

2020 DNA Hit of the Year

Master Case List Version 4/24/2020

1. Headless Outlaw's Torso in Old Lava Tube

1. Name of Submitter: Clark County Sheriff Bart May
2. Agency: Clark County Sheriff's Office, Idaho
3. Location: Dubois, Idaho
4. Date of Crime: 1916 (murdered for killing his wife); 1979 (body discovered in cave by family); 1991 (arm and legs discovered).
5. Date of Hit: 2018-2019?
6. Significance: This case received strong international media. Clark County John Doe Project said that 14 genealogists over the course of 15 weeks put in over 2,000 hours of genealogical research into this identification.
7. Executive Summary: Unidentified human remains found in an old lava tube in 1979 leads to a cold case identification effort that last many years. When his arms, hand, and legs were found in 1991, investigators used DNA to identify the man through DNA with the help of the DNA Doe Project and its team of forensic genetic genealogists. Thereafter tracked down his grandson to determine the man's story and death. After murdering his own wife, the man was killed by his local community and left in the old lava tube. His case remains an open criminal investigation.
8. Submitted Facts: In 1979 the torso of a man was found inside an old lava tube just out side of Dubois, Idaho. In 1991 the arms, hands and legs were found in the same cave in the vicinity of where the torso was found in 1979. The head has never been found. Thru DNA we were able to finally identify the remains as Joseph Henry Loveless. Once we had a DNA match we tracked down an 87 year old grandson where we got DNA from him and compared to that of the remains which gave us a positive match for grandson to grandparent relationship. Now that we knew the name of the remains we were able to learn that back in 1916 he killed his wife and was incarcerated in the Fremont County Jail where as 3 days later he escaped to never be seen again. It is believed that Joseph Henry Loveless was killed in 1916, chopped up and buried in the lava tube, and it wasn't until 63 years later that his torso was recovered, and 75 years until his arms and legs were found. It is believed that Joseph Henry Loveless was killed over 104 years ago. This cold case remains would have never been identified had it not been for today's DNA technology. We are extremely grateful for all the hard work that has gone into this case.
9. Additional Information: Because it was not determined who killed Joseph Loveless, the case remains an open/active investigation.
10. Links:
 1. <https://windsorstar.com/news/world/hundred-year-old-headless-torso-found-in-idaho-cave-was-wild-west-outlaw-dna-shows/wcm/e4235634-56ad-481a-9979-fbae45249a37/>
 2. <https://www.dailymail.co.uk/news/article-7841633/Headless-torso-Idaho-cave-identified->

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[bootlegger.html?fbclid=IwAR1OUHMcnmV00WBN5xtzdU1Kiia2n4A36Srp_pnZEfWHuLYUxgciNOYsHxA](https://www.cbc.ca/radio/asithappens/as-it-happens-thursday-edition-1.5412857/headless-man-found-in-idaho-cave-identified-as-murderer-who-escaped-jail-in-1916-1.5412861)

3. <https://www.cbc.ca/radio/asithappens/as-it-happens-thursday-edition-1.5412857/headless-man-found-in-idaho-cave-identified-as-murderer-who-escaped-jail-in-1916-1.5412861>
4. Many links sent from around the world. This case received significant coverage from many different news outlets around the world.

2. The case of Marilyn Hickey

1. Name of Submitter: Martin Garland
2. Agency: Bremerton Police Department
3. Location: Bremerton, Washington, USA
4. Date of Crime: 1992
5. Date of Hit: 2006 link to unknown profiles linking case, then 2018 leading to name
6. Significance: A creative reexamination after many years of original evidence; multi-jurisdictional investigations; no match in CODIS but eventually DNA match nonetheless (appears to be inter-agency match; will seek clarification).
7. Executive Summary: A woman was raped, sodomized, and murdered in 1992, and the case quickly went cold. In 2006 the case was resubmitted to the Washington State Patrol, and novel DNA analysis techniques for the time (analyzing pubic hairs) used on misclassified evidence (suspect pubic hairs, not victim's) led to a DNA profile. There was no match in CODIS, but it was somehow (UNKNOWN) determined to match another murder of a woman in Boise, Idaho in 1994. In 2017, the case submitter worked with Boise Police to compare a list of suspects, eventually leading to one shared suspect, Lee Robert Miller. Miller was tracked down and DNA taken from a discarded cigarette butt surreptitiously, leading to DNA match to both cases. He was arrested in early 2019 and confessed within 10 hours.
8. Submitted Facts:
 1. In 1992 Marilyn Hickey was brutally raped, sodomized with a hairbrush, and murdered in her home in Bremerton WA. In 1992-93 an examination of the evidence found that spermatozoa had been collected from inside and around Hickey's vaginal vault, but the technology at the time was unable to generate a full profile of the male donor. Within a year the case went cold.
 2. In 2006 several of the items of evidence from this case were re-submitted to the Washington State Patrol (WSP) crime laboratory. The DNA scientist processed the evidence as requested and a full profile was still not able to be generated. Because this scientist had read a recent article about the recovery of DNA from pubic hair scrapings, he decided on his own to process the victim's 'plucked' pubic hairs for DNA and as a result a full male DNA profile was generated from the spermatozoa collected. This profile was entered into CODIS and no matches were found. It was found that the same unidentified male DNA profile had been collected at the scene of another unsolved homicide, the near decapitation murder of Cheryle Barratt in the City of Boise Idaho in April of 1994. The detective at the time submitted a list of

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'mentioned persons 'in the Bremerton case to Boise PD in an effort to find a person in common, but none were located.

3. In 2017 I began working this case as a cold case homicide. Unbeknownst to me, Boise Police Detective Monte Iverson had likewise begun working on the Barratt case in Idaho. In what could be described as a game of 'detective Go-Fish, 'we began a name comparison between the two cases and found that only one person was mentioned in both cases, Lee Robert Miller. It was later learned that Miller had not been identified by the detectives in 2006 because his first and middle name had been inadvertently transposed as "Robert Lee Miller."
4. Miller's DNA was not in the national DNA database. On 02/01/2018 Miller was seen smoking a cigarette outside his residence in Boise Idaho by undercover detectives. When Miller discarded the cigarette butt, a detective retrieved it and sent it to the Idaho State Crime Lab for analysis and comparison to the DNA collected and identified from the both the Hickey homicide and the Barratt homicide. On 03/27/2018 the Boise Police Department received confirmation from the Idaho State Crime Lab that the DNA collected from Miller's discarded cigarette butt matches the DNA collected at the 1994 Barratt homicide crime scene which is also a match to the DNA recovered from Marilyn Hickey in the 1992 Hickey homicide.
5. Miller was arrested in early 2019 and after a 10 hour interview, admitted to killing Barratt and said that he blacked out when Hickey was killed. Miller was questioned about the possible existence of other victims and he said that he 'hopes 'there aren't additional victims. Miller plead guilty to both crimes and was sentenced to 42 years in prison.
9. Additional Information:
10. Links:
 1. <https://www.kitsapsun.com/story/news/local/2019/01/03/bremerton-cold-case-1992-charges-murder-suspect-lee-robert-miller/2473094002/>
 2. <https://www.ktvb.com/article/news/crime/boise-man-arrested-linked-to-cold-case-murders-in-idaho-washington/277-cd9a39d8-bafc-4353-b0ed-0c5d5f5444b1>
 3. https://www.idahopress.com/news/local/boise-man-lee-miller-receives-to-life-in-prison-for/article_d3b96e49-deda-570f-a4ca-5bc1e0204d81.html

3. The case of Sarah Yarborough

1. Name of Submitter: Thomas Jensen
2. Agency: King County Sheriff's Office, Washington State
3. Location: Federal Way, Washington, USA
4. Date of Crime: 1991
5. Date of Hit: 2019
6. Significance: This case lasted for 28 years and was only solved in 2019 through genetic genealogy (Colleen Fitzpatrick and team). This case received national attention at the time.
7. Executive Summary: A murder of a high school girl in 1991 remain unsolved for 28 years after DNA was retrieved from the murder scene but yielded no matches in CODIS. In

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2019, using genetic genealogy, the case was solved when the suspect was tracked down and discarded his DNA, leading to a match.

8. Submitted Facts:

1. Sarah Yarborough, a 16-year-old member of the Federal Way H.S. drill team was murdered and sexually assaulted on the grounds of the high school in December of 1991. She was an attractive All-American girl. The murder sent shockwaves throughout the school and the community. The King County Sheriff's Office worked the case ceaselessly for nearly 28 years. In spite of ample DNA left at the crime scene by the suspect, and the hundreds of possible suspects that were interviewed and compared, there were no hits in the known offender database (CODIS/NDIS). In 2019 Detective Kathy Decker initiated a request to have this unknown DNA processed for genetic testing and ancestral analysis. Colleen Fitzpatrick and a group of geneticists narrowed the 'suspect' field down to two brothers, one of whom was a registered sex offender, and whose DNA was on file. The other did not have DNA in the system. That individual was followed, and cast-off DNA was obtained that matched to the DNA at the Yarborough crime scene. Patrick L. Nicholas was arrested, charged, and is awaiting trial.
2. It is difficult to put into words what finally solving this case meant to Federal Way H.S., the community, and the officers and detectives that devoted thousands of hours to this case over three decades.

9. Additional Information: This case involved third-party DNA analysis help through Colleen Fitzpatrick and a group of geneticists.

10. Links:

1. <https://www.bing.com/videos/search?q=sarah+yarborough+murder&view=detail&mid=AAFFD4EE663AB3ECA741AAFFD4EE663AB3ECA741&FORM=VIRE>

4. Ein Yael Attack - The case of Ori Ansbacher

1. Name of Submitter: Nurit Bublil
2. Agency: Israel National Center of Forensic Science
3. Location: Jerusalem, Israel
4. Date of Crime: 2019
5. Date of Hit: 2019
6. Significance: Incredible speed of DNA analysis (overnight) and a DNA match within several hours; arrest of suspect within 24 hours of murder.
7. Executive Summary: A woman is raped, strangled, and murdered in a forest one evening. Israeli police find her body within hours of her death, collect DNA evidence, and develop a DNA profile and match during the morning of the next day. Police arrest the suspect the evening of the following day.
8. Submitted Facts:
 1. The murder of Ori Ansbacher (also known as the Ein Yael attack) was a terrorist attack during which a man raped and then murdered Ori Ansbacher, a 19-year-old young woman. On February 7, 2019, 11:00 AM, Ori's relatives reported her absence to the police. Ori volunteered at a youth center in Jerusalem and, according to friends, on the same day she had left the center agitated and went to seclude

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herself in nature, as she often liked to do. At 19:14 PM that day, her lifeless body was found by the police in the Ein Yael forest in the outskirts of Jerusalem, with signs of harsh violence. Medical examiners from the Israeli National Center of Forensic Medicine arrived at the scene toward 22.00 PM. The victim was stabbed, strangled, and raped. Intimate DNA samples from the victim were collected and sent immediately to the Forensic Biology lab at the National Center of Forensic Medicine. DNA samples were processed overnight: Screening for semen was found positive for 4 samples, a preferential DNA extraction, DNA quantitation, PCR and typing were completed through the morning. On February 8, 2019, 08:00 AM typing results presented the same single male profile from all semen samples. The perpetrator profile was sent to the criminal DNA Database lab to be searched. On February 8, 2019, 08:15 the Israeli Criminal DNA Database lab (Forensic Science Divisionn, Israel Police Headquarters) announced a cold hit. On February 8, 2019, 19.15 the suspect, Arafat Irafaiya, was arrested by the Israeli security forces in Ramallah. Irafaiya had a terrorist background and had spent time in an Israeli prison before the attack. Irafaiya admitted to raping and murdering Ori, saying that "I entered Israel with a knife because I wanted to become a martyr and murder someone from Israel, I met the girl by chance".

2.

9. Links:

1. https://en.wikipedia.org/wiki/Murder_of_Ori_Ansbacher
2. <https://www.timesofisrael.com/ori-ansbacher-19-named-as-jerusalem-murder-victim/>

5. The case of Clifton Hudspeath

1. Name of Submitter: Jacob Blass
2. Agency: Fremont Police Department
3. Location: Fremont, California, USA
4. Date of Crime: 1982
5. Date of Hit: 2018, via Parabon NanoLabs (phenotyping & genetic genealogy?)
6. Significance: This case used Parabon NanoLabs (phenotyping & genetic genealogy) as well as predictive policing software called Accurint.
7. Executive Summary: This case sat cold for about 20 years until it was re-opened and original evidence was reprocessed leading to a DNA profile but yielding to no match in CODIS. In 2018, the DNA profile was submitted to Parabon Nanolabs for genetic genealogy and ancestral analysis, as a "forensic flashback utilizing Accurint". Using this data investigators exhumed the body of Clifton Hudspeth which led to a match.
8. Submitted Facts:
 1. On December 20, 1982 the bodies of two teenage cousins were located in two separate locations within the city limits of Fremont, Ca. During the original investigation, multiple items of evidence were collected and hundreds of leads were followed up with negative results. Later in the early 2000\'s, the case was re-opened and items of evidence were sent to a local DNA lab for processing. A male profile was located within the submitted evidence and the DNA profile was

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uploaded into CODIS with a \"NO HIT\" result. In 2018, Det. Blass reviewed the case and submitted the DNA profile to Parabon NanoLabs and it was determined the SUSPECT was an African American male. Parabon provided family members related to the DNA profile and after an extensive work up on the family tree of the SUSPECT as well as conducting a forensic flashback utilizing Accurint, a related family was looked at as possibly being involved due to their close proximity to the crime and having family members with violent criminal backgrounds. Through extensive DNA and familial/relational DNA collection, as well as the exhumation of our possible suspect's remains, Clifton Hudspeth (deceased as of 1999), he was determined to be the one and only suspect in this case.

9. Links:

1. <https://abc7news.com/5763190/>

6. DNA Exonerates and Implicates in One Fell Swoop

1. Name of Submitter: Anne Marie Schubert
2. Agency: El Dorado County District Attorney's Office
3. Location: El Dorado Hills, California
4. Date of Crime: 1985 (goes cold); 1999 (investigation re-opened)
5. Date of Hit: 2019 (exoneration match) and 2020 (new suspect match)
6. Executive Summary: Ricky Davis's housemate is killed the day after she (housemate) moves into the house in 1985 but the case goes cold. In 1999, the case is re-opened and the original set of housemates are interrogated using techniques prone to producing false testimony. One of the housemates falsely testifies that Davis was the murderer, and on the basis of this alone he convicted and spends 14 years in prison. He maintains his innocence the entire time. Around 2016, the Santa Clara School of Law takes up his conviction challenge in conjunction with the El Dorado Hills County District Attorney's Office. Original crime scene evidence is examined for DNA evidence, leading to a profile. This profile conclusively excludes Davis and all others living at the house at the time, proving Davis' innocence. On February 13th, 2020, Davis is released. Using genetic genealogy, the forensic laboratory uses the profile to compare against genetic genealogy databases, leading to a match with a Michael Green.
7. Scientific Significance: DNA match leads to the exoneration of Ricky Davis, a man currently in prison after being found guilty for the offense, and indictment of the true murderer. This is only the "second time in the United States" this has happened.
8. Investigative Significance: California's standard of proof in examining new evidence post-conviction was changed from an extremely high standard of "point unerringly to innocence" to a standard common to 43 other states. This, coupled with the new DNA evidence, helped lead to Davis' release and finding of innocence.
9. Facts (As Written by the Northern California Innocence Project, Santa Clara Law School):
 1. "On July 7, 1985, 55-year old Jane Hylton was found murdered in a home in El Dorado Hills, CA. The home belonged to Hylton's employer Wilma Klein and was occupied by Klein's grown daughter, Maureen, Klein's grandson, 20-year-old Ricky Davis, his then girlfriend 19-year-old Connie Dahl, the victim, and the victim's 13-year-old daughter. One day prior to the murder, Hylton, moved into the Klein home

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because Hylton was having problems with her husband and wanted to move out. Klein welcomed Hylton and her daughter to live in the home.

