

iPrep™ ChargeSwitch® Kits for DNA Isolation from Forensic and Buccal Samples

The iPrep™ ChargeSwitch® Forensic Kit and iPrep™ ChargeSwitch® Buccal Cell Kit take advantage of the powerful ChargeSwitch® technology, a major advance in DNA purification. This technology is based on a unique, ionizable nucleic acid-binding ligand whose charge can be switched based on the pH of the surrounding medium. Designed specifically for use with the iPrep™ Purification Instrument, these kits achieve purification through a simple three-step procedure in aqueous buffers, and avoid the use of guanidine, ethanol, and other troublesome reagents.



High success rate from low copy number samples

iPrep™ ChargeSwitch® Forensic Kit

- Flexibility in starting sample type, for quick and easy processing of different samples simultaneously
- High sensitivity with samples containing very low amounts of DNA
- Standardized procedures to minimize human error; preset protocols and prefilled cartridges to eliminate variation

The iPrep™ ChargeSwitch® Forensic Kit offers a single protocol for efficiently isolating DNA from all kinds of forensic samples, even if the DNA copy number is low or the DNA is partially degraded.

The use of DNA profiling for human identification has increased dramatically in recent years. More sensitive methodology has allowed the routine forensic analysis of samples such as hair, blood spot swabs, cigarette butts, chewing gum, semen stains, and vaginal swabs. Even low copy number samples such as sweat and touch samples are now included

in routine testing, with high success rates using short tandem repeat (STR) analysis. Used in combination with the iPrep™ Purification Instrument, the iPrep™ ChargeSwitch® Forensic Kit is ideal for isolating DNA from forensic samples.

Table 1— Efficiency of DNA extraction from a variety of forensic samples using different isolation methods.

Sample	STR success rate as determined by Method A/Method B*	
	iPrep™ system	6-prep system (Competitor Q)
Buccal cells	100%/100%	100%/100%
Swabbed dried blood spot on denim	100%/100%	100%/100%
Dried blood spot (tissue)	100%/100%	100%/80%
Taped touch samples and clothing	100%/90%	80%/80%
Hair	100%/100%	100%/100%
Semen	100%/100%	100%/100%
Cigarette butt	80%/80%	80%/80%

* The STR success rate is determined by the identification of at least 8 of 10 loci, as indicated by the presence of an STR profile (Method A) or a databasable STR profile (Method B). Data represent the average of 10 replicates per method and sample type; STR analysis was carried out using an AmpF/STR® SGM Plus® PCR Amplification Kit (Applied Biosystems).



DNA Purification

Easy and fast purification of DNA from buccal cells

iPrep™ ChargeSwitch® Buccal Cell Kit

- Ethanol- and guanidine-free extraction for less inhibition of downstream applications (Figure 1)
- Increased DNA yields and purity (Table 2), allowing for more tests per sample and long-term archiving
- Multiple applications—databasing, human identification, clinical research, molecular testing, etc.—from the same sample

Buccal swabs represent a simple, noninvasive, and widely used method for collecting DNA. By using the iPrep™ Purification Instrument and the iPrep™ ChargeSwitch® Buccal Cell Kit together, isolating DNA from swabs is easier than ever. This combination provides fast lysis before automated processing; purified DNA can be obtained from cell samples in as little as 40 minutes, including a 20 minute lysis step.

Contents and storage

iPrep™ ChargeSwitch® Kits provide all reagents (supplied in pre-filled cartridges), tubes, and tips needed for isolating DNA from forensic or buccal cell samples. Reagent cartridges can be stored

at room temperature; store lysis buffer and proteinase (for pre-treatment steps) at 4°C.

Table 2—Mean yield and purity of DNA purified from buccal cell samples using either the iPrep™ system or a 6-prep system from Competitor Q.*

Method	DNA yield (std. dev.)	A ₂₆₀ /A ₂₈₀ ratio (std. dev.)
iPrep™ system	2 µg (0.4)	1.7 (0.1)
Competitor Q	0.82 µg (0.4)	>2.0 (ND)

* Values are the mean of 36 replicate assays; PCR efficiencies were shown to be 100% with all samples. ND = not determined.

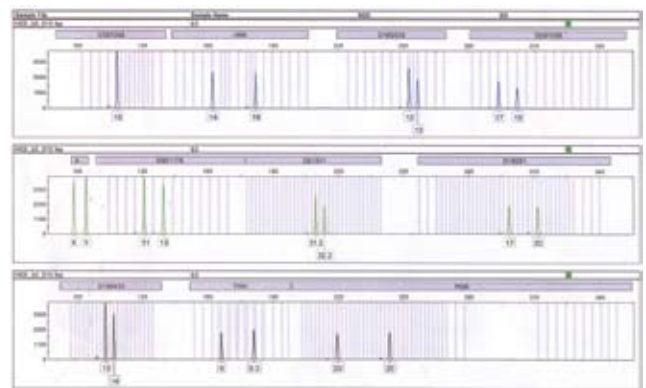


Figure 1—Example of fully “databasable” (DB) STR profile obtained from a normalized buccal cell sample. The individual loci are named in the grey boxes above each set of peaks; the profile indicates 10 STR loci and the amelogenin sex marker (the first set of green peaks).

Ordering information

Product	Quantity	Cat. no.
iPrep™ ChargeSwitch® Forensic Kit	52 preps	IS-10002
iPrep™ ChargeSwitch® Buccal Cell Kit	52 preps	IS-10003

Related products

iPrep™ Purification Instrument		IS-10000
iPrep™ Forensic Card (includes buccal protocol)		IS-10011
iPrep™ gDNA Blood and Tissue Card (includes tissue protocol)		IS-10010

For current prices, please visit www.invitrogen.com.



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