

DNA: General Procedural Guidelines

Introduction This section contains general DNA procedural guidelines.

For specific standards and controls required, analytical documentation, guidelines for interpretation, and references, refer to the specific technical procedures in this manual.

Sample testing The testing of samples should be conducted to provide the maximum amount of information while consuming as little sample as possible.

Biological material should first be characterized and then evaluated to determine the appropriateness for DNA analysis.

When semen is identified, a method of differential extraction must be employed and, where appropriate, each of the DNA fractions typed.

DNA isolation The DNA isolation procedure should protect against sample contamination.

The effectiveness of the DNA isolation procedure for reference samples other than hair will be evaluated by the use of a human DNA QC stain control from a known source.

Estimation of DNA recovery Where appropriate, a procedure will be used for estimating the quantity of DNA recovered from the samples.

Quantitation with human/primate specific probes requires an appropriate set of human DNA standards.

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Internal controls

The various DNA procedures contain specific QC guidelines to assess critical parameters in normal operations including the following controls.

Reagent blank and negative PCR control: both types of negative controls are included with each set of samples.

Positive PCR control: a known DNA type must be introduced at the amplification step as a positive PCR control and carried through the remainder of the typing.

QC stain control: the QC stain is a sample whose type has been determined previously, but which is unknown to the analyst at the time of analysis. It serves both as a positive extraction control and a blind sample for the case.

Substrate controls: where appropriate, substrate controls should be collected from the evidence and should be processed in the same manner as evidence samples.

Use and interpretation guidelines for these controls are found in *DNA: Blanks and Controls* in the *Quality Assurance* section of the DNA manual.