2. In the early morning hours of July 7, 1985, the El Dorado County Sheriff's Department responded to a 911 call reporting a homicide from the Klein home. When deputies arrived, Davis, Dahl, and Hylton's daughter were all present, and Davis directed deputies to Hylton's body in the upstairs master bedroom.
3. Davis and Dahl told detectives they had gone to a party the night before and returned home at 3:30 a.m. where they found Hylton's daughter waiting outside. She told them that she had gone out with a group of boys that night and was afraid her mother would be upset with her for being out too late. The three entered the house together. Davis saw blood in the hallway outside the master bedroom and found Hylton's body on the bed. Davis and Dahl immediately called 911 to report the crime.
4. All three maintained they were not involved in the murder and did not know who committed the crime. Hylton's husband was questioned and he denied any involvement, and was later cleared as a suspect. With no further leads in the case, the investigation into Hylton's murder went cold.
5. Fourteen years later, in November 1999, cold case detectives reopened the case and sought out Dahl for questioning. The detectives interrogated Dahl four times over the next eighteen months using techniques known to increase the chances of false confessions. Dahl ultimately changed her story for police and implicated Davis as the killer. She also implicated herself in the crime, telling the police that she bit the victim during the attack. Dahl also maintained that Hylton's daughter helped her and Davis move Hylton's body.
6. Based almost entirely on Dahl's testimony, Davis was convicted of second-degree murder in August of 2005 and sentenced to 16 years to life in state prison. Dahl received only one year in county jail for her alleged involvement in the crime. Davis always maintained his innocence.
7. Davis first contacted NCIP in 2006 and we began a thorough re-investigation of the case.
8. With the cooperation of the El Dorado County District Attorney's office, NCIP obtained post-conviction DNA testing on a number of pieces of evidence at the crime scene, including Hylton's nightgown and biological material from under Hylton's fingernails. DNA test results revealed an unknown male DNA profile on the nightgown in the area of the bite mark and a consistent male DNA profile under the victim's fingernails. The test results excluded Davis, Dahl, and Hylton's daughter as the sources of the DNA. The unknown male DNA profile found on the nightgown indicated that Dahl did not bite the victim, contrary to her testimony at trial.
9. With this new evidence, NCIP filed a petition for writ of habeas corpus in the El Dorado County Superior Court on Davis' behalf in October of 2016. In January of 2017, the court issued an order to show cause and an evidentiary hearing was ordered for mid- 2018. NCIP successfully argued that had the original jury heard the DNA results, it would have likely reached a different outcome. **It was a key moment because until January 2017, the California standard required that new evidence**

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“point unerringly to innocence”— then the highest hurdle in the country and a nearly unattainable standard.

In 2016, NCIP co-sponsored Senate Bill 1134 championed by former California State Senator Mark Leno, to put California’s standard in line with that of 43 other states. The Bill, which passed in January 2017, allowed wrongfully convicted inmates like Davis to instead prove that the new evidence would likely have been compelling to a jury.

10. On April 15, 2019, the Honorable Judge Kenneth Melikian reversed Davis’ 2005 murder conviction. The El Dorado County District Attorney intended to retry Davis for murder.
11. On February 13, 2020, the El Dorado County District Attorney Vern Pierson called a press conference to announce major developments in Davis’ case. Prior to the press conference, Pierson filed a motion to dismiss all charges against Davis and ask for a finding of factual innocence. El Dorado County Superior Court Judge Kenneth Melikian granted the request.
12. At the press conference, Pierson announced that the El Dorado County District Attorney’s Office and law enforcement partnered with the Sacramento County Crime Lab to do extensive reinvestigation of the case and used genetic genealogy to identify a new suspect and exonerate Davis. Pierson said, “I can tell you with all confidence, he (Davis) did not commit this crime. He is not responsible for it. I’m not telling you we can’t prove it, I’m telling you he didn’t do it.”” Later that day, Davis was released from custody.”
 1. <http://ncip.org/ricky-davis/>
13. Links to Media Sources:
 1. <https://sacramento.cbslocal.com/2020/02/13/ricky-davis-exonerated-jane-hylton-1985-murder-genetic-genealogy/>
 2. <http://ncip.org/ricky-davis/>
 3. <https://www.mtdemocrat.com/news/courtroom-stunner-man-declared-innocent-of-1985-murder/>
 4. <https://www.kiro7.com/news/trending/california-man-cleared-murder-by-genetic-genealogy-after-15-years-prison-new-suspect-charged/IAOFAYHAQJCZZALDPX5BZDZ4YU/>

7. The Little Martyr o the A10 Highway

1. Name of Submitter: Marie-Gaëlle Le Pajolec
2. Agency: Genetic Institute of Atlantic Nantes
3. Location: Blois, France
4. Date of Crime: 1987
5. Date of Hit: 2017
6. Significance: This case is considered as France’s biggest investigation ever at the time.
7. Executive Summary: A child’s body is found on the side of the road, with human bite marks, burned, wrapped in a blanket, and dead from exhaustion/exposure. For over 25 years, investigators searched for her identity. In 1993 her body was exhumed and DNA profile determined. A phenotype analysis revealed North African ancestry. In 2008, her parent’s DNA profiles were found in the original evidence but yielded no match in the

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database. Finally, her siblings' DNA was found on the original evidence, leading to a match to one of the parents for assault in the national database. In 2018, the parents were arrested.

8. Submitted Facts:

1. This case is considered as the France's biggest ever investigation at the time.
2. August 11, 1987, the martyred body of a 4 years old child, beaten to death, has been found in a ditch along the A10 motorway near Blois, in France. This little girl was died from exhaustion after suffering around twenty fractures, some mutilating bites and iron burns. Her body was wrapped in a blanket. She was buried in a little village and dubbed the \"Little Martyr of the A10\" by the public. For over 25 years, the justice tried to give a name to this child, taking care not to exceed the prescription date. The investigators made inquiries in 66 000 schools and questioned 6000 medical doctors, the girl's photograph being circulated in public places and alerts sent to more than 30 countries, vainly. In 1993, her body was exhumed to perform a new autopsy. Her DNA profile was determined and in 2008, a study of bio-geographic ancestry SNP markers indicated that she was probably originated from North Africa. Meanwhile, many DNA investigations were performed on the youngster's clothes and on the blanket that was wrapping her body. In 2008, the genetic profiles from her both parents were identified from different samples collected on the blanket and sent to the national database, with no result. In 2013, hoping on the progress of molecular biology techniques, the blanket was analyzed one more time and an exhaustive sampling of all the stains present on it was performed. Three new DNA profiles compatible with thus of two brothers and one sister of the little girl were identified and sent to the national database. In May 2017, one of this three profiles matched with the profile of a 34 years old man who was just registered in the national database for assault. He is the brother of the \"Little Martyr of the A10\". He was 3 years old at the time of the death of his sister. June 12, 2018, the parents of the persecuted child were arrested. The name of this little girl was Inass. No one had worried about her disappearance for more than 30 years.

9. Links:

1. <https://www.theguardian.com/world/2018/jun/14/dna-breakthrough-french-child-murder-case-a10-girl>
2. <https://crystalhorizons.nl/2018/07/07/the-unknown-little-girl-on-the-a10-motorway/>

8. The Creeper

1. Name of Submitter: Jennifer Harmon
2. Agency: Regional Crime Laboratory, San Diego County Sheriff's
3. Location: Escondido, California
4. Date of Crime: 2013
5. Date of Hit: 2015, familial matching leading to 1 one 1 match
6. Significance: This conviction marked the first successful use of familial DNA searching in San Diego County.

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7. Executive Summary: A series of break-ins and molestations of young girls during the summer of 2013 in San Diego were connected to one individual via DNA left at the crime scene. Investigators develop a profile not there is no match in CODIS. Investigators then work with Cal Dept. of Justice to perform familial matching, leading to a likely suspect. DNA is taken surreptitiously, and a match is confirmed.
8. Submitted Facts:
 1. In the summer of 2013, a series of home invasions occurred in and around the city of Escondido, California. The suspect entered residences by cutting or removing window screens, then molested young girls while they slept. The suspect usually cut pieces out of the victim\'s pajamas during the act. Often, the victims were sleeping within feet of their parents. The victims ranged from 5 to 15 years old.
 2. The Escondido Police Department and San Diego County Sheriff\'s Department formed a task force to investigate the series. The detectives submitted multiple items of evidence to the Sheriff\'s Regional Crime Laboratory, along with numerous reference samples from potential suspects. The Regional Crime Laboratory performed extensive DNA analysis on the evidence and obtained suspect DNA profiles from items of sleepwear worn by victims in two cases from different jurisdictions. The profiles were consistent with a common source, but all of the potential suspects were excluded. The profiles were uploaded to CODIS, and searched at the national level, without results.
 3. After exhausting all other leads, the investigators asked the California Department of Justice Bureau of Forensic Services to perform familial DNA searching. In February 2015, the process identified a potential suspect, a local man with no significant criminal history. The investigators quickly located the suspect and established round-the-clock surveillance. They collected a surreptitious reference sample (a milk carton discarded by the suspect) and sent it to the Regional Crime Laboratory. The Laboratory performed an expedited DNA analysis on the sample and matched it to the profiles recovered from the victims. This led to the arrest of the suspect on February 16, less than two weeks after he was initially identified.
 4. The suspect, Gilbert Chavarria, ultimately pled guilty to 13 felony charges, and was sentenced to 100 years to life in prison. According to prosecutors, this conviction marked the first successful use of familial DNA searching in San Diego County.
 5. The resolution of this case had far-reaching effects in the public safety space and the community at large. Given the nature of the offenses, and what the investigators later learned about Chavarria's motivations and history, it is likely he would have continued offending if he wasn't caught. The pattern of offenses also strongly suggests he would have escalated to more violent acts. Removing Chavarria from the community almost certainly prevented future, similar offenses, and gave the victims and their families a sense of closure and a measure of relief. The case also demonstrated the effectiveness of familial DNA searching, the importance of inter-agency cooperation in serial cases, and the value of open information flow between investigators and forensic scientists.
9. Links:

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1. <https://www.10news.com/news/local-creeper-case-among-the-success-stories-of-controverisal-dna-search>
2. <https://www.nbcsandiego.com/news/local/the-creeper-sentenced-for-child-molestation-in-north-county/165723/>
3. <https://www.cbs8.com/article/news/escondido-the-creeper-who-sexually-assaulted-young-girls-sentenced/509-fa69ad8d-263f-44e4-8ec9-c847d8ba0f99>

9. Operation Orbicular

1. Name of Submitter: Steve Williams
2. Agency: North Wales Police
3. Location: Flint, Wales, United Kingdom
4. Date of Crime: 1976
5. Date of Hit: 2016
6. Significance: Very unique 'double' criminal investigation of two murder suspects for the same crime.
7. Executive Summary: A rape and murder of a woman in 1976 was previously thought solved after a conviction in 1976. Police always suspected that a second suspect was also involved in the murder, and in 2006 a review of the forensic evidence was conducted to find additional evidence to link to this second suspect. A DNA profile found did not yield any match to the suspect or in the database and was placed into the database. But then in 2016, the case was re-opened in 2016 after a third man's DNA (for arrest or conviction?) matched with DNA found on the woman's body. Police raced to reconcile strong evidence against one of the original secondary suspects, the fact someone was already convicted for the woman's murder, and this new suspect. DNA evidence ultimately prevails and sheds light on the true killer.
8. Submitted Facts:
 1. Operation Orbicular was the 2016/2017 investigation into the Rape and Murder of 15-year-old Janet Commins who was killed on the 7th January 1976. This was a horrific crime which affected the community of Flint for a number of years thereafter and one which Janet's parents were never able to truly recover from.
 2. Following the discovery of Janet's body on 11th January 1976, a large-scale investigation commenced, and a suspect was soon identified. This suspect was 18-year-old Noel Jones and based on admissions he was subsequently charged and sentenced to 12 years in prison for manslaughter. During the investigation a further suspect, namely Michael Orford was identified but was never convicted. As part of the investigation a number of forensic swabs were taken from Janet's body and the contents of these swabs were transferred to glass slides and retained.
 3. In 2006, a review into the death of Janet Commins was conducted with a view to establishing whether there was any evidence that could possibly link Orford to the crime. This resulted in a male profile being obtained from one of the samples. This profile did not match either Jones or Orford and was subsequently uploaded onto the National DNA Database where it lay dormant.
 4. In 2016, North Wales Police re-opened the investigation when a DNA sample obtained from Stephen Hough was uploaded onto the National DNA database and

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matched the 2006 crime scene sample recovered from Janet Commins. Following close consultation with North Wales Police and Forensic Scientists, a full forensic review was carried out on the remaining slides where further evidence was obtained linking Stephen Hough to the crime.

5. Whilst this forensic work was being undertaken a full-scale murder enquiry was launched into the original investigation and also the 2016 rape offence for which Hough was arrested and which generated the DNA match to Janet Commins. As the investigation progressed serious concerns were raised concerning the conduct of the 1976 investigation and in particular the integrity and quality of evidence that had been gathered.
6. On the 4th September 2016, Stephen Hough was arrested on suspicion of the rape and murder of Janet Commins and also on suspicion of the recent rape of Miss Williams. During interview he denied knowing Janet and declined to comment in respect of the DNA evidence. He also denied raping Miss Williams. He was charged with all offences.
7. Following the arrest of Hough, both Noel Jones and Michael Orford were seen. Both denied any involvement and Noel Jones provided a statement detailing how he was treated at the time and how he was induced into making a false confession.
8. In the lead up to the trial, significant concerns were raised by the judiciary in respect of conducting a trial whilst another stood convicted of the offence. Serious consideration was given to stay proceedings to allow Noel Jones an opportunity to appeal his conviction. Given the length of time this would have taken and the associated risks that the delay would entail, North Wales Police and the immediate reviewing lawyers successfully argued against this and a decision was made to proceed with the case.
9. Stephen Hough submitted a defence case statement denying the offences and claimed that the forensic evidence was not correctly attributed to him. The prosecution was therefore put to strict proof in respect of the continuity and integrity of the forensic evidence. A team of officers were assigned to this piece of work and every scientist and administrator who had any involvement with the case was traced. These enquiries were conducted nationally.
10. On 26th June 2017, the trial commenced and lasted 3 weeks. The judge stated from the outset that the jury, in finding Stephen Hough guilty, would have to be satisfied that Noel Jones was innocent. During the course of the trial Noel Jones gave evidence and was steadfast in his assertion that he did not rape and murder Janet. The scientists and personnel associated with handling the key forensic slides were called to give evidence. During the course of providing evidence it became abundantly clear that the continuity of evidence and examinations stood up to robust cross examination. This was testament to the scientists who were able to convey very complex processes in a concise and simple manner which the jury could understand.
11. Stephen Hough gave evidence and denied any involvement in the murder. He could offer no explanation as to why his semen was recovered from Janet's body. On the 14th July 2017, Stephen Hough was convicted of the rape and killing of Janet

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Commins. He also pleaded guilty to sexually assaulting Miss Williams in 2016. He was sentenced to 15 years imprisonment. In his closing remarks, his Lordship Justice Lewis thanked the police and forensic scientists involved in the case for their work in bringing Stephen Hough to justice. He noted that this was a unique and challenging case. This case was a first of its kind and generated national media interest.

