

[Rapid DNA Act of 2017 \(Public Law 115-50\)](#)

Establishes a system for integration of Rapid DNA instruments for use by law enforcement to reduce violent crime and reduce the current DNA analysis backlog.

Updated last **September 6, 2017**
for Public Law 115-50.

WHAT IT DOES

When compared to traditional DNA analysis methods, [Rapid DNA](#) instruments (shorthand for technology that generates automated analysis of a person's [DNA](#) in a matter of hours) combine steps and ultimately decrease the length of time required to produce a DNA analysis. This law allows DNA analyses generated by Rapid DNA instruments to be included in the [Combined DNA Index System](#) (CODIS). The goal of this law is to facilitate the use of this technology to 1) inform decisions about pretrial release or detention, 2) solve and prevent crimes, 3) exonerate the innocent, and 4) prevent DNA analysis backlogs.

[Public Law 115-50](#), commonly known as the Rapid DNA Act of 2017, amends the [DNA Identification Act of 1994](#) and the [DNA Analysis Backlog Elimination Act of 2000](#). The law:

- Creates a standard definition for Rapid DNA instruments as those that carry out “a fully automated process to derive a DNA analysis from a DNA sample;”
- Specifies that the Federal Bureau of Investigation (FBI) shall issue standards and procedures for use of Rapid DNA instruments and resulting DNA analysis;
- Establishes a new category of actors who may prepare CODIS information: Criminal justice agencies using Rapid DNA instruments that are (1) approved by the FBI, and (2) used in compliance with FBI standards and procedures; and

Allows the FBI to waive the requirement that the analysis of DNA samples collected from certain [federal](#) and [District of Columbia](#) offenders by analyzed by the FBI, if the DNA samples are analyzed via Rapid DNA instrumentation and the results are included in CODIS.

RELEVANT SCIENCE

A person's genome (total [DNA](#) in a cell) is made up of a linear sequence of chemical units called nucleotides. There are four DNA nucleotides – adenine (*a*), thymine (*t*), guanine (*g*), and cytosine (*c*) – and their specific order in parts of the genome encodes important information that helps cells function. Most of any one person's genome is identical in its sequence to another person's. However, there are variations between genomes, and one class of variations is referred to as [short tandem repeats](#) (STRs). STRs are parts of the genome that feature consecutive repeats of a DNA sequence, often three to seven nucleotides in length. For example, *gatagatagatagatagatagata* features the four-nucleotide repeat *gata*. The STR variation between individuals is not found in the sequence of the repeat, but in how many times it is repeated. Some individuals might have the repeat 10 times, others 11, and still others 12. On top of that, every person has two versions (i.e., [alleles](#)) of each STR, one inherited from each parent. The number of repeats will either be the same for both alleles (e.g., 10,10 or 12,12) or different (e.g., 10,12). When multiple different STR regions (called “loci”) are simultaneously considered, differences between individuals emerge that can be used for DNA profiling. CODIS uses 20 different STR [core loci](#) to generate a DNA profile.

Analyzing a DNA sample for use in a US criminal investigation requires four steps:

1. [Extraction](#): DNA contained on swabs taken from a suspect or crime scene must be isolated to eliminate all other contaminating

material (i.e. cotton, dust, etc.).

2. **Amplification:** Short sequences of DNA from 20 different loci are amplified (i.e., copies are produced) using a technique called [polymerase chain reaction](#) (PCR). This amplification step allows for DNA analysis from a very small amount of starting DNA.
3. **Separation:** Individuals contain different numbers of repeats within these STRs, which would be reflected in the size of the amplified DNA sequence. The amplified DNA can be separated by size using a technique called [electrophoresis](#). There are two main [types of electrophoresis](#), gel (traditional) and capillary (used in Rapid DNA).
4. **Detection:** Each of the two STR alleles for each locus are compared to a control to determine its size (i.e., number of repeats). While each locus might have repeat sizes shared by 5-20% of the population, looking at the 20 different loci vastly decreases the odds of a duplicate profile within a population.

The FBI can use STR profiles to match DNA at crime scenes to STR profiles of individuals in their CODIS system. Rapid DNA instruments vastly speed up and simplify these four steps into a single process with minimal human interface.

Rapid DNA analysis provides several advantages over canonical DNA analysis. First, rapid DNA analysis eliminates the need for a DNA expert to handle a known sample. Little training is necessary to operate the machines, so the DNA analysis can be managed by an investigating police officer, booking agent, or other law enforcement personnel.

Second, any DNA picked up from gloves, countertops, door handles etc. during DNA analysis can serve as a contaminant, complicating the DNA profiling process and interfering with the accuracy of results. Rapid DNA analysis employs a hands-free method, effectively minimizing the chance of contamination.

Third, DNA analysis can be quite time consuming, taking a laboratory between 10 hours and several days to process a sample. Any backlog of samples will make this process even longer. Rapid DNA analysis can complete the process, “swab in” to “profile out” in about two hours, providing a high throughput system for DNA analysis.

