

DNA Purification from Various Sample Types Using the DNA IQ™ System

Using the standard protocols, the DNA IQ™ System allows efficient DNA purification from a wide variety of sample types.

Forensic laboratories are presented with a variety of different types of samples for DNA typing. Many of these samples require lengthy DNA purification protocols, which often become the rate-limiting step in obtaining useful genotypes. Commonly used methods of DNA purification often result in a significant loss of material, require the use of hazardous chemicals, and potentially introduce amplification inhibitors into the purified DNA. The DNA IQ™ System^(a) overcomes these obstacles by using paramagnetic particles to isolate a consistent amount of DNA, free from PCR inhibitors, without extensive wash steps, multiple centrifugations, or the use of harmful chemicals.

Using the standard protocols, the DNA IQ™ System allows efficient DNA purification from a wide variety of sample types encountered in the lab. The Database Protocol, #TB297, uses relatively large samples and a limiting amount of the DNA IQ™ Resin to consistently isolate approximately 100ng of DNA from blood while the Small Sample Casework Protocol, #TB296, uses small, casework samples from which the maximum amount of DNA is desired. With this limiting amount of sample, the yield is no longer prescribed by the amount of resin but by the amount of sample. The Small Sample Casework Protocol has been used to isolate DNA from a variety of samples, such as fresh and frozen blood, urine, buccal swabs, and bloodstains on matrices such as S&S 903 paper, FTA® paper, denim, cotton, leather, and soil. DNA can also be purified from a number of additional sample types with slight modifications to the standard Small Sample Casework Protocol. Table 1 provides examples of these other sample types. In many cases DNA purification can be performed following a Proteinase K pretreatment step, as described in the Tissue and Hair Extraction Kit (for use with DNA IQ™) Protocol, #TB307. For a complete list and for more information on available protocols, visit our web site at: www.promega.com/profiles/ or contact Promega Technical Services at techserv@promega.com

Table 1. Types of Samples From Which DNA Has Been Successfully Isolated With the DNA IQ™ System.

Cigarette Butt	Use paper wrapping; filter may form gel if heated.
Toothbrush	Soak bristles in DNA IQ™ Lysis Buffer at 60°C for 30 minutes.
Envelope	Soak in 0.5% SDS before adding 2 volumes of DNA IQ™ Lysis Buffer.
Tissue	
Fresh	Requires a Proteinase K digestion. See the Tissue and Hair Extraction Kit (for use with DNA IQ™) Protocol, #TB307
Formalin-Fixed	Requires a Proteinase K digestion. See the Tissue and Hair Extraction Kit (for use with DNA IQ™) Protocol, #TB307
Hair	Requires a Proteinase K digestion. See the Tissue and Hair Extraction Kit (for use with DNA IQ™) Protocol, #TB307
Bone	From pulverized bone. See the Bone Protocol for the DNA IQ™ System at: www.promega.com/profiles/
Antler	From drill shavings. See the Bone Protocol for the DNA IQ™ System at: www.promega.com/profiles/
Differential Extraction	Requires a Proteinase K digestion. See the Tissue and Hair Extraction Kit (for use with DNA IQ™) Protocol, #TB307

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^(a) Refer to the patent and disclaimer statements on page 2.