9. Links:

1. No links provided.

10. Indian Rocks Beach Serial Rapist

1. Name of Submitter: Christopher Lyons; Lori Napolitano (Chief of Forensic Service, FDLE)
2. Agency: Pinellas County Sheriff's Office; Florida Department of Law Enforcement
3. Location: Indian Rocks Beach / Venice, Pinellas County, Florida, USA
4. Date of Crime: 1998
5. Date of Hit: 2019
6. Significance: This case was solved via genetic genealogy. It is only the fifth case in Florida solved using genetic genealogy.
7. Executive Summary: Two cold case rape cases in Florida were solved after genetic genealogy was employed to identify the killer.
8. Submitted Facts:
 1. <https://www.tampabay.com/news/crime/2019/12/17/genealogy-database-leads-to-arrest-in-1998-rapes-pinellas-sheriff-says/>
9. Links:
 1. <https://www.tampabay.com/news/crime/2019/12/17/genealogy-database-leads-to-arrest-in-1998-rapes-pinellas-sheriff-says/>

11. DNA Evidence Ruins Conviction Challenge on Appeal

1. Name of Submitter: Christie Chauvin
2. Agency: St. John Sheriff's Office
3. Location: St. John the Baptist Parish, Louisiana
4. Date of Crime: 1993
5. Date of Hit: 2019
6. Significance: Conviction challenge by Innocence Project is destroyed after previously unused DNA evidence affirms original convicted; 27 years of strong/proper evidence collection and storage in this case.
7. Executive Summary: In 1993, Joseph Ward robbed a local convenience store and raped and kidnapped a woman in the process. He was convicted for the crime. In 2018 the Innocence Project began appeals proceedings to challenge the conviction on the basis of DNA evidence not being used in the conviction. Forensic re-examination of the evidence led to a DNA profile and match in CODIS to Joseph Ward, affirming his case.
8. Submitted Facts:
 1. On March 29, 1993 the St. John Sheriff's Office had an armed robbery, kidnapping and rape that occurred at a local convenience store in St John the Baptist Parish in Louisiana. Joseph Ward was convicted of aggravated rape for this crime. The

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Innocence Project began post-conviction appeals in this case and in 2018 began court proceedings to test evidence in this case for DNA in hopes of exonerating Joseph Ward.

2. At the request of the Innocence Project on November 4, 2019 Elizabeth Hamilton, Forensic Scientist with the Louisiana State Police Crime Laboratory, performed scientific testing on a swab taken from the exterior upper back and back collar area of the blouse of the victim in the case that was collected in 1993. DNA was extracted from the swab and yielded a major contributor and a minor contributor. The major contributor was the victim. The minor contributor was suitable for comparison and entered into the Combined DNA Index System (CODIS) in accordance with state and national regulations. A match was returned with the contributor being Joseph Ward.
 3. After 27 years, St. John Sheriff's Office attributed the continued success of this case to proper evidence collection and the continued storage of the evidence to protect the integrity of such a serious case even though a conviction was secured in this case. It is this type of joint effort between police agencies and crime laboratories that secure convictions and keep dangerous offenders from returning to society and for these reasons that we believe this case deserves Hit of the Year 2020.
9. Links:
1. No links provided.

12. The Radio Station Intern - The case of Helene Pruszyński

1. Submitter of Case: Tommy Barrella
2. Agency: Douglas County Sheriff's Office
3. Location: Douglas County, Denver, Colorado
4. Date of Crime: 1980, GEDmatch partial familial match
5. Date of Hit: 2019
6. Significance: Use of GEDmatch to determine familial matching.
7. Executive Summary: A Colorado radio station's college intern's body is discovered in a field one morning. Detectives across various jurisdictions execute concurrent investigations and are able to recover semen from the woman's body. Although technology at the time did not allow for DNA analysis of semen, investigators preserved it in case future technology would allow. That ended up being the case, and in 1998 a profile was developed but with no match in CODIS. In 2019, investigators upload the profile into GEDmatch leading to a partial familial to very distant relatives. Working with a genealogist, immediate family members were determined, DNA samples surreptitiously taken from the family members and eventually the suspect, and a match confirmed.
8. Submitted Facts:
 1. Helene Pruszyński, a 21-year-old college student had traveled to Denver, Colorado, to complete an internship with a local radio station. On January 16, 1980, Helene failed to return home as expected. Her body was left bound with her hands tied behind her back, partially naked, and stabbed, to be found the following morning in a vacant field in Unincorporated Douglas County, Colorado.

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2. The case was initially investigated by detectives from the Douglas County Sheriff's Office with assistance from the Colorado Bureau of Investigations (CBI). Contemporaneously, detectives from Englewood Police Department were investigating a missing person report initiated in their jurisdiction.
3. The primary investigation stalled in the spring of 1981 without detectives having identified a suspect. However, the suspect had left his semen on the victim's body and clothing leaving the possibility that as technology advanced, he could be positively identified and connected to the crime scene.
4. Since that time personnel of the Douglas County Sheriff's Office have revisited the investigation to review evidence, developed new leads and probe new technologies in the effort to identify and apprehend the suspect in this case.
5. In 1998, CBI developed the suspect DNA profile and uploaded it into CODIS. The profile has continued to search against known offenders in the CODIS database without a match generating any new leads in the years since its entry.
6. In 2019, DCSO detectives worked with a company to develop a DNA profile suitable for genetic genealogy to identify him. The profile was uploaded to a public database called GEDmatch. The GEDmatch upload did not generate a perfect match to a suspect. However, several potential distant relatives were identified, based on the number of centimorgans in common with the suspect.
7. A local genealogist worked with the lead detective to build several family trees based off the highest matches on GEDmatch. A common ancestor was found in the trees that led them to the suspect's mother. The detective was able to locate family members who also uploaded their DNA to GEDmatch, informing them that they were getting closer to identifying the man who raped & killed Helene.
8. The lead detective learned through various interviews of family members that the suspect was abandoned by his parent's & lost contact with his family as a small child. However, she was given a newspaper article by a family member that identified him.
9. A surreptitious DNA sample was collected from the suspect's brother who lived in California which eliminated him as a suspect, but revealed he shared the same paternal lineage as him. Detectives then traveled to Florida and obtained a surreptitious DNA sample from the suspect which matched the suspect profile that was left at the scene of the crime.
10. On December 11, 2019, James Curtis Clanton was arrested for the kidnapping, rape and murder of Helene Pruszyński. Clanton confessed to the crimes and plead guilty on February 21, 2020. He will be sentenced on April 10, 2020.
9. Links:
 1. <https://www.denverpost.com/2019/12/16/helene-pruszyński-cold-case-murder-arrest/>
 2. <https://denver.cbslocal.com/2020/02/21/james-clanton-guilty-helene-pruszyński-murder-1980/>
 3. <https://denver.cbslocal.com/2019/12/16/james-curtis-clanton-helene-pruszyński-suspect-arrested-1980-murder/>

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4. <https://www.washingtonpost.com/crime-law/2019/12/18/students-brutal-murder-went-unsolved-decades-then-investigators-got-a-hold-beer-mug/>
5. <https://www.nytimes.com/2019/12/16/us/helene-pruszyński-james-curtis-clanton.html>
6. <https://www.9news.com/article/news/crime/khow-murder-victim-sister-reacts-to-suspect-news/73-f5842ac9-8f84-4a5f-8a4d-9f7be91780be>
7. <https://www.9news.com/article/news/crime/guilty-plea-1980-cold-case-khow-intern-killed/73-65e9be38-cd3b-4518-8be3-9283a39817d5>
8. https://www.salemnews.com/news/local_news/singing-for-helene-after-cold-case-solved-group-to-hold/article_12d11570-0b35-5695-9d2f-a9d59eb73809.html

13. The Neo-Nazi and a Political Assassination

1. Name of Submitter: Dr. Harald Schneider
2. Location: Hesse, Germany
3. Date of Crime: 1993
4. Date of Hit: 2019
5. Significance: Major assassination of a major popular German political figure and the accompanying case to solve the crime using DNA; narrative is embedded in Europe's controversial migrant policy issues; involved novel/advanced DNA extraction technique potentially unique to Germany; received significant international attention.
6. Executive Summary: A pro-refugee politician in Germany is assassinated by a neo-Nazi after a speech of the politician publicly supporting refugee camps goes viral. Suicide was at first considered, but Germany's esteemed Wiesbaden Forensic DNA Analysis Unit took up the case. Using a special "homemade" technique, analysts recovered shed skin cells off of the politician's clothes, and from one single skin scale and DNA profile was developed. This led to an immediate match to Germany's national DNA database, a neo-Nazi well-known to local police with a history of violence.
7. Submitted Facts:
 1. On June 2, 2019, Walter Lübcke, 65, a popular politician and member of the Christian Democratic Union (CDU, a major German political party) in Hessen, Germany was fatally shot in the head while sitting on the terrace of his home. Since no weapon could be found, investigators ruled out a suicide and focused instead on a personal motive for the killing, or more likely a political motive. For what reason? In 2015, Mr. Lübcke had become an extreme right-wing hate figure when a video of him was uploaded to YouTube (<https://www.youtube.com/watch?v=KdnLSC2hy9E>). The YouTube clip showed Mr. Lübcke speaking to an audience during a discussion about establishing a new refugee camp. Lübcke stated, "You have to stand up for values, and anyone who does not accept these values is free to leave this country". The speech was seized on by opponents of the German immigration policy and circulated widely among neo-Nazi followers. Following circulation of the YouTube video, Lübcke received hundreds of hate emails, including multiple death threats. Immediately after the crime was committed, our Forensic DNA-Unit in Wiesbaden started the forensic investigation. As in hundreds of similar violent felonies, our investigative strategy focused on the well-known Locard's Principle that, "every

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contact leaves a trace". Consequently, the possible transfer of DNA from the hands of the offender to the victim's clothing was the most obvious target to start searching for transferred skin flakes. By using our unique homemade method of targeted screening for shed cells recovered from tapings of the victim's clothing, we were able to generate a case relevant DNA profile from only one out of approx. 1000 samples analysed. The DNA profile was developed from a single skin scale and did not originate from the victim, his relatives, or his known acquaintances. Searching the DNA profile in the German National DNA Database on June 14, 2019, resulted in a "Cold Hit" DNA match to a German citizen. The suspect, 45-year-old!

2. Stephan E., had a history of violence and was well-known to the authorities. He circulated in a neo-Nazi party and almost stabbed an immigrant in 1992. He had spent several years in prison after an attempted bombing and is said to have owned a variety of weapons even then, including a machine gun and the .38 caliber handgun used in the murder of Walter Lübcke. This unique political murder appears to be Germany's first extreme right-wing political assassination since 1945 and the identification of the suspected perpetrator was widely publicized. The both national and international attention that the DNA hit received gives us an idea of the outstanding importance of this special analysis technique, which in this admittedly special case led to the identification of a hitherto completely unknown extreme right-wing perpetrator group and, in addition, could possibly prevent further political assassinations

8. Links:

1. <https://www.youtube.com/watch?v=KdnLSC2hy9E>
 1. Walter Lübcke informed the local audience about a planned new refugee camp one day before 800 immigrants will arrive.
2. <https://www.theguardian.com/world/2019/jun/26/far-right-suspect-confesses-to-killing-german-politician-walter-lubcke>
3. <https://www.telegraph.co.uk/news/2019/06/03/cdu-mayor-german-town-kassel-found-dead-bullet-wound/>
4. <https://www.telegraph.co.uk/news/2019/06/17/suspect-german-mp-murder-has-links-british-neo-nazi-group/>
5. <https://www.telegraph.co.uk/news/2019/06/16/arrest-raises-fears-far-right-murder-campaign-germany/>
6. <https://www.telegraph.co.uk/news/2019/06/22/germany-vows-action-against-far-right-terrorism-arrest-neo-nazi/>
7. <https://www.telegraph.co.uk/news/2020/01/22/suspect-murder-german-politician-afd-campaign-volunteer/>
8. <https://www.nytimes.com/2019/06/17/world/europe/germany-terrorism-walter-lubcke.html>
9. <https://www.nytimes.com/2019/07/07/world/europe/germany-murder-far-right-neo-nazi-luebcke.html?searchResultPosition=1>

14. A Small Village in Poland - The Power of the Prüm Treaty

1. Name of Submitter: Anna Jurga

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2. Agency: Central Forensic Laboratory of the Police, Poland
3. Location: Poland
4. Date of Crime: 2009
5. Date of Hit: 2013
6. Significance: Good use of the Prüm Treaty for international DNA profile sharing; international investigations and cooperation.
7. Executive Summary: A young girl is raped in 2009 and a DNA profile is recovered. In 2013, Germany and Poland started sharing DNA under the Prüm treaty and a match is found to a sexual assault case from 1997 in Germany. This eventually leads to the perpetrator.
8. Submitted Facts:
 1. In June 2009 young girl 13-year-old was raped by unknown offender in small village in Poland. The man dragged her into the bushes. He threatened and used violence on his victims. The DNA profile was registered in Polish DNA database but there was no match.
 2. In May 2013 Poland and Germany started the international exchange under the Prüm Treaty. The match was reported between Polish stain and German stain registered to sex assault case. Rape committed on a 15-year-old girl on June 1997 in German city. Modus operandi was similar as in Polish case. The offender dragged victim aside, used violence and raped.
 3. Another 2 matches were generated in 2017. First one with Czech stain registered also to sexual assault case. Second one with German stain registered to investigation against a mobile crime group for committing motor vehicle thefts. The suspects fled and left vehicle on crime scene. Due to this fact unknown forensic and fingerprints of Polish citizen was seized. After that stains seized to vehicle thefts were connected to stains seized to sexual assaults. Due to further investigation suspect was detained and accused rapes on minors in 2019.
9. Links:
 1. <https://gazetawroclawska.pl/zgwalcil-dwie-13latki-prawie-10-lat-temu-w-koncu-wpadl-dzieki-analizie-dna/ar/13519148>

15. Bloody Murder Weapons and Diluted DNA Samples

1. Submitter of Case: Xingyi Yang
2. Agency: Guangzhou Forensic Science Institute
3. Location: Guangzhou, Guangdong, China
4. Date of Crime: 2018
5. Date of Hit: 2018
6. Significance: Heavy use of Y-STR analysis after blood left on the murder weapon had been washed away by running water and diluted the DNA samples available.
7. Executive Summary: Please see submitted facts.
8. Submitted Facts:
 1. In an intentional homicide case in November 2018, extensive blood of the decedent was observed on a criminal tool and the tool had been flushed with running water. Hence, autosomal genotypes of the suspect were unavailable and only part of

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deletions of Y-STR loci were identified by Y-chromosomal typing. Subsequent Y-STR genotyping for the suspect, his father and brother indicated that Y-STR genotype of the suspect was consistent with that determined on the physical evidence and the deleted Y-STR loci were identical for both. No deletions of Y-STR genotype were observed in the suspect's father and brother. After changing a Y-STR kit, the deleted loci were still present in the suspect. Additional sequencing of the whole Y-chromosomal genes was performed. Segmental deletions at Yq 11.222-Yq 11.23 of the suspect were observed and the deleted Y-STR were right on the deleted Y-chromosomal segments. In this case, although the suspect could not be identified by the autosomal STR detected on the physical evidence, the same Y-STR genotype and the identical deletions of Y-chromosomal segments made it plausible that DNA on the criminal tool was left behind by the suspect.

