

Identifying bin Laden, unmasking a rapist: DNA at work

May 30 2011, by Jean-Louis Santini



This undated illustration shows the DNA double helix. From identifying Osama bin Laden to proving someone guilty of rape or murder, DNA analysis has become an essential scientific tool for police and criminal justice. Unique genetic markers could play a crucial role in the trial of ex-IMF chief Dominique Strauss-Kahn, accused of sexually assaulting a hotel maid in New York.

From identifying Osama bin Laden to proving someone guilty of rape or murder, DNA analysis has become an essential scientific tool for police and criminal justice.

Unique [genetic markers](#) could play a crucial role in the trial of ex-IMF chief Dominique Strauss-Kahn, accused of sexually assaulting a hotel maid in New York.

Various media reports, citing sources close to the investigation, have said that DNA from Strauss-Kahn -- believed to be traces of semen -- was found on the shirt of the 32-year-old woman, who has alleged that the French political heavyweight tried to rape her in his hotel suite on May 14.

"The DNA technique, the [nuclear DNA](#), is the one and only technique, if properly conducted, that has an extraordinarily high odds against a misidentification," said University of Arizona professor of chemistry and geoscience Bonner Denton.

"It's very close to 100 percent... It's a much better technique than many other forensic identification techniques, even finger prints."

Thanks to [DNA analysis](#) and other tests, US officials were able to say they were certain [bin Laden](#) was dead, with just a one in 11.8 quadrillion chance of mistaken identity.

CIA specialists first compared photographs of the Al-Qaeda leader's corpse to photographs of bin Laden and then reviewed a DNA sample against a "comprehensive profile" derived from some of his many family members.



Ex-IMF head Dominique Strauss-Kahn is seen at Manhattan Criminal Court, in New York, in May 2011. Unique genetic markers could play a crucial role in the trial of Strauss-Kahn, accused of sexually assaulting a hotel maid in New York.

As a result, an intelligence official said there was no doubt that a team of US Navy SEALs that raided a compound in Pakistan on May 1 had killed the Al-Qaeda founder.

Denton was part of a National Research Council team that wrote a key report about DNA analysis in 2009 for the [US Congress](#).

"Nuclear DNA analysis has been subjected to more scrutiny than any other forensic discipline, with extensive experimentation and validation performed prior to its use in investigations," the report said.

It concluded that the US medical-legal system needed to be revamped because forensics labs were backlogged and understaffed.

More than half of the first 250 people released from prison thanks to a DNA test exonerating them had been initially found guilty based on erroneous medical analysis.

DNA analysis entered the US criminal system in 1987 when a serial rapist in Florida became the first person whose guilt was proven using the technique.

Federal authorities, including the US military and all 50 states, now archive DNA samples.

The FBI has developed the powerful Combined DNA Index System (CODIS), which catalogs millions of samples.



This illustration taken in May 2011 in Kaufbeuren, southern Germany, shows the websites of different anglophone newspapers reporting on the death of Al-Qaeda leader Osama bin Laden. Thanks to DNA analysis and other tests, US officials were able to say they were certain bin Laden was dead, with just a one in 11.8 quadrillion chance of mistaken identity.

Every Monday morning, the FBI launches a CODIS search automatically comparing millions of DNA profiles of people who were arrested or

found guilty with samples collected in cold cases.

The methodology has allowed CODIS to confirm the guilt of 140,000 criminals since 1994 and to prove 269 people innocent since 1989, according to University of Virginia School of Law professor Brandon Garrett.

Each year, DNA analysis clears thousands of suspects, even early on in police investigations.

A federal investigation in the 1990s found that 25 percent of principal suspects had been cleared of all suspicion thanks to DNA tests.

The reliability of the technique can also establish the identity of a child's parents at low cost.

And it shed new light on the relationship between Thomas Jefferson and the third US president's black slave Sally Hemings, finding that he likely fathered several children with her.

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