RELEVANT EXPERTS

[Sara Katsanis, MS](#) is a Duke University instructor in the Duke Initiative for Science & Society. Her research focuses on policies for DNA testing in law enforcement and human rights contexts.

BACKGROUND

The FBI has been developing the [CODIS](#) program over the last three decades to assist federal, state, local, and international forensic laboratories in storing their DNA records for law enforcement investigative purposes. DNA information is shared among state and federal law enforcement agencies according to specific regulatory rules and structures that limit the unchecked sharing of information. Until now, access to CODIS has been restricted to government-approved crime laboratories with DNA expertise. The Rapid DNA Act was developed to permit police agencies to develop DNA profiles independent of crime laboratories, eliminating the need for expertise and the long turnaround time for profiling offenders for the database. In particular, the use of Rapid DNA machines will expedite processing of DNA collected from arrestees so that searches of CODIS can happen, potentially, while an arrestee is in custody (within 2 hours).

ENDORSEMENTS & OPPOSITION

Endorsements:

- On August 8, 2017, the [National Association of Police Organizations](#) (NAPO) pledged strong support for the law in a [newsletter](#): “The Rapid DNA Act will ensure that law enforcement agencies that use rapid DNA technology can upload profiles generated by those instruments into the FBI’s Combined DNA Index System (CODIS) in the field, following standards and procedures to be

issued by the FBI, rather than having to go through an accredited crime lab. With science and technology evolving, this legislation allows law enforcement to keep pace, strengthening our ability to safeguard our communities.”

- FBI Director James Comey praised the Rapid DNA Act on multiple occasions, including during a [testimony](#) before the Senate Judiciary Committee on May 3, 2017. “[It] will materially advance the safety of the American people. So that if a police officer somewhere in the United States has in his or her custody someone who is a rapist, before letting them go on some lesser offense, they’ll be able to quickly check the DNA database and get a hit. That will save lives. That will protect all kinds of people from pain and I think it’s a great thing.”

More broadly, supporters claim that permitting rapid DNA profiles to be entered into CODIS allows for more efficient law enforcement investigations. In *Maryland v King* (2013), Justice Roberts’ majority (5-4) opinion noted that “the delay in processing DNA from arrestees is being reduced to a substantial degree by rapid technical advances,” further arguing that “the reasonableness of this minimally invasive search of a person detained for a serious crime should take account of these technical advances.”

Opposition:

- There are no known formal letters of opposition against the Rapid DNA Act of 2017.

More broadly, some argue that the use of rapid DNA instruments in booking stations to search arrestees’ DNA profiles in CODIS violates individual privacy under the Fourth Amendment. In *Maryland v King* (2013), Justice Scalia’s dissent acknowledged that the government “is developing devices that will be able to test DNA in mere minutes,” but argued that while “solving unsolved crimes is a noble objective... it occupies a lower place in the American pantheon of noble objectives than the protection of our people from suspicionless law-enforcement searches.”

STATUS

Signed into law on August 18, 2017 by President Donald Trump.

POLICY HISTORY

Public Law 115-50, the Rapid DNA Act of 2017, was introduced in the House of Representatives on January 12, 2017 as [HR 510](#). An identical bill, [S 139](#), was simultaneously introduced in the Senate. Although both versions passed their respective chambers on May 16, 2017, HR 510 went on to be passed in the Senate and signed into law by the President, while S 139 was held at the desk in the House of Representatives. In 2016, the House of Representatives and the Senate of the 114th Congress each introduced their own Rapid DNA Act bills that were identical to the Rapid DNA Act of 2017 ([HR 320](#) and [S 2348](#), respectively). The Rapid DNA Act of 2014, [HR 5789](#), was textually different but thematically similar.

SPONSORS

Sponsor (HR 510): [Representative James F. Sensenbrenner, Jr.](#) (R-WI-5)

Cosponsors (HR 510):

- [Representative Eric Swalwell](#) (D-CA-15)
- [Representative Rodney Davis](#) (R-IL-13)
- [Representative Ron Kind](#) (D-WI-3)
- [Representative Tim Ryan](#) (D-OH-13)
- [Representative Steve Cohen](#) (D-TN-9)
- [Representative Ann Wagner](#) (R-MO-2)

- [Representative John Ratcliffe](#) (R-TX-4)
- [Representative Jackie Speier](#) (D-CA-14)
- [Representative Stevan Pearce](#) (R-NM-2)
- [Representative Mark DeSaulnier](#) (D-CA-11)

Sponsor (S 139): [Senator Orrin G. Hatch](#) (R-UT)

Cosponsors (S 139):

- [Senator Dianne Feinstein](#) (D-CA)
- [Senator John Cornyn](#) (R-TX)
- [Senator Kirsten E. Gillibrand](#) (D-NY)
- [Senator Jeff Flake](#) (R-AZ)
- [Senator Amy Klobuchar](#) (D-MN)
- [Senator David Perdue](#) (R-GA)
- [Senator Mike Lee](#) (R-UT)
- [Senator Christopher A. Coons](#) (D-DE)

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RECOMMENDED CITATION

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