9. Links:

1. No links provided.

16. Guatemala's First Missing Woman Case Solved via DNA

1. Name of Submitter: Nancy Rebeca Say Rodriguez
2. Agency: INACIF, National Institute of Forensic Sciences
3. Location: Guatemala
4. Date of Crime: 2019
5. Date of Hit: 2019
6. Significance: The first identification of a missing women under the Isabel-Claudina alert system and the first case using the Central America Project's humanitarian DNA database.
7. Executive Summary: A woman's daughter went missing. She reported her daughter as missing and provided her DNA sample to INACIF for use in the investigation and stored in the humanitarian DNA database. When three bodies were found in a ravine, DNA sample analysis led to a match with the woman's daughter.
8. Submitted Facts:
 1. On 2006, the National Institute of Forensic Sciences of Guatemala -INACIF- was created, in order to reduce impunity in the country. The Forensics Genetics Laboratory of INACIF has had exponential growth after the beginning of operations in 2009. As part of the needs for justice in the country, in 2016 the immediate search for missing women law was created and giving the creation for the Isabel-Claudina Alert; and in 2017 the National Genetic Bank Law came into force. Both led to the creation of a Genetic Data Bank within INACIF with three mayor databases, the criminal database, the humanitarian database and the quality control database.
 2. On February 2019, Sandra Alonzo who was looking for her missing daughter Enllel Martínez Alonso donated a DNA sample under the Isabel-Claudina alert, her genetic profile was stored in CODIS within the humanitarian database. On April 2019, following an allegation for the disappearance of two sisters and by information of a protected witness, an excavation was carried out in a ravine where three bodies were found; two of the bodies were complete and one of them was dismembered. The DNA samples of these corpses were analyzed and stored within the Database.

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Because the dismembered corpse could not be identified, a search was made in CODIS resulting in a coincidence with an LR of 671,100 probability of biological relationship with the sample of Sandra Alonzo.

3. To confirm the database results previously obtained, the ante-mortem and post-mortem information was collated. Within the particular characteristics of this corpse is that it had multiple tattoos. This information was very helpful to verify the result obtained through CODIS. Therefore, it was possible to determine that the dismembered body belonged to the 18-year-old teenager Enlél Martínez Alonzo who disappeared on February 26, 2019.
4. The above was the first case of identification of a missing woman under the Isabel-Claudina law detected through the Genetic Database. This founding helps to demonstrate the effectiveness of the laws implemented in 2016 and 2017 and increased the reliability of the Institution in the field of justice in the country. Additionally, this case was a demonstration of the institutional effort for the proper management of the National Genetic Data Bank and is a remarkable achievement for a laboratory in a Central American country placed in the first five countries with the mayor percentages of crimes against women.
9. Links:
 1. <https://lahora.gt/inacif-identifica-a-joven-que-estaba-desaparecida/>
 2. https://twitter.com/soy_502/status/1102658374771109890?lang=en
 3. https://twitter.com/soy_502/status/1105501471972442113

17. Volcano of Fire (Volcán de Fuego)

1. Name of Submitter: Nancy Rebeca Say Rodriguez
2. Agency: INACIF, National Institute of Forensic Sciences
3. Location: Chimaltenango, Guatemala
4. Date of Death/Disaster: 2018
5. Date of Hit: 2018
6. Significance: Using Guatemala's new national DNA database and CODIS, INACIF uses DNA to develop a mini database of unidentified human remains of those who perished in the Volcano of Fire eruption, which killed over 300 people.
7. Executive Summary: This case involves the identification of unidentified human remains after the volcano eruption disaster in Guatemala in June 2018.
8. Submitted Facts:
 1. On Sunday, June 3, 2018, the eruption of the Volcán de Fuego occurred, located on the departmental boundaries of Chimaltenango, Escuintla and Sacatepéquez in Guatemala. The eruption killed at least 300 people, several wounded and nearly two thousand people evacuated. Various villages, hamlets and colonies were buried by pyroclastic flows and there was falling ash throughout the country that even reached some places in Mexico, Honduras and El Salvador; it has been estimated that about 1.7 million people were affected by the eruption. Entire families were buried and died simultaneously, as the eruption swept through entire colonies and in some cases there was only one survivor per family.

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2. The rescue work began on the same day as the eruption and were very difficult to carry out due to the high temperature, the presence of gases and the chemicals generated by the eruption. Bodies that were rescued were no longer complete due to environmental conditions. By the second day of the rescue efforts, there were already a large number of bodies burned and extremely burned so it was necessary to initiate the identification of the victims through genetic analysis.
3. Samples of skeletal remains were collected for approximately 3 months at the site of the eruption where, following the forensic and anthropological medical analysis, a total of 380 samples of skeletal remains and 169 samples of relatives of missing persons were analyzed by the DNA Forensics Lab of INACIF. We obtained 128 genetic profiles of the skeletal remains and for 200 samples it was not possible to obtain genetic profiles due to the high level of degradation.
4. The search for matches between corpses and relatives of missing persons was carried out entirely through CODIS, where we obtained matches between corpses that belong to the same family and we also obtained matches between some corpses and some alive relatives. One of the most shocking cases of this catastrophic event is the case of the Pamal family, from which 50 individuals died and only one person was a survivor and in this particular case we identified at least 15 members of the family. Finally, 60 people were successfully identified through genetic testing and all the searches were conducted in the National Genetic Data Bank.
5. This case was of great impact to the whole country and constitutes the first case of a mass disasters that was analyzed entirety within the National Genetic Database through the CODIS software.

18. Guatemala's First Criminal Case solved through the National DNA Database

1. Name of Submitter: Nancy Rebeca Say Rodriguez
2. Agency: INACIF, National Institute of Forensic Sciences
3. Location: Amatitlán, Guatemala
4. Date of Crime: 2013
5. Date of Hit: 2019
6. Significance: This case marks the first criminal case solved through the national DNA database in Guatemala.
7. Executive Summary: After a series of 18 rapes at a park in Guatemala, DNA taken from the victim of a femicide case in 2019 led to a familial match with the suspect. Additional evidence confirmed the match. The suspect was arrested in January of 2020.
 1. On 2013 a series of robberies and rapes were recorded within the Naciones Unidas National Park in the area of Amatitlán, Guatemala and in the vicinity of Villa Nueva, Guatemala. It was established that at least 18 women were raped and stripped of their belongings by a group of unknown men. The individuals posed as peasants and used machetes to intimidate their victims, who under death threats were moved to deshaded areas of the park where they were tainted with the straps of their shoes, covered their faces with clothing and subsequently outraged. For this case two individuals were captured in 2016.

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2. For this case, genetic analyses were carried out on the evidence obtained from the victims and the results demonstrated the presence of a single male individual in common in five of the eighteen victims. When making the comparison with the individuals captured in 2016 it was observed that their genetic profiles did not match the isolated genetic profile of the victims. However, the Court condemn the two individuals caught base on non-genetic evidence and taking into account that the facts were perpetrated by a group of unknown men. The sex offender that was detected in the evidence of the five victims could not be identified, so the case was closed. The genetic profile of the aggressor was stored in the Genetic Database for criminal investigation purposes.
3. In 2019, a femicide case was worked in the DNA forensics Lab where the genetic profile of the victim XX was entered into the Genetic Database for criminal investigation purposes, and at the time of conducting a search within CODIS, a filiation match was found with the genetic profile of the isolated unidentified sex offender of the Naciones Unidas National Park victims.
4. Through a review of non-genetic data, it was established that the victim XX had no children, so the matching genetic profile probably belonged to the biological father. Subsequently, related information about the coincidence found was sent to the Prosecutor's Office and the case of sexual assaults in the Naciones Unidas Nations National Park was reopened in September 2019. Thanks to the information provided, in January 2020 the capture of Mr. ARMANDO DE PAZ MONTERROSO was achieved as a suspect in the events that occurred.
5. A new genetic comparison was made between the reference sample obtained from Mr. ARMANDO DE PAZ MONTERROSO and the genetic profile of the unknown aggressor present in the five rape victims, thus confirming the coincidence obtained in the National Genetic Database.
6. This case is a great achievement for the justice system in Guatemala, as it corresponds to the first criminal case resolved exclusively through the National Genetic Databases where the information provided was key to the capture of a serial rapist.
8. Links:
 1. <https://republica.gt/tag/armando-de-paz-monterroso/>
 2. <https://www.soy502.com/articulo/capturan-violador-serial-robaba-sus-victimas-villa-nueva-101025>
 3. <https://republica.gt/2020/01/14/supuesto-violador-serial-asaltaba-y-secuestraba-en-villa-nueva/>
 4. <https://republica.gt/2016/03/18/capturan-a-presunto-violador-en-serie-victimas-suman-18/>

19. Serial Sexual Offender Police Officer

1. Submitter of Case: Miguel Marina
2. Agency: Registro Provincial de Huellas Geneticas Digitalizadas Ministerio Publico Mendoza
3. Location: Mendoza, Argentina

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4. Date of Crime: 2018
5. Date of Hit: 2018
6. Significance: “Serial sexual offender Police officer found thanks to an early stage DNA database”.
7. Executive Summary: With only a very “young” DNA database, a match is found on the database to the suspect of a string of serial rapes in the Mendoza province of Argentina.
8. Submitted Facts:
 1. From January to May of 2018, 5 cases of sexual assault and violent robbery were reported to the Justice system of Mendoza, a small province of Argentina (1.8 million inhabitants). These reports involved an individual with same physical appearance. A 30-years-old male, short black hair, sometimes with a police uniform, dark clothes or boots, around 1.8mts height driving a brand-new white car. This criminal, a serial sexual offender, carried out his misdeeds in rural areas near Mendoza city away from security cameras or possible witnesses. He selected his victims by their ages, always looking for young women, even 13 years-old one. In every single case, he overpowers the defenseless women in a very violent way, hitting and holding when trying to rape them at gun point. In some cases, he succeeded with his intentions, but fortunately in some others, the sufferers somehow managed to escape. He undressed their victims by threatening to end their lives and raped them.
 2. On the other hand, in January 2017 took place the startup of the Provincial DNA Database. With a wide and comprehensive law, we were able to take samples to all the imprisoned, suspects, arrestee, convicted offenders, local police forces, judiciary and laboratory staff. It took us several months to begin with the sampling and processing of the involved population. By May 2018 we had around 18,500 reference samples taken and only 3257 analyzed (in February 2020 we have more than 45,000 reference samples).
 3. In May 16th of 2018, with a very “young” database of only 3257 specimens, a match between the evidence of those sexual assaults and a suspect was reported. This criminal, a 26 years old police officer, entered the database in March 2018 by a complaint of domestic dispute and physical injuries, made by his wife (this reveals the violent way of being of this man). The dispute began because the felon used to get late from work raising suspicions from his partner. His detention took place during his police round, where his colleagues detained him. He didn’t resist his arrest because he was aware that the evidences and his DNA sample taken for the Provincial database could compromise him. All these information reveals the importance and benefits of having a comprehensive DNA database legislation.
 4. In the trial, the defense tried to stretch the prosecution deadlines but finally ended admitting guilt, cornered by the overwhelming evidence. On March 10th of 2020 a Judge sentenced the criminal to 24 years of prison.
 5. Because of the number of cases involved and the fact that the perpetrator was a police officer, this “hit” immediately caught the attention of local and national media. Proving that DNA databases are an amazing tool in criminal investigations,

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solving and preventing terrible crimes especially in cases like these where a serial sexual offender was captured during his felonies.

9. Link:

1. https://www.clarin.com/policiales/detienen-policia-mendoza-casos-abuso-sexual_0_SydSwQq0G.html
2. <https://www.losandes.com.ar/article/view?slug=detuvieron-a-un-policia-de-mendoza-que-robaba-y-abusaba-de-sus-victimas>
3. <https://www.mendozapost.com/nota/89883-asi-detuvieron-al-policia-acusado-de-abuso/>
4. <https://www.sitioandino.com.ar/n/263953-detienen-a-un-policia-acusado-de-robos-y-abusos-sexuales/>
5. https://www.diariouno.com.ar/judiciales/policia-confeso-depredador-sexual-arriesga-condena-50-anos-02062020_B1G0OS_MU
6. <https://www.losandes.com.ar/article/view?slug=pidieron-28-anos-de-carcel-para-un-policia-mendocino-que-abusaba-mujeres-y-les-robaba>
7. <https://www.mdzol.com/sociedad/modus-operandi/2020/3/10/hoy-habra-sentencia-para-el-policia-que-salia-violar-mujeres-66662.html>
8. <https://www.elsol.com.ar/un-policia-fue-condenado-a-24-anos-por-abusar-y-robarle-a-mujeres>
9. https://www.diariouno.com.ar/judiciales/le-dieron-24-anos-carcel-expolicia-cometio-6-violaciones-cerca-comisaria-trabajaba-03102020_BkHqZrSBU

20. The Abused Housekeeper

1. Submitter of Case: Brian VanScyoc
2. Agency: Racine County Sheriff's Office
3. Location: Racine County, Wisconsin
4. Date of Crime: 1999
5. Date of Hit: 2019 (?)
6. Significance: GEDmatch database use, as well as support from same analyst for the Golden State Killer, Barbara Rae-Venter.
7. Executive Summary: A woman working as housekeeper is killed by her employer/house owner and the murder covered up. Her dead body shows signs of extreme abuse. After no leads, genetic genealogy is employed through GEDmatch, which reveals her family members and eventually leads investigator to her employer/house owner and her arrest.
8. Submitted Facts:
 1. On July 21st, 1999, the body of a deceased female was found alongside a cornfield in rural Racine County, Wisconsin. Autopsy revealed that the female victim, aged between 13-30 years old, had suffered extensive, long-term abuse. She was found to be malnourished and suffered from pneumonia and sepsis. The female victim was believed to be cognitively delayed and was found to have suffered from burns, lacerations, broken bones, and tool mark injuries. The unidentified female victim was laid to rest as "Jane Doe" in Racine County. Her death gathered large community support and interest in her death and identification. "Jane Doe" was

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exhumed, and isotope analysis was conducted. Her femur was subsequently sent to establish a raw genetic profile which was then uploaded to GedMatch. Barbara Rae-Venter, who assisted with identifying the Golden State Killer, assisted with establishing and identifying familial connections to Racine County "Jane Doe". Investigators collected numerous voluntary DNA samples from possible family members. A community tip assisted with establishing a possible missing person out of McHenry, Illinois, matching "Jane Doe's" description. Contact with the missing woman's family was made and a genetic familial connection to Racine County "Jane Doe" was confirmed in October of 2020. "Jane Doe" was positively identified as Peggy Lynn Johnson (March 4, 1976) from McHenry, Illinois. It was learned that Peggy Lynn Johnson's mother had died from the AIDS virus and her brother had committed suicide. Peggy Lynn found herself living with Linda Sue Johnson-Laroche as a "housekeeper". Investigators learned that Peggy Lynn Johnson suffered extreme abuse at the hands of Linda Johnson-Laroche and that Linda had told her own family that Peggy Johnson had been dropped off with family after "fainting" at home. Investigators traveled to Cape Coral, Florida and subsequently arrested Linda Johnson-Laroche after developing probable cause for her arrest. Linda Johnson-Laroche attempted to cover up Peggy's disappearance with numerous conflicting stories of her whereabouts, going so far as to utilizing a photograph of another woman while fabricating contact with Peggy in an attempt to convince Linda's own family that Peggy was alive and well. Peggy Lynn Johnson was never reported missing to law enforcement. On March 4, 2020, Peggy was exhumed again and moved to Belvidere, Illinois where she was laid to rest next to her mother. Community donations were collected, and a fund-raiser was held. The money collected was used for Peggy's disinterment, a proper headstone, and re-interment. Linda Johnson-Laroche is currently in custody at the Racine County Jail on charges of First-Degree Intentional Homicide and Hiding a Corpse.

