

STRmix™ Use by FACL Results in Exoneration of Man Convicted of 1997 Murder

Texas Court Vacates Conviction

WASHINGTON, DC, DC, UNITED STATES, December 23, 2024 /EINPresswire.com/ -- The use of [STRmix™](#) – [forensic](#) software capable of resolving mixed [DNA](#) profiles previously regarded as too complex or degraded to interpret – by Forensic Analytical Crime Lab (FACL) of Hayward, California has resulted in the exoneration of a man convicted of first-degree murder in Dallas, Texas in 1998.



STRmix™ has proven to be a highly effective solution for analyzing and producing usable, interpretable, and legally admissible DNA evidence in violent crime and sexual assault cases. ”

John Buckleton DSc, FRSNZ

Martin Santillan was arrested and charged with the July 1997 murder of Damond Wittman, purportedly after a botched robbery attempt. Despite the testimony of five witnesses that Santillan was seen at a nightclub in a different part of Dallas at the time of the murder, the jury convicted Santillan based primarily on the testimony of

one of Wittman’s friends who was present during the murder. Santillan’s conviction and sentence to life in prison was affirmed by the Fifth District Court of Appeals in May 2000.

Following several inconclusive attempts by other laboratories to recover DNA from a key piece of evidence in the case – a Dallas Stars jersey worn by the murderer and found a few blocks from the incident – the Dallas County District Attorney’s Conviction Integrity Unit (CIU) and Centurion Ministries, a non-profit organization which investigates wrongful convictions, agreed to further DNA testing based on advances in the field.

After conducting new DNA testing and using STRmix™ to interpret the profiles, FACL concluded that the jersey contained DNA from two major contributors, one of whom was a woman whose DNA was found in the FBI’s Combined DNA Index System (CODIS) database. When contacted, she recalled dating a different man when they were both teens who always wore a Dallas Stars jersey. She also remembered seeing the man with blood on his hands and without the jersey, which he claimed at the time he had thrown away after getting into a fight. Critically, Santillan’s DNA was not found on the jersey.

Based on her testimony and the new evidence generated by FACL with STRmix™, on February 22, 2023 the Texas Court of Criminal Appeals vacated Santillan’s conviction. The prosecution then

dismissed the case, announcing that the man whose DNA was found on the jersey had been arrested in Colorado. Santillan subsequently was awarded more than \$2 million in compensation by the state of Texas.

“Mr. Santillan should never have been convicted,” notes Centurion Legal Director Paul Casteleiro. “He had no connection to the Dallas Stars jersey, a truthful alibi based on the testimony of five witnesses, and the state’s case was based on an identification by a lone eyewitness, who admitted to drinking throughout the day and night of the shooting.”

Since its introduction in 2012, STRmix™ has been used to interpret DNA evidence in more than 690,000 cases worldwide. STRmix™ is now being used in 119 forensic laboratories worldwide, including 90 in the U.S. (including those operated by the FBI and the Bureau of Alcohol, Tobacco, Firearms, and Explosives), all nine state and territory forensic laboratories in New Zealand and Australia, and 20 forensic labs in Europe, the United Kingdom, Asia, the Middle East, Canada, and the Caribbean.

“STRmix™ has proven to be a highly effective solution for analyzing and producing usable, interpretable, and legally admissible DNA evidence in violent crime and sexual assault cases, as well as cold cases in which evidence initially dismissed as inconclusive was able to be reexamined,” says John Buckleton DSc, FRSNZ, Principal Scientist at the New Zealand Institute of Environmental Science and Research (ESR) and a co-developer of STRmix™.

Unlike previous methods of DNA analysis, which depended entirely on the application of fixed stochastic thresholds and other biological parameters to manually analyze DNA samples, STRmix™ assesses how closely a multitude of potential DNA profiles resemble or can explain an observed DNA mixture.

Relying on proven methodologies routinely used in computational biology, physics, engineering, and weather prediction, STRmix™ calculates the probability of the observed DNA evidence by assuming the DNA originated from either a person of interest or an unknown donor. These two probabilities are then presented as a likelihood ratio (LR), which infers the value of the findings and the level of support for one proposition over the other.

In addition to STRmix™, the STRmix team has developed three related software applications:

- DBLR™, an application which when used with STRmix™ allows forensic laboratories to undertake extensive kinship analysis, carry out rapid database searches, visualize the value of their DNA mixture evidence, and carry out mixture-to-mixture matches;
- FaSTR™ DNA, expert forensic software which seamlessly integrates with STRmix™ (when in use) to rapidly analyze raw DNA data generated by genetic analyzers and standard profiling kits and assigns a number of contributors (NoC) estimate; and
- STRmix™ NGS, fully continuous mixture interpretation and likelihood ratio generation software for profiles generated using Next Generation Sequencing (NGS).

In combination with STRmix™, FaSTR™ DNA and DBLR™ complete the full workflow from analysis to interpretation and database matching, while STRmix™ NGS broadens the range of profile types that can be interpreted.

For more information about STRmix™, visit <http://www.strmix.com>.

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