²⁸	
Asian									

† Individual dye labels associated with the colors in this chart are given in the user manuals.

* Refer to appropriate user manual for additional population information.

** Based on NGM SElect kit, since loci are common. To be updated after publication of developmental validation in the user manual.

Y-STR PCR amplification kits for forensic DNA profiling

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Locus	Yfiler™ kit	Yfiler™ Plus kit
DYS627		319–394
DYS389I	134–178	142–184
DYS635	241–274	187–257
DYS389II	246–302	260–314
DYS576		68–138
DYS391	146–181	348–403
DYS448	273–332	271–345
Y-GATA-H4	114–150	231–269
DYS19	167–219	179–229
DYS456	100–127	
DYS458	133–165	115–177
DYS460		75–113
DYS518		327–406
DYS392	286–335	270–326
DYS437	174–210	
DYS438	215–257	201–264
DYS390	185–245	139–197
DYS456		71–135
DYS449		320–403
DYS385 a/b	235–323	220–318
DYS437		173–215
DYS570		93–168
DYS533		334–384
DYS387S1 a/b		259–325
DYS481		203–256
DYS439	192–236	145–200
DYS393	104–144	85–139
Dye set†	G5	J6

† Individual dye labels associated with the colors in this chart are given in the user manuals.

Y-STR haplotypes may be searched using the Y-STR haplotype reference database (YHRD).
For more information, go to yhrd.org or thermofisher.com/ystr.



Our manufacturing facilities are ISO 18385–compliant and deliver high-quality products. We are dedicated to producing products that meet the highest industry standards—so our customers can get the answers they trust.

Find out more at thermofisher.com/hid