9. Links:

1. No links provided.

21. The Ukrainian Sailor

1. Submitter of Case: Liena Sikorska
2. Agency: Ministry of Internal Affairs
3. Location: Odessa, Ukraine / Vladyslavov, northern Poland
4. Date of Crime: 2019
5. Date of Hit: 2019
6. Significance: International cooperation between Ukraine and Russia leads to the resolution of a missing persons case.
7. Executive Summary: A Ukrainian merchant sailor goes missing while at sea. His mother reports him missing, and Ukrainian and Russian authorities work together to locate and identify his dead body.
8. Submitted Facts:

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1. Due to the DNA database and operational activity of forensic experts, who conducted molecular genetic researches, a crime, which gained a significant resonance, was solved.
2. On January 19, 2019, Malynivskiy police department in Odessa received a statement from a John Doe, that on January 10, 2019 his son, while staying aboard a Qatar-Poland maritime traffic, went missing. On January 19, 2019, his location had not been established yet. Internet source said: "In the Baltic region near Vladyslavov in northern Poland, a search and rescue operation has been lasting for more than five hours after a Ukrainian sailor of one of the merchant ships fell into the sea. Sailor have been searched by SAR, Helicopter, Voluntary Water Ambulance Service (WOPR) and Border Guards." With the aim of finding the sailor, the criminal proceeding No. 12019160470000211 was initiated in Ukraine. Within the framework of this criminal proceeding a sample of a buccal epithelium was selected from Jane Doe – mother of the missing 29-year-old Ukrainian sailor. During the molecular genetic examination of the specimen of the Jane's Doe buccal epithelium were established her genetic traits, which were placed in the Central record of human genetic traits of the Expert Service of the Ministry of Internal Affairs for their further comparison with genetic traits of unidentified corpses.
3. On November 6, 2019, upon the request of the National Central Bureau of the Interpol in the Russian Federation, the Department of International Police Cooperation of the National Police of Ukraine sent a letter to the State Scientific Research Forensic Center of the MIA of Ukraine concerning the DNA profile examination of an unidentified male person, whose corpse was discovered on July 5, 2019 in the Baltic Sea.
4. The DNA profile, sent by the National Central Bureau of Interpol in the Russian Federation to Ukraine, was verified using an automated database of the Central Registry of Human Genetic Traits. According to the results of the examination, a possible match with the DNA profile of one of the relatives of missing persons (the mother of the Ukrainian sailor) was found out.
5. Subsequently, a comparative molecular genetic examination was conducted to confirm that the male geneticist, whose corpse was discovered on July 5, 2019 in the Baltic Sea, is the son of Jane and John Doe, who had gone missing in the Baltic Sea on January 10, 2019.
6. This example proves the great importance of automated DNA databases in the closing of criminal proceedings. The combination of DNA databases usage and international police cooperation makes it possible to identify the bodies and track down the missing persons, despite the considerable distances and borders of different countries.
9. Links:
 1. <http://archiwum.polradio.pl/5/38/Artykul/401100>
 2. <https://varta1.com.ua/v-baltiiskomu-mori-tryvayut-poshuky-znyklogo-bezvisty-ukrayinskogo-moryaka/>
 3. <https://ua.korrespondent.net/ukraine/4052675-u-baltiiskomu-mori-vidnovyly-poshuky-znykloho-ukrainskoho-moriaka>

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4. https://zaxid.net/u_baltiyskomu_mori_znik_bezvisti_ukrayinskiy_moryak_n147341_3
5. <http://bug.org.ua/news/u-pol-shchi-shukaiut-moriaka-ia-kyy-naperedodni-vypav-iz-sudna-281176/>
6. https://dt.ua/UKRAINE/u-baltiyskomu-mori-znik-ukrayinskiy-moryak-299317_.html
7. <https://nv.ua/ukr/world/countries/u-baltiyskomu-mori-ukrajinskiy-moryak-vipav-za-bort-yogo-poshuki-trivayut-50001321.html>
8. <https://www.yavp.pl/uk/novini/ukrainskyi-moriak-zahadkovo-znyk-u-vodakh-poblyzu-hdanska-poshuky-tryvaly-vsiu-nich-15106.html>
9. <https://www.5.ua/suspilstvo/ukrainskyi-moriak-vypav-za-bort-u-baltytsi-poshuky-tryvaiut-zmi-184538.html>

22. Mother-Daughter Double Homicide

1. Submitter of Case: Quyi Xu
2. Agency: Forensic Science Institute of Guangzhou Public Security Bureau
3. Location: Tianhe, Guanzhou, China
4. Date of Crime: 2008
5. Date of Hit: 2019
6. Significance: DNA match came from relative being entered into database for unrelated crime; original crime scene was meticulously cleaned by suspect but managed to find one drop of blood on the victim's foot.
7. Executive Summary: In 2008, a mother daughter double homicide occurred in Guangzhou, only two male individuals left limited blood stain at the crime scene with no hit at the time. In 2019, one of the blood stain contributor's DNA got a 22 Y-STR genotype hit with a burglary ex-con from the Y-STR DNA database for an unrelated case, adding to 120 genetic markers confirmed a match, which helped the police department targeting the suspect's family and able to identify him.
8. Submitted Facts:
 1. On X, 2008, a double homicide of mother and daughter occurred in Tianhe District, Guangzhou. The mother was a famous social figure and the daughter was a medical school student at her age of 20. Both of them were brutally murdered with a knife and the crime scene was cleaned by the suspect afterwards. After crime scene investigation, forensic experts confirmed two suspects were involved, which two male individuals were detected through DNA examination of the blood stains obtained from the crime scene. Blood stain contributor A left multiple blood stain at the crime scene, but suspect B left only a drop of blood on the younger victim's foot. Unfortunately, none of the blood stain found a DNA match and the case went unsolved for 11 years.
 2. In 2019, suspect B's DNA matched to a DNA evidence for an unrelated case from the National Y-STR database. According to the examination of physical evidence, 22 Y-STR got a hit with a burglary ex-con named Jun, who is from Hunan Province. Extended the examination to 59 Y-STR, we still found a matched between suspect B and Jun, thus the patrilineal family was confirmed. However, the autosomal STR suggested that suspect B and Jun were not identical. Local police department

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confirmed Jun is the only son of his parents, which lead us to sampled and inspected Jun's family for more male relatives, including Jun's father, 3 paternal male cousins and 5 uncles. According to Y-STR, we were able to identify all 9 male relatives remained in the same patrilineal family, but no autosomal genotypes match to the suspect.

3. Further analysis of 40 autosomal STR and ITO algorithm was conducted to calculate the probability of genetic relationship, we were able to confirm suspect B matched half-sibling relationship to all 9 male relatives and also Jun. Furthermore, we collected two female family member's DNA, which is Jun's mother named Xiu and his grandmother named Tao. The results showed suspect B has a parental relationship with Xiu but no grandmother-child relationship with Tao. Comprehensive analysis of all information above, we speculated that the suspect could have a biological relationship with Jun's grandfather Lin. Unfortunately, Lin had been dead for years. Based on the genotype of Jun's father and uncles, we worked backward to speculate on the possible genotype of Lin. Together with the known biological mother Xiu and suspect B, 35 autosomal STR loci of three people showed a trios match. In conclusion, the suspect consists a paternity relationship with Xiu and Lin as his biological parents. Further investigation confirmed that Xiu and Lin had an illegitimate child more than 30 years ago. The child was abandoned and adopted by another family and DNA information match the suspect B.
4. Investigation suggested that suspect B was married and worked abroad in Malaysia. Task force received his flight plan of back in Hunan and arrested him at Changsha Hunan airport. After being arrested, he made a confession of his crime and his crime partner.
5. Investigative Importance: Suspects cleaned the crime scene and left very few clue after committing the murder. Investigators found a drop of blood on one victim's foot and got a hit through the database which was related to the suspect as relatives. The police department had to sift through 9 male relatives and 2 female relatives in the family across half of the country in 11 years and finally close the case.
6. Scientific Importance: Match came from the suspect's relative being entered into the national Y-STR database for an unrelated case. After analyzing the whole family, we were able to confirm suspect's biological mother and speculate the biological father. Unfortunately, the possible biological father passed away years ago, we had to work backward to speculate on possible genotypes based on the half-siblings.
9. Links:
 1. https://www.toutiao.com/i6783920880226402830/?tt_from=weixin&utm_campaign=client_share&wxshare_count=2&from=groupmessage×tamp=1579510445&app=news_article&utm_source=weixin&isappinstalled=0&utm_medium=toutiao_ios&req_id=202001201654050101290372370359BF84&group_id=6783920880226402830&pbid=6764512989536617988
 2. https://3w.huanqiu.com/a/340a94/9CaKrNkoZEY?agt=20&tt_from=weixin&tt_group_id=6783972595382354445&utm_campaign=client_share&wxshare_count=1&from=groupmessage×tamp=1579561561&app=news_article&utm_source=weixin

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[n&utm_medium=toutiao_ios&req_id=2020012107060101001404708011D6B207&group_id=6783972595382354445](https://www.toutiao.com/newsdetail/2020012107060101001404708011D6B207&group_id=6783972595382354445)

23. JP - Repeat Offender

1. Submitter of Case: Josee Noel
2. Agency: LSJML Quebec Ministry of Public Security
3. Location: Quebec, Canada
4. Date of Crime: 2018
5. Date of Hit: 2018
6. Significance: Repeat offender is finally caught after a DNA database match.
7. Executive Summary: A frequent flyer criminal with a history starting in the 80's evades detection, partially due to a lack of national DNA database in Canada at the time. In 2018, he commits a violent set of sexual rapes and his DNA profile is recovered. No match occurs, until several months later the suspect commits a kidnapping and a profile is recovered. A match is finally produced when U.S. Customs authority arrest the suspect for trying to bring in a weapon into the United States at the border.
8. Submitted Facts:
 1. A repentant yet violent repeat offender.
 2. Montreal, summer 2018. A masked suspect forces himself inside a halfway house and sexually assaults two social workers very violently under threat of a gun. Before leaving, he pushes the horror further by spraying the victims with cayenne pepper. Investigators immediately treat it as a serial crime, triggering special investigative measures. A special task force is set up to find the perpetrator of this sordid crime and appeals for information are made through the media. A criminal profiler involved in the investigation describes the suspect as a cunning predator, very confident and thirsty for power. Sun Youth, a local charity organization even offers a 5000\$ reward for information about this crime/suspect.
 3. Within days, analysis of the sexual assault kits produces a relevant male genetic profile but no match is returned from the convicted offender index of the Canadian national DNA database and the perpetrator remains unknown for several months. During this time, many suspects are eliminated through DNA analysis. Until a match is obtained through the Montreal local crime scene index of the database.
 4. A couple of months after the sexual assaults, a 12-year-old girl was kidnapped by two men in a van and taken to an empty house. She managed to escape unharmed after being tied up for long hours. Investigators rapidly identified a suspect who will be further referred to as JP. The day after the failed kidnapping, JP was arrested by customs officials while attempting to enter the United States. In his van, officers found a .22-caliber rifle as well as a Halloween mask, tights and a knife. He was immediately detained and pleaded guilty to attempting to illegally bring a weapon in the USA. Quebec police was eventually able to examine JP's vehicle. A DNA sample taken from it yielded a male profile matching that recovered in the 2018 sexual assault case, thereby linking the abduction and the sexual assaults. American authorities handed JP over to Canadian investigators in June 2019, under an arrest

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warrant, once his jail term had been served. His trial for the sexual assaults should take place in 2020.

5. It turns out that JP is quite a character, well known to the police: in the 80s, he was convicted for abducting a police officer's son against a 30 000\$ ransom. He escaped from prison and committed an armed robbery before being caught again. However, his DNA was never taken as databanks did not exist then. While in jail, JP began writing and eventually held a regular column in a magazine focused on social issues. He described life in prison, where he spent most of his adult life, as well as criminal rehab and reintegration, receiving awards from recognized journalist associations for his work. Moreover, JP had recently participated in a TV show during which he met his 1986 abduction victim and family to ask for their forgiveness. Unfortunately, it appears that JP has returned to his criminal ways.

24. 8-Year-Old Biker

1. Name of Submitter: Rick Ansell
2. Agency: The Swedish Police Authority
3. Location: Billdal, Sweden
4. Date of Crime: 1995
5. Date of Hit: 2019
6. Significance: After familial searching was made legal in Sweden in 2019, this case is finally solved.
7. Executive Summary: A violent sexual assault in 1995 of a young girl remains cold, even after Sweden's national DNA database comes online in 2000 and Prüm Treaty sharing begins in 2013. However, in 2019 after Sweden legally allows familial DNA searching, a match is made to the young girl's father.
8. Submitted Facts:
 1. In September 1995 an eight-year-old girl was biking her way home from school, in the rural town of Billdal, when she was attacked and violated by an unknown man. He carried her and her bike to a close by grove where she was physically assaulted and raped. Pretending being dead probably saved the girls life. The girl was later found and picked up by a motorist while she was running along the road partly undressed and bleeding. According to her testimony other cars had passed without stopping. The attack was brutal and she was brought to emergency medical care with serious head and genital injuries.
 2. During forensic analysis vaginal swab samples revealed some sperm heads, but not in amounts sufficient for DNA typing with the techniques available. On her T-shirt stains of semen were found that were typed with the "Quadroplex" STR markers. The DNA profile was subsequently updated with newer STR typing kits as they emerged; "Profiler", "SGM Plus" and "ESX 16". The DNA profile was entered to the national DNA database in 2000, the year after the database started.
 3. Years passed without law enforcement succeeding in their efforts to find the culprit. Many hundred males were swabbed and excluded not matching the DNA. Neither was a database match obtained from all other suspects of crime DNA sampled nationally throughout these years or from other European DNA databases as

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Sweden starting sharing DNA data through the Prüm Treaty in 2013. The case was facing permanent closure in March 2020 due to legal “period of limitation”.

