



## Scientific Working Group on DNA Analysis Methods Position Statement on Rapid DNA Analysis

The Scientific Working Group on DNA Analysis Methods, better known by its acronym of SWGDAM, is a group of scientists representing federal, state, and local forensic DNA laboratories in the United States and Canada. During meetings, which are held twice a year, subcommittees discuss topics of interest to the forensic DNA community and often develop documents to provide direction and guidance for the community. The SWGDAM Rapid DNA Committee drafted this statement for the SWGDAM membership and it was approved by the SWGDAM Executive Board and membership on October 23, 2017.

Rapid DNA, or Rapid DNA analysis, describes the fully automated (hands free) process of developing a CODIS DNA profile from a reference sample buccal swab<sup>1</sup> without human intervention or interpretation in less than two hours. Currently available Rapid DNA instruments were specifically developed for reference sample buccal swabs taken from persons during the booking process. Reference sample buccal swabs contain high quality single source DNA which makes them ideal for this application. The profiles generated from these samples can be interpreted by an onboard expert system, as opposed to a qualified DNA analyst, making the process “fully automated”.

Rapid DNA technology is not currently suitable for crime scene samples as they can present many challenges. Crime scene samples are often irreplaceable, and Rapid DNA instruments consume the entire sample.<sup>2</sup> Crime scene samples often have low amounts of DNA present, contain DNA from more than one person (mixtures), and may have damaged or degraded DNA thereby necessitating that those DNA results are evaluated by a trained forensic DNA analyst. Many software tools exist to aid in the interpretation of DNA mixtures, but all of these require a trained forensic DNA analyst to interpret and make decisions based on the data before moving forward. Because a trained forensic DNA analyst is required to interpret complex evidence samples, the analysis

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<sup>1</sup> Reference sample buccal swab refers to a DNA sample obtained directly from a known individual and not a DNA sample obtained through abandonment or surreptitiously, without the individual's knowledge.

<sup>2</sup> Federal law and many state laws require the retention of biological material under specified circumstances (*see generally* 18 U.S.C. §3600A, Evidence Retention Laws: A State-by-State Comparison (2013) available at <http://victimsofcrime.org/docs/default-source/dna-resource-center-documents/evidence-retention-check-chart-9-5.pdf?sfvrsn=2>). These biological evidence retention laws operate in conjunction with Federal/State post-conviction DNA testing laws to ensure the availability of biological material for further testing.



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and interpretation of casework samples cannot be “fully automated”. In addition to the many challenges associated with crime scene samples, in order for the crime scene DNA profiles to be eligible for the National DNA Index System (NDIS), Federal law requires that such profiles be developed in accordance with the FBI’s Quality Assurance Standards (QAS). These QAS require that the amount of human DNA present in a crime scene sample be quantified as a critical step in determining the quality of the crime scene sample. Rapid DNA instruments do not currently quantify the amount of DNA present; therefore any crime scene profile developed solely utilizing a Rapid DNA instrument cannot be maintained (searched or stored) in CODIS. This step is not required, however, for reference sample buccal swabs as there is an abundance of high quality DNA present in such samples.

This differentiation between known reference samples and crime scene samples is not new. During its deliberations in the late 1990s, the Federal DNA Advisory Board recognized that distinctions were warranted between these two types of samples in their determination to recommend two sets of Quality Assurance Standards (QAS) to the FBI Director. The Introduction to the original Convicted Offender DNA Databasing QAS explained it as follows: “Forensic DNA identification analysis currently involves forensic casework and convicted offender analysis. These complementary functions demand adherence to the highest analytical standards possible to protect both public safety and individual rights. Separate standards have been drafted for laboratories performing these functions. This separation is an acknowledgement of the difference in the nature or type of sample, the typical sample quantity and potential for reanalysis, and specialization that may exist in a laboratory. Standards for convicted offender laboratories, in some instances, are less stringent than those for performing forensic casework analyses, but in no case should the two documents be interpreted as conflicting.” During its current review of the QAS, SWGDAM endorses and supports the need for different Standards governing crime scene and known reference sample forensic DNA analyses.

It is important to note that while Federal lawmakers see the advances of Rapid DNA technology as a positive note for the community, they also agree that Rapid DNA analysis should only be performed on reference sample buccal swabs as is explained in the House Report for H.R. 510. Specifically, the Report (House Report 115-117) states, “DNA technology has advanced a great deal in the years since the 1994 Act. Whereas it once took days or weeks, DNA testing can now be completed in a matter of hours. There is currently technology, known as Rapid DNA technology, that allows for DNA



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testing and identification on a small, copier-sized machine. A DNA sample—oftentimes a cheek swab—is taken, placed into a cartridge that slides into the Rapid DNA machine, and reports back the DNA profile in approximately ninety minutes. The FBI, working with the forensics community, is hopeful that this technology can be used in a booking station to help identify suspects in the same way a fingerprint is currently used. At present, Rapid DNA technology can only be used for identification purposes, not crime scene analysis...The short turnaround time resulting from increased use of Rapid DNA technology would help to quickly eliminate potential suspects, capture those who have committed a previous crime and left DNA evidence, as well as free up current DNA profilers to do advanced forensic DNA analysis, such as crime scene analysis and rape-kits.” This distinction on the use of the Rapid DNA instruments on known reference samples was reiterated during the House debate on the bill: “Rapid DNA could not at this time be used for rape kits, but the implementation of Rapid DNA will allow forensic labs to focus on forensic samples, not on identification samples which can easily be handled by Rapid DNA machines.” (Congressional Record, May 16, 2017 at H4205).

It is of the utmost importance that the CODIS database contains high quality data, and that the public’s faith and confidence in forensic DNA analysis is maintained. SWGDAM will continue to monitor developments with Rapid DNA and if appropriate, will recommend changes regarding the use of these instruments in the future.