4. Following legislative changes, familial search of the national police DNA databases was allowed starting January 1st, 2019. Practical routines had been set in advance and several cases were submitted already early January. Among the first five cases requested for familial search was the “Billdal case”.
5. The investigators received a forensic intelligence report (“forensiskt uppslag”) containing ranked candidate lists for parent/child and siblings respectively.
6. The investigation, following the leads given in the report turned its interest to the candidate list for parent/child. This as the candidate positioned first had a father of interest to the investigation. The man was brought in for questioning and was subsequently swabbed for DNA. 24 years after the crime, a DNA match for the semen on the T-shirt could finally be reported!
7. As a next step, the remaining vaginal swabs were reanalyzed. With the present techniques a matching DNA profile could successfully be obtained.
8. Finally, he was sentenced to six years imprisonment for aggravated rape, with a sentence reduction applied because many years had passed. The court stated that eight years would have been the punishment if it had been committed in present time. The man denied committing the crime and also claimed a brain damage (medically unconfirmed) leading to memory slots.
9. Throughout the years, the investigation of this brutal case made use of the developments achieved in forensic DNA typing and databasing awaiting the closing match. Finally, when adding an additional forensic tool - familial search - the case could be solved and brought to justice.
9. Links:
 1. <https://www.svt.se/nyheter/lokalt/vast/billdalsmannen-doms-till-sju-ars-fangelse>

25. Impius Operation

1. Submitter of Case: Mariana Flavia
2. Agency: Forensic DNA Laboratory - Scientific Police (Goias, Brazil)
3. Location: Goias, Brazil
4. Date of Crime: 2008-2019 (serial rapes)
5. Date of Hit: 2018
6. Significance: “The largest and most striking case of serial rapes in Goias, Brazil.”
7. Executive Summary: The State of Goias Forensic DNA Laboratory’s Sexual Assault Kit Backlog project connects a string
8. Submitted Facts:
 1. In October, 2018 CODIS of Goias state (Brazil) reported five forensic hits related to rape cases. All cases were reported in the same region near the metropolitan area of the capital Goiania. In possession of this hits, the local CODIS Administrator informed the Superintendent of the state’s forensic unit (Policia Cientifica) and the state investigative police (Policia Civil) in order to coordinate the work among the authorities involved. Due to the Goias Forensic DNA Laboratory’s project to process backlog samples of sexual assault and the implementation of investigative changes

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triggered by the initial genetic data, in April, 2019 CODIS have reported four additional hits, totaling nine cases. Once again, the CODIS Administrator brought these new hits to the authorities' attention. At this time, the new Superintendent of the Policia Cientifica and the Policia Civil started a task force, called "Impius Operation" to find the rapist and more victims. Authorities spent 45 days in this operation, with more than 40 police officers dedicated to it. During this period, dozens of new cases were sent to the Forensic DNA Laboratory for processing and, in September, 2019 the number of cases with the same male DNA profile increased to 22. All victims have reported similar "modus operandi" and physical attributes of the offender. As a result of the Impius Operation, the offender was arrested in 09/12/2019. The Forensic DNA Laboratory collected a DNA sample from the arrestee and his genetic profile matched those of all the kits collected from the alleged victims. The rapes occurred between 2008 and 2019, excluding the period between 2011 and 2014, when the offender was arrested due to three homicides committed in another state (Mato Grosso). After escaping prison, he then returned to Goias where he continued practicing robberies and rapes. The offender always approached the victims riding a black or red motorcycle. He never removed his helmet and always used a real or a fake gun to steal the victims' cell phone and coerce the victims to a remote place where rapes occurred. By March, 2020 the Forensic DNA Laboratory had confirmed 31 victims raped by this offender. This is by far the largest serial rapist case in Goias and one of the biggest ever brought to justice in Brazil. Due to the fact that the offender has been convicted for homicides in Mato Grosso, we have uploaded his genetic profile to CODIS. And thanks to an ongoing task force to process thousands of rape kits across Brazil, as a priority of Brazil's Federal Government, we can solve even more cases that might be related to this criminal. This case is unique due to the disturbing number of women raped and because without CODIS probably many of these crimes would have never been brought to light.

9. Links:

1. <https://hotinfonow.com/brazileng/suspect-of-serial-rape-arrested-in-goias/>
2. <https://diaonline.com.br/2019/09/19/dna-comprova-que-acusado-cometeu-22-estupros-entre-2008-e-2019-em-goias/>
3. <https://www.jornalopcao.com.br/assunto/operacao-impus/>
4. <https://g1.globo.com/go/goias/noticia/2019/09/19/homem-considerado-o-maior-estuprador-em-serie-de-goias-e-presos-suspeito-de-47-abusos.ghtml>
5. <http://noticiasgoias.com.br/noticia/titulo?titulo=pol-cia-civil-prende-o-maior-estuprador-em-serie-de-goias&id=1198>
6. <https://jornaldebrasil.com.br/nahorah/homem-considerado-estuprador-em-serie-e-presos/>
7. <http://jornalsomos.com.br/goias/detalhe/pc-prende-acusado-de-ser-estuprador-em-serie-em-goias>
8. <https://portalcontexto.com/policia-civil-prende-o-maior-estuprador-em-serie-de-goias/>

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9. <http://www.jornalpopulacional.com.br/noticia/10513-policia-civil-prende-homem-suspeito-de-ser-o-maior-estuprador-em-serie-de-goias.html>
10. <https://www.otempo.com.br/brasil/delegado-diz-que-suspeito-de-47-estupros-considera-que-mulher-e-inferior-1.2239228>
11. <https://radiotrabalhador.com.br/noticia/551105/policia-prende-estuprador-que-fez-22-vitimas-confirmadas-na-regiao-metropolitana-de-goiania>
12. <https://www.agoramt.com.br/2019/09/fugitivo-de-rondonopolis-e-presos-acusado-de-47-estupros-ocorridos-em-goias/>
13. <https://www.atribunamt.com.br/2019/09/20/homem-presos-em-go-acusado-de-47-estupros-e-fugitivo-da-mata-grande/>
14. <https://www.uol.com.br/universa/noticias/redacao/2019/09/19/homem-chamado-de-maior-estuprador-de-goias-e-presos-suspeito-de-47-abusos.htm>
15. <https://www.seguranca.go.gov.br/ultimo-segundo/preso-o-maior-estuprador-em-serie-da-historia-de-goias-em-acao-integrada-das-forcas-de-seguranca.html>
16. <https://veja.abril.com.br/brasil/maior-estuprador-em-serie-homem-e-acusado-de-54-estupros-em-goias/>
17. <http://ohoje.com/noticia/cidades/n/172641/t/investigacao-de-estuprador-em-serie-em-goias-e-reconhecida-internacionalmente>
18. <https://www.seguranca.go.gov.br/galeria-de-fotos/estuprador-em-serie-investigacao-feita-em-goias-e-reconhecida-internacionalmente.html>
19. <http://www.policiacientifica.go.gov.br/noticias/estuprador-em-serie-investigacao-feita-em-goias-e-reconhecida-internacionalmente.html>
20. <http://impresso.dm.com.br/edicao/20200104/pagina/6>

26. Rachel Genofre's Case

1. Name of Submitter: Ronaldo Cerneiro Da Silva Junior
2. Agency: Brazilian National DNA Database
3. Location: Curitiba, Brazil
4. Date of Crime: 2008
5. Date of Hit: 2019
6. Significance: The resolution of this case via DNA on the national Brazilian DNA database represented a major milestone and success for the system.
7. Executive Summary: A young girl went missing and her body recovered 2008. Although a DNA profile was generated in shortly she was discovered, the case went cold in part due to Brazil's lack of national DNA database at the time. In 2019, a convicted offender collection program led to a match with the case to someone currently serving a prison sentence. Additional investigation and facts corroborated this.
8. Submitted Facts:
 1. The victim Rachel Maria Lobo Oliveira Genofre, just 9 years old, disappeared in the late afternoon of November 3, 2008, on her way home, after leaving her school located in downtown Curitiba. Her body was found 2 days later, wrapped in sheets and plastic bags and packed inside an abandoned suitcase under a staircase in Curitiba's main bus station. At the time of the crime, it generated wide and expressive commotion in society, given its particularities of violence. The body was

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taken to the Legal Medical Institute in Curitiba, where sexual violence was found, and vaginal and anal swabs were collected by the coroner. The swabs, the sheet and her clothes were analyzed by the Forensic Molecular Genetics Laboratory of the Scientific Police of Paraná State. It was only possible to recover a genetic profile, belonging to a male individual, from the anal swab. When the Paraná State DNA Database started operating in 2014, this genetic profile was the first to be inserted. In the absence of an identified suspect, the investigations pointed to several directions and, over the course of 11 years, about 170 genetic tests with possible suspects were requested. None of these confrontations have generated matches along the years. The case remained unsolved for 11 years and it became an relentless search with new hopes of truth and justice being revived with each new confrontation requested. On June 25, 2019, at the Penitentiary of Sorocaba, São Paulo, a biological sample was collected from the convicted offender C.E.S. (sentenced on 9/27/2016). The genetic material was extracted and the respective genetic profile was inserted in the Brazilian National DNA Database on 09/03/2019, by the team of the São Paulo State Scientific Police. On 09/16/2019 the Brazilian National DNA Database detected the perfect match between the sample collected from the body of the victim Rachel and the convicted offender C. E. S. The convicted offender has an extensive criminal record relating to crimes such as rape and fraud. Investigations showed that, at the time of the crime, he was living in Curitiba and was employed in a neighboring town. According to his testimonial, he had already been observing the girl's habits and attracted her with the promise of participating in a children's TV show. The resolution of the case represented an unique milestone for the criminal experts of the Brazilian Integrated Network of DNA Databases. There was also an immense national repercussion, both at the regional and national levels. As an example of this, the Chamber of Councilors and the Legislative Assembly of Paraná honored all the experts and other professionals involved in all stages of the investigation of this barbaric crime.

9. Links:

1. <https://newsbeezer.com/brazileng/rachel-genofres-mother-talks-about-identifying-suspects-11-years-after-the-crime-may-he-pay-for-what-he-has-committed-parana/>
2. <https://g1.globo.com/pr/parana/noticia/2019/09/19/suspeito-de-matar-rachel-onofre-e-identificado-quase-11-anos-depois-do-crime.ghtml>
3. <https://www1.folha.uol.com.br/cotidiano/2019/09/com-banco-de-dna-policia-chega-a-suspeito-de-ter-matado-menina-encontrada-em-mala-em-curitiba.shtml>
4. <https://www.correiodopovo.com.br/not%C3%ADcias/pol%C3%ADcia/caso-rachel-genofre-identificado-assassino-ap%C3%B3s-11-anos-de-investiga%C3%A7%C3%A3o-no-paran%C3%A1-1.366982>

27. Cottonwood Glen Park

1. Submitter of Case: Carrie Davis
2. Agency: Colorado Bureau of Investigation; Fort Collins Police Department
3. Location: Fort Collins, Colorado
4. Date of Crime: 2013

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5. Date of Hit: 2017
6. Significance: See summary; interesting investigative twist.
7. Executive Summary: A woman awakens to having been violently sexual assaulted and beaten; she has near fatal injuries to her brain and body. She survives only to move on with her life, moving into a home to rent where she befriends a man named Stefan Moon. Moon becomes her very close friend and helps her deal with the attack's trauma. In the meantime, Colorado police develop a DNA profile but there were no hits in CODIS. Finally, in 2017, there was state CODIS hit to Amber's perpetrator and the name shocked everyone: Stefan Moon. He was promptly arrested and convicted.
8. Submitted Facts:
 1. On August 31, 2013, Amber Smith awakened in a fog of excruciating pain near Cottonwood Glen Park in Fort Collins, Colorado. She was naked, bound with duct tape, and had been violently beaten and sexually assaulted. Amber's injuries were so extensive that her brain was bleeding and her jaw had been savagely broken, and she had been callously left for dead by her assailant. Forensic evidence from Amber was submitted to the Colorado Bureau of Investigation Forensic Services (CBIFS) Denver Laboratory on September 4, 2013. A DNA profile obtained from the sperm fraction of Amber's anal swabs was entered in the state and national CODIS database on September 6, 2013 where it sat, unsolved, for almost 4 years.
 2. In the meantime, Amber tried to move on with her life. A few years after the incident, she was befriended by a kind man named Stefan Moon who rented a room in the same house as Amber. He consoled her when she confided in him and recounted the horror of her violent attack, and they became close friends.
 3. Finally, on August 11, 2017 the CBIFS received a state CODIS hit that finally identified Amber's perpetrator. The name the Fort Collins Police Department received shocked Amber: Stefan Moon. Stefan had been arrested in Fort Collins on a felony Property Crimes/Prohibited Act Pawnbroker charge for pawning stolen property and his sample had hit against her unsolved case. She had no inkling that Stefan, her friend that she trusted and had confided in, had been the violent perpetrator that had sexually assaulted her and nearly beat her to death.
 4. Stefan Moon was found guilty by a jury in August 2019 of two counts of sexual assault, second-degree kidnapping and first-degree assault, all felonies. The jury found Moon not guilty of felony attempted murder. The jury deliberated for less than a day after listening to six days of testimony in the trial, including expert witness testimony given by the CBIFS DNA Analyst. Moon was sentenced to 128 years to life in prison and deemed a sexually violent predator. He will remain in prison for the rest of his life.
9. Links:
 1. <https://www.coloradoan.com/story/news/2019/08/15/man-convicted-2013-sexual-assault-woman-found-naked-fort-collins-park/2020140001/>
 2. <https://www.coloradoan.com/story/news/2019/10/08/stefan-moon-cottonwood-glen-park-sexual-assault-kidnapping-fort-collins-sentence/3911338002/>

28. Malaysia DNA Database Helps Solve 20-year-old Rape Case

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1. Name of Submitter: Raihanah Bte Hamdan
2. Location: Malaysia
3. Date of Crime: 1999
4. Date of Hit: 2019
5. Significance: "One of the cases was a rape case of some 20 years ago. The suspect was already serving time for another offense, but through the data bank, we were able to test samples and link him to the assault": - Malaysian Deputy Inspector - General of Police Datuk Mazlan Mansor.
6. Executive Summary: A brazen burglary of a family's home during which the suspects rape the family's housekeeper leads to a DNA profile. But the case quickly goes cold with a DNA database. In 2019, the DNA Databank Division of Criminal Investigation Department of the Royal Malaysian Police began initiative to upload all previous crime scene profiles from cold cases. This led to an immediate match with a convicted offender, and eventually the resolution of the case.
7. Submitted Facts:
 1. It was Sunday, July 18, 1999. At shortly after 4.00 am, a double story house located at Jalan Persiaran Minang 4, Taman Minang Cheras Selangor was approached by 4 unknown individuals. While the residents were fast asleep, their house was broke in through the front sliding door. All the residents were woken up and were tied with electric cables. All of them were grouped together in one room but one of the suspects brought the maid, an Indonesian female, to her bedroom and raped her. After rummaging around the house for valuables, the suspects then fled the scene using the owner's car, a BMW, together with a sum of money, watches and jewelries. With much effort, one of the family members managed to break free and called the police.
 2. According to the victim's statement, the suspects were believed to be Indonesians, which were recognized by their spoken language but none of the family members could identify the suspects 'faces because they were covered with cloths. A team of crime scene investigators from the Selangor CSI team were dispatched to the scene. After thorough investigation, they have found several forensic evidences including fingerprints and semen stains in the bedroom where the maid was raped. These evidences were sent to the Department of Chemistry Malaysia for DNA profiling. Using the Profiler Plus Kit (9 Loci), one unidentified male profile DNA from semen stain on the sarong worn by the victim was extracted from the exhibit which was labelled as Male X. Unfortunately, at that time there was no suspects 'profile to be matched or compared.
 3. This case eventually went cold since neither the witnesses nor CCTV footage could identify the suspects 'faces. All the information the police had was that the suspects were Indonesian males and an unidentified DNA profile recovered at the scene. So the case was closed until further leads. 20 years had passed, the case remained cold.
 4. On September 22, 2019, the DNA Databank Division of Criminal Investigation Department, Royal Malaysia Police (RMP) took the initiatives to upload all crime scene profiles previous cold cases dated back in 1998. On that faithful day, the team

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received a match of Male X to a Convicted Person Index known as Yan Sputra bin Ahmat (Indonesian). Yan Sputra's DNA profile was uploaded into the system in 2014 while he was serving prison in Limbang, Sarawak for other felony he committed. The investigation officer was immediately informed about this finding and was asked to review back the case based on the DNA evidence by linking the suspect to the robbery and rape.

5. This immense discovery had given a new lead to the investigation and closure for the victim. Unfortunately, it is learned that the victim had return back to her country and was unable to be contacted or located. RMP had been collaborating with the Indonesian National Police to track the location of the victim in order to prosecute the suspect. It is believed that this incident had caused traumatic experience for the victim. Knowing that DNA database could solve cold cases gives the law enforcement some hope to not given up and help victims to obtain fair justice.
8. Links:
 1. thestar.com.my/news/nation/2019/10/07/how-the-dna-data-bank-helped-solve-a-20-year-old-rape-case

29. Operation Tebuk

1. Name of Submitter: Fellino Bin Sidin
2. Location: Malaysia
3. Date of Crime: 2014
4. Date of Hit: 2018
5. Significance: Good use of Malaysian national DNA database.
6. Executive Summary: After a burglary in 2014 and a series of burglaries in 2018, police believed the cases were linked to one group of suspects. DNA profiles were develop from the crime scenes. Using old-fashioned police work, police arrested the suspects and profiled their DNA, leading to a match in the Malaysian DNA database.
7. Submitted Facts:
 1. Operation 'TEBUK' is named after a series of break-ins using the same modus operandi by a group of Vietnamese suspects. There were at least 6 cases of break-ins in Kedah (north state in Peninsular Malaysia) alone within 6 months. These cases have caused an alarming state for the Royal Malaysia Police of Kedah Police Contingent. Thus, a discreet planning had been put up to apprehend the perpetrators.
 2. Ipoh, PERAK (June 2014)
 3. On the night of June 26, 2014, located at a factory in Taman Rishah, Ipoh, Perak, the night shift guard noticed that the wall of the factory's office was breached and a sum of money was stolen from the safe box. The security guard immediately alerted the police and a team of Perak CSI team was despatched to the scene. Upon processing the crime scene, the investigators found out that the suspects entered the building by drilling a hole through the wall. The safe box was cut open using a grinder machine and a sum of money was taken. After thorough investigation, the CSI team managed to retrieve some evidence such as cigarette butts and swabs

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from the grinder blade. All the evidences were sent to the Department of Chemistry Malaysia for DNA profiling. Several DNA profiles were obtained from the crime scene samples but unfortunately, there was no possible match as there were no possible suspects to be matched with. Due to the specific modus operandi, this information was shared between other police states for similar cases.

4. KEDAH (January – June 2018)
5. 4 years later, between the months of January to June 2018, there was a sharp rise of house breaking cases involving several different districts in Kedah. This sudden rise had caused a red flag to the Kedah Police Contingent. Within the six months period, there were six cases of house / factory break-ins had been reported and all the cases involved the same modus operandi and losing large amount of money. In each crime scene, the investigators discovered that the way the suspects entered the house / factory was through a drilled hole on the wall and all of the crime scene involved money taken from the safe boxes. Some unknown DNA profiles were retrieved from the crime scene evidences. These unknown profiles however showed matches between a few crime scene profiles which indicate that the same suspects were at several different crime scenes.
6. Police investigation
7. Several project meetings were held at the Kedah Police Headquarters by the Criminal Investigation Department to solve these cases. Finally, in July 2018, the police have successfully apprehended five Vietnamese suspects involving a house break-in in Ayer Hitam, Kedah and were investigated under Section 457 of the Penal Code. DNA samples of the suspects were taken and sent to DNA Databank Division (D13) Bukit Aman for analysis. The suspects' profiles were compared with the crime scene profiles and it was a positive match with the active case. Through police intelligence, all these suspects were known as an active syndicate in house break-in cases in Malaysia especially in Kedah. Therefore, the DNA Databank Division took the initiatives to collect all the unknown DNA profiles obtained from the crime scenes involving section 457 Penal Code cases from selected region in Peninsular Malaysia to be uploaded and screened through in the FDDM for positive matches.
8. Through DNA evidence screening, it had linked these suspects to seven other house breaking cases in Perak and Kedah. With this discovery, suspects with the matched DNA profile were charged under Section 457 of the Penal Code in November 2018.
8. Links:
 1. No links provided.

30. Jewelry Thieves

1. Name of Submitter: Mark Brett
2. Agency: Forensic Services Metropolitan Police, London, United Kingdom
3. Location: London, England, United Kingdom
4. Date of Crime: 2019
5. Date of Hit: 2019
6. Significance: Appears to be touch DNA from suspect's attempt to pass through a hole a wall.

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7. Executive Summary: Failed jewelry thieves leave their touch DNA behind at the scene of a burglary. Forensic investigators recover said DNA and develop a profile, leading to an immediate match in the UK national DNA database.
8. Submitted Facts:
 1. Over the weekend of the 23rd - 24th March 2019, 3 suspects forced entry to a venue on Fleet Street, London. Their intention was to drill through a wall to the adjoining jewellery shop. The suspects took care to disable security systems, painting over CCTV cameras and removing security tapes. Their first attempt at entering the jewellers was unsuccessful as they had drilled through the wrong wall, entering a betting shop next door. Realising their mistake they then continued their work, gaining entry to the jewellers and making off with approximately £300,000 worth of jewellery.
 2. Their unsuccessful initial attempt proved successful for us. On the 25th March 2019, Forensic Practitioner Sean Davies attended the venue to carry out a forensic scene examination. Part of his examination revealed CCTV images had been captured inside the betting shop, showing one of the suspects pulling himself out of the hole, realising their mistake before returning through the hole. After careful examination of the CCTV FP Davies was able to target his examination and swabbed areas of contact from around the hole opening. These swabs were submitted to EuroFins Laboratory and were subsequently identified on the 5th April 2019 for a Nicolae SISCO.
 3. SISCO was in Prison and was subsequently arrested and interviewed. He gave a no comment interview but was subsequently charged and remanded back to prison. It transpired that SISCO was also wanted on a European Arrest Warrant for a similar offence in Italy. SISCO was sent for trial whereby he pleaded guilty at the first hearing and sentenced to 4 ½ years.
 4. Enquiries revealed two further suspects who had both fled the country. They were both later found in Romania and returned to the UK. A jury took just 32 minutes to find them guilty and they were both sentenced to 6 years.
 5. The jewellery has never been recovered.
9. Links:
 1. <https://www.standard.co.uk/news/crime/burglars-wrong-wall-bookies-fleet-street-a4370791.html>

31. The Case of Tracy Wylde

1. Name of Submitter: Dr. Nighean Stevenson
2. Agency: Scottish Police Authority Forensic Services
3. Location: Glasgow, Scotland, United Kingdom
4. Date of Crime: 1997
5. Date of Hit: 2018
6. Significance: Phenotype analysis; cold case for 20 years; use of national database upon suspect profile entry for unrelated offense.
7. Executive Summary: A murder of a prostitute in 1997 led to the development of the suspect's DNA profile but no hits in the database. The case went cold and remained

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such for 20 years. In the interim, Scottish Forensic Services provided what appears to be a phenotype profile showing East Asian descent. In 2018, a Chinese man was arrested for simple arrested and placed into the DNA database, leading to a match with the 1997 murder. He was subsequently arrested and pled guilty.

8. Submitted Facts:

1. Tracy Wylde was 21 when she was murdered in her home in Glasgow on 24 November 1997. She was a sex worker and her murder took place at a time when a number of women who worked in the sex industry had been murdered in the Glasgow area. Although these murders were never formally linked, it sparked fears that prostitutes in Glasgow were being targeted by a serial killer.
2. Tracy Wylde had been manually strangled. There were no medical or scientific findings to suggest she had been sexually assaulted, however her underpants were situated on top of her trousers, inside out and with her leg through the waistband and she had a bite mark on her breast.
3. In 1997, using the SGM™ PCR Amplification Kit, an unknown male DNA profile was detected from a visible stain on her trousers (later identified as saliva) and on her fingernails. However, no matching DNA profiles were found on the Scottish or UK National DNA Database. Neither was the unknown DNA profile identified through mass screening, familial searching or searching international DNA Databases over the subsequent 20 years.
4. Over the course of several cold case reviews, this DNA profile was ultimately upgraded in 2015 using the GlobalFiler™ PCR Amplification Kit (DNA24). Due to the increased sensitivity of this DNA profiling kit, this same male DNA profile was also found on several locations of her body, including on her neck and a bite mark on her breast, as well as on her underwear and other clothing.
5. Given various unusual DNA markers which were present in this GlobalFiler™ DNA profile, for investigative purposes in 2015 we advised that the unknown DNA profile was most likely to have originated from a male of East Asian descent. This was the first time such a specific ethnicity had been provided by Forensic Services in Scotland. This information was very informative for the Police and Procurator Fiscals Service during their investigations and allowed them to direct their enquiries appropriately.
6. However, the murder of Tracy Wylde remained unresolved until July 2018 when a match was obtained on the Scottish DNA Database. The male DNA profile from Tracy Wylde's body and clothing was found to match 44 year old Zhi Min Chen; a Chinese-born man who fitted the ethnicity profiling. Various fingerprints found within Tracy Wylde's home were also identified as his.
7. Chen's DNA profile and fingerprints had been loaded to the Scottish DNA Database in July 2018 after he had been arrested for a simple assault; he was previously unknown to Police and had not featured at all during the Police enquiries in relation to this case.
8. In April 2019 Zhi Min Chen pleaded guilty to the 1997 murder of Tracy Wylde and was ordered to serve at least 20 years in prison.

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9. Without the DNA Database, this murder would remain unresolved today and Chen would still be at liberty.
9. Links:
 1. <https://www.youtube.com/watch?v=009yqun6kEQ>
 2. <https://www.bbc.co.uk/news/uk-scotland-glasgow-west-48308465>

32. The case of Fred Lee Frampton Jr.

1. Name of Submitter: Jennifer Hanburger
2. Agency: Anne Arundel County Police Department
3. Location: Odenton, Maryland
4. Date of Crime: 2010
5. Date of Hit: 2019
6. Significance: Support from Parabon Nanolabs Snapshot DNA Phenotyping Service.
7. Executive Summary: After a home invasion robbery and shooting in 2010, police were unable to find a suspect. Police enlisted the help of Parabon Nanolabs of 2015 which, after several years, provided a phenotyping-based sketch on the suspect and eventually through genetic genealogy a likely suspect. Police tracked this likely suspect down and surreptitiously obtained this suspect's DNA and confirmed a match.
8. Submitted Facts:
 1. DNA phenotyping was successfully used in solving an Anne Arundel County crime. Fred Lee Frampton Jr., 33, of Glen Burnie, received a life sentence suspended with all but 55 years to be served in prison for the first degree murder of Michael Anthony Temple. The suspect pleaded guilty in July of 2019.
 2. Through a combination of Police investigations, DNA analysis by Anne Arundel County Forensic Services and Parabon Snapshot DNA Phenotyping Service, Forensic experts identified a link between the DNA left behind at the crime scene eight years earlier and the suspect.
 3. On February 2, 2010, the Anne Arundel County Police Department responded to the 500 block of Williamsburg Lane in Odenton for a report of a home invasion robbery and a shooting. Upon arrival, police officers located one of the victims, identified as Michael Anthony Temple, inside the residence suffering from multiple gunshot wounds. Mr. Temple was transported to a local area hospital. Donald Gagnon, Margaret Ridgely and Kelly Skarwecki were also in the residence. Investigation revealed that at approximately 8:50 p.m., two white males entered the residence and one pistol-whipped Mr. Gagnon on the side of the head knocking him to the floor. Suspect 1, later identified as Fred Lee Frampton Jr., pointed a gun at Mr. Gagnon while Suspect 2, later identified as Jonathan Ludwig, duct taped the victim's hands behind his back, his ankles together and covered his mouth. Mr. Ludwig then took his wallet. The suspects proceeded to the basement where Mr. Temple, Ms. Ridgely and Ms. Skarwecki were located. Mr. Frampton ordered them to the floor and demanded money with a gun pointed at them. Mr. Temple jumped on Mr. Frampton and began to fight with him. Ms. Ridgely fought with Mr. Ludwig and she was struck on her left eyebrow causing a laceration. Mr. Ludwig then began to strangle Ms. Ridgely by grabbing her throat. She fought back and fell to the floor

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after becoming dizzy. Mr. Temple continued to fight with Mr. Frampton, exiting the bedroom and ending up in the laundry room. Ms. Ridgely told police that a few seconds later she heard one gunshot followed by another. Police recovered multiple shell casings, a four-inch blade folding knife and a partial projectile on the floor. Ms. Ridgely told police that she believed the suspects had taken somewhere between \$2,100 and \$2,500 from the residence. Mr. Temple told police he believed he had stabbed the man who shot him, and crime scene technicians recovered blood stains from the knife for testing. Mr. Temple was ultimately paralyzed from his injuries.

4. On June 18, 2015, the victim died due to complications of the gunshot wounds he suffered five years earlier. The Office of the Chief Medical Examiner of Maryland ruled his death was a homicide. In December, 2015, Parabon NanoLabs provided police with a "composite sketch" they had developed, detailing that the suspect DNA belonged to a fair skinned male with green/hazel eyes, brown/blonde hair from a northern/western European decent. On July 16, 2018, Parabon NanoLabs provided the Anne Arundel County Police Department Homicide Unit with a genealogy report they generated from individuals participating in their data base. The amount of shared DNA between the suspect and voluntary participants in the data base enabled the company to generate family ancestry lines to assist in the investigation. Just a few months later, Parabon called police to tell them they had a name for their suspect: Fred Lee Frampton, Jr. Armed with this information, on October 10, 2018, detectives followed Mr. Frampton to a 7-Eleven in the 1000 block of Route 3 in Crofton and watched him discard his coffee cup on the ground. Soon after, they saw him discard his cigarette in the parking lot of a nearby Roy Rogers. Police recovered both items for testing in the county's forensic laboratory. Sarah Chenoweth, a Senior Forensic Chemist, extracted DNA from the cup and cigarette and found they shared the same source of DNA that was found on the blade of the knife recovered from the crime scene. The suspect was identified as the source of the DNA. On November 1, 2018, Mr. Frampton was arrested. During a search of his home, a handgun later identified as the one used in the crime scene was recovered. Mr. Frampton was questioned by detectives and confessed to the murder and home invasion. Suspect Jonathan Ludwig died from an overdose in March 2018 shortly before police would also zero in on him through his DNA and corroborating evidence linking him to the crime." (Eye On Annapolis).

9. Links:

1. <https://www.eyeonannapolis.net/2019/09/dna-solved-a-cold-case-glen-burnie-man-sentenced-to-55-years-in-prison-for-murder/>

33. "Robbery of the Century"

1. Submitter of Case: Ana Paula Vieira de Castro
2. Agency: Brazilian Federal Police
3. Location:
 1. Paraguay (location of crime);
 2. Brazil (origin of criminals and substantial portion of DNA evidence)
4. Date of Crime: 2017

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5. Date of Hit: 2017
6. Significance: A crime leaves enough to DNA evidence behind to link the suspects to many crimes throughout Brazil.
7. Executive Summary:
 1. This was a military-style robbery and assault of the company Prosegur's (security and cash-protection service company) office in the Paraguayan city of Ciudad del Este (City of the East). At night, about 50-80 heavily armed robbers closed off a perimeter around the office with cars. During a three-hour assault, the small army was reportedly able to access at least one of the three vaults of the company. One police officer was killed and several were wounded. The robbers reportedly stole about USD \$8 million. Paraguayan police believed the robbers were Brazilian and had crossed the border into Paraguay to commit the crime. Brazilian federal police found a staging house across the border at Foz do Iguaçu in Brazil, where they seized six rifles, two boats, and seven vehicles. A group of the robbers were reportedly intercepted in Itaipulandia, during which a gun battle broke out and three suspects were killed and four were arrested. Paraguayan police believe a Brazilian gang called the First Capital Command (PCC) was behind the robbery.
 2. After the whole assault ended, Paraguayan and Brazilian police were able to collect DNA from the crime scene, as well as from the staging house in Brazil. From these two sources, 47 profiles were developed and submitted to the database leading immediately to 12 matches. 14 of these profiles led to matches with unrelated crimes throughout Brazil (seven different states) committed as far back as 2012 going through 2019. One of the profiles from this robbery even matched to the murder of a federal Brazilian prison officer.
8. Submitted Facts:
 1. The "robbery of the century". That was how the assault to the cash-transit company PROSEGUR in Ciudad del Este, Paraguay, on April 24, 2017, became known. Burglars, heavily armed and with explosives, stole about \$ 8 million. The robbery had several developments, abandoned vehicles, escape routes towards Brazil, shootings sites, arrests of suspects and a property used as "headquarters" by the criminals.
 2. Evidence and reference materials from suspects were collected by federal forensic experts, aiming to obtain genetic profiles to supply the National DNA Database (BNPG) for confrontations and eventual identification of the sources. All materials were sent to the Forensic DNA Laboratory of the Brazilian Federal Police.
 3. In the "headquarters" alone, more than 300 evidence were collected, which resulted in 34 different genetic profiles, including 8 that matched suspects' profiles. Bags and apparel abandoned at a shooting site resulted in 4 different profiles, including 2 that matched other arrestees. Vehicles resulted in 8 different profiles. Of these, 2 matched suspects' profiles. Many identical profiles between the related locations and suspects that were pinpointed in up to 3 different sites. In all, 47 profiles were uploaded into the database, 12 of them with identified sources.
 4. In BNPG, 14 profiles matched others from unrelated crime scenes, with 2 more individuals identified. These hits linked the assault to PROSEGUR in Paraguay to crimes in 7 different Brazilian states between 2013 and 2019.

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5. One profile from the “headquarters” linked PROSEGUR’s case to the murdering of a federal prison officer in Cascavel/PR, on September 2, 2016, and to an ATM explosion site in Campo Grande/MS, on October 11, 2017, inspected by state forensic experts. These identical profiles have an identified source.
6. Another profile linked the robbery to PROSEGUR in Paraguay to a federal prison escape in São Paulo, on December 8, 2014; to an assault to the cash-transit company SERV-SAN in Teresina/PI, on December 10, 2016; and to an assault to a security van owned by the cash-transit company BRINKS in Jacareí/SP, on November 21, 2017.
7. Five profiles from PROSEGUR’s case were connected to 3 different assaults to the cash-transit company PROTEGE. The first one on December 8, 2013, in Suzano/SP, whose source was arrested due to the assault to PROSEGUR. The second robbery took place on October 16, 2017, in Araçatuba/SP, and matched 3 unidentified profiles of PROSEGUR’s case. The last one, an attempted assault, took place on January 22, 2018, in Mogi das Cruzes/SP, and whose source was arrested on the investigation of assaults to private banks in Passos/MG, on April 11, 2018. All PROTEGE crime scenes were inspected by state forensic experts.
8. On March 14, 2019, 3 security vans owned by BRINKS were mugged at the airport of Blumenau/SC. A profile obtained by state forensic experts matched a profile obtained at the “headquarters” of the PROSEGUR’s case.
9. All these crimes, among others, of federal or state jurisdiction were carried out by one large gang that has been fought with the help of forensic genetics through the Brazilian National DNA Database.
9. Links:
 1. [https://apcf.org.br/noticias/banco-de-dna-confirma-participacao-de-suspeito-em-
assalto-a-prosegur](https://apcf.org.br/noticias/banco-de-dna-confirma-participacao-de-suspeito-em-assalto-a-prosegur)

34. The case of Sara Yarborough (This case also submitted by King County - see #3)

1. Name of Submitter: Colleen Fitzpatrick
2. Agency: Identifiers International, USA
3. Location: Benton County, Washington
4. Date of Crime: 1991
5. Date of Hit: 2019
6. Significance: This case is the first known instance where direct-to-consumer DNA test data was used to generate investigates leads for a cold case, opening the door for future cases solved via genetic genealogy; after DNA match in CODIS in 2019, it was discovered that Sarah’s could have been discovered 20 years earlier through CODIS but due to legal loopholes it was not possible.
7. Executive Summary: Legal loopholes in CODIS and Washington State DNA collection and testing rules prevent the identification of a killer via his relatives. Using genetic genealogy, investigators crack the case.
8. Submitted Facts:
 1. The Yarborough homicide was first attempted in 2011 by comparing the Y-STR profile obtained from crime scene DNA to public Y-STR genetic genealogy databases.

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When the case was solved in 2019 using autosomal SNP testing/GEDmatch, it was discovered that Sarah's killer could have been identified at least twenty years earlier through CODIS, but loopholes in the legal system had allowed him to avoid detection.

2. In 2011, a match was found for the killer's Y-STR profile to members of the Fuller Y-STR surname project who were descendants of Robert Fuller of Salem, Massachusetts in the 1630s, a relative of the Mayflower Fullers. Suspicion fell on William Fuller, a long time Yarborough family friend, who had been in the area at the time of the murder, and whose daughter Elizabeth was Yarborough's classmate. When William Fuller voluntarily gave a DNA sample, it was determined that he was not the killer nor was he the father of the killer. However, his Y-STR profile matched the Y-profile from crime scene DNA, indicating he was a paternal cousin of the killer, although it was not possible to estimate how closely they were related. The unusual situation developed that although the killer was still unknown, authorities knew his genealogy back to the 1600s and had even identified a cousin. Fullers living in the area were investigated but the case went cold again.
3. The 2019 identification of Patrick Nicholas as a suspect using autosomal SNP testing raised awareness of the limitations of CODIS, and fueled debate over the role of familial searching versus genetic genealogy. Nicholas was convicted in 1983 of attempted first-degree rape in Benton County, WA before CODIS was launched in the 1990s. In 1993, he was arrested again for first degree child molestation. Although his DNA profile should have been entered into CODIS, he was allowed to plead to gross misdemeanor that did not require DNA collection. He escaped detection a second time. After Nicholas' arrest, it was discovered that his brother Edward had already been entered into CODIS for a prior conviction for rape in the first degree; he was also a registered sex offender. Because Washington does not practice familial searching, Patrick Nicholas had escaped detection a third time.
4. Upon Nicholas's identification using genetic genealogy, King County Sheriff's Office quickly secured his DNA from discarded cigarettes. His DNA was found to be a CODIS match to the DNA profile developed from the victim. Nicholas has been charged with first degree murder with sexual motivation. He is currently pending trial in King County Superior Court, Seattle, Washington.
5. Ironically, Sarah's killer was named Nicholas, not Fuller. His grandfather was adopted, so that his legal surname was not his biological surname, highlighting the fact that even genetic genealogy has its loopholes.
9. Links:
 1. <https://www.dailymail.co.uk/news/article-2084692/Sarah-Yarborough-murder-Could-DNA-linked-17th-century-Mayflower-family-solve-1991-case.html>
 2. <https://www.seattletimes.com/seattle-news/crime/arrest-made-in-death-of-federal-way-teen-after-nearly-28-years/>

35. Paraíba, Brazil

1. Name of Submitter: Ana Carolina Bernardi Della Giustina
2. Agency: Gerencia Operacional de Analise em DNA - Institute of Scientific Police

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3. Location: Paraíba, Brazil
4. Date of Crime: 2016
5. Date of Hit: 2017
6. Significance: This case shows the power of a national DNA database, not local or regional, and arrestee DNA collection, when a series of rapes were committed throughout a state of Brazil and an arrestee for illegal possession of a weapon linked the arrestee to all of the rapes.
7. Executive Summary: A series of rapes committed throughout the State of Paraíba in Brazil were connected via DNA in the local database but the assailant's identity remained unknown. Several months later, the assailant's DNA was entered into the national DNA database for illegal possession of a weapon, leading to a match with the rapes and linking him to the crimes.
8. Submitted Facts:
 1. From June to October 2016, a series of rape crimes were taking place in the rural area of the State of Paraíba - Brazil. In less than 5 months, more than 30 reports of this crime were registered by women in the region. The genetic profiles obtained from samples collected from 5 women victims of sexual crime were inserted in the local database and a match was obtained between the samples, without however finding the author of the crimes.
 2. The suspect had been wanted by the police for more than three months. In October 2016, a man was arrested on charges of illegal possession of a weapon and recognized by at least 11 women victims of rape in the cities of Esperança, Puxinana, Lagoa Seca, Pocinhos, Montadas, Areial, Remígio and São Sebastião de Lagoa de Roça.
 3. The accused's genetic profile was compared with the samples available at the national database in March 2017, which allowed confirmation of the offense committed. The history of the samples inserted in the database of genetic profiles allowed to track the cities visited by the rapist in this case, expanding his area of activity and the period of onset of the attacks. In this way, it made it possible for the investigations to reach a greater number of victims in the case, who did not seek out the police at first, but were later able to file the complaint. The findings of the investigation indicate that he took a victim every two days.
9. Links:
 1. <https://g1.globo.com/pb/paraiba/noticia/preso-suspeito-de-estupro-pode-ter-feito-30-mulheres-vitimas-no-agreste-da-pb-diz-policia.ghtml>
 2. <https://paraibaonline.com.br/2017/05/exame-de-dna-identifica-autor-de-estupros-na-regiao-de-campina-grande-e-esperanca/>
 3. <http://www.clickpb.com.br/Policial/caminhoneiro-e-apontado-pela-policia-de-ser-o-responsavel-por-mais-de-30-estupros-na-regiao-de-cg-221532.html>
 4. http://www.jornaldaparaiba.com.br/vida_urbana/maniaco-sexual-e-apontado-como-autor-de-30-estupros-em-quatro-meses.html

36. São Paulo's First Convicted Offender Database - immediate matches and exonerations

1. Name of Submitter: Juliana Romera Mansilha Dias

2020 DNA Hit of the Year

2. Agency: DNA Laboratory, Criminalistics Institute, São Paulo Scientific Police
3. Location: São Paulo, Brazil
4. Date of Crime: 2016
5. Date of Hit: 2019
6. Significance: This case shows the power of including as many profiles in the database as possible; activation of convicted offender database leads to immediate matches and exonerations.
7. Executive Summary: A man was convicted in São Paulo for a rape committed several years ago based on false eyewitness testimony. After many years of not having convicted offender DNA profile database, São Paulo's DNA database starts entering convicted profiles. This included entering convicted offender profiles already collected into the database as well as taking new DNA samples from over 10,000 prisons in the prisons convicted of sex crimes. When a particular individual named JGPS was entered into the database, he was immediately linked to seven rapes, including the above-mentioned rape. Based largely on this DNA match, JGPS was arrested for the rape (and many more rapes) and the unfortunate man already serving jail time exonerated.
8. Submitted Facts:
 1. One Innocence Proof and Seven Cold Cases Solved
 2. São Paulo is the most populous State in Brazil, with more than 45 million of inhabitants. It's not a surprise that São Paulo's DNA CRIMINAL DATABASE is the biggest in Brazil; anyway, it was just in the past year that it actually started to be fed with convicted offender profiles. And through this year we already found many interesting matches, but nothing compared to what happened when A.B.S and J.G.P.S. profiles were added to the database. Both of them have been convicted of rape; anyway, A.B.S had been convicted in 2016, based on facial recognition by the victim. He had been submitted to other DNA tests before, as a suspect of rape of three other victims, but was excluded as the author and absolved – and, of course, he was not included in the database at that time. His profile was added to São Paulo's DNA database in 2019, due to the national project that reunited all Brazilian Police States, Federal Police and Brazil's Justice Ministry in order to collect, process and add to DNA database profiles of convicted offenders that were already in the penitentiary system. J.G.P.S., by his turn, was at the penitentiary convicted of one victim's rape in 2016. At the time that his profile was included to the database, no one could ever imagine what it would come next: after the first search in São Paulo's database, it pointed that J.G.P.S was the author of 7 (seven) other rapes - 3 (three) of them that once have been attributed to A.B.S., years before! The 4 (four) other cases that pointed to J.G.P.S. had remained without solution until that day... In short: with just two new convicted profiles in DNA database, São Paulo could innocent one man and solve 7 (seven) cold cases that had remained with no solution through all these years (the crimes had happened between 2012 and 2016)! It's important to observe that A.B.S. and J.G.P.S. look very alike, which corroborate with the thesis that just the facial recognition is not enough to incriminate someone – although many times our judiciary system still convict people based on this kind of evidence.

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9. Links:

1. <https://g1.globo.com/sp/sao-paulo/noticia/2019/11/04/apos-comparar-dna-de-presos-com-material-encontrado-em-vitimas-de-estupro-policia-chega-a-suspeito-de-7-crimes-em-sp.ghml>

37. Pernambuco's Convicted Offender Database

1. Name of Submitter: Josue Jeyzon de Lima Soares
2. Agency: Instituto de Genetica Forense Eduardo Campos
3. Location: Olinda, Pernambuco, Brazil
4. Date of Crime: 2018?
5. Date of Hit: 2018
6. Significance: The first DNA database match of a convicted offender in Northeastern Brazil; the Pernambuco convicted offender database is currently the biggest in Brazil according to internal Brazil government numbers.
7. Executive Summary: Y-STR match of an offender to previous crimes, linking him to many additional crimes throughout the State.
8. Submitted Facts:
 1. The first DNA database match of the convicted offender in Northeast Brazil.
 2. Northeast Brazil is a region with states with common socioeconomic and cultural characteristics. However, in criminal forensic genetics, states have had different developments. Pernambuco is an example. In 2018, its forensic genetics institute had an increase of 460% in experts and technicians, which doubled the number of genetic profiles inserted in the database right after.
 3. A successful case was the discovery of a serial rapist in Olinda, Pernambuco. The man, an already convicted offender, attracted women by offering jobs through a website on which the victims advertised babysitting and waitress services. In February 2018, vaginal samples, annals, and fragments of the blouse tissue of one of the rape victims were processed at the Institute of Forensic Genetic in Pernambuco and a genetic mixture was obtained from the tissue fragment, the majority contribution being compatible with the victim's genetic profile and the minority contribution an autosomal male genetic profile. Analyzes were also made for Y-STRs. As there was no suspect for genetic confrontation, the autosomal and Y-STR genetic profiles obtained were entered into the Pernambuco Genetic Database and the case was finalized. Soon after, a match was reported with the genetic profile of a convicted offender inserted a few months earlier in the database, this is what we call an 'offender-hit', a match between a profile obtained from a forensic sample and a convicted offender, and thus we identify the aggressor. This is a notable case because it was the first DNA-database offender-hit in Northeast Brazil.
 4. After arrest, he is confessed to raping 13 women since he was released to the semi-open regime in March 2017. Two other rapes related to this aggressor were also identified through matches in the Pernambuco Genetic Database, soon after.
 5. The genetic database of Pernambuco until November 2017 had 250 genetic profiles inserted. In November 2019, 12,309 profiles were already inserted, making it the largest genetic database in absolute numbers and in the number of genetic profiles

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of convicted offenders of Brazil, according to the XI report of the Integrated Network of Genetic Profiles Banks, of the Ministry of Public Security of Brazil.

9. Links:

1. <https://g1.globo.com/pe/pernambuco/noticia/homem-confessa-ter-estuprado-13-mulheres-em-olinda-apos-atrai-las-atraves-de-site-de-classificados.shtml>
2. https://www.youtube.com/watch?v=aN_stmy90N8

38. Inmate DNA Sample Collection in Thailand

1. Name of Submitter: Thitima Sanpachudayan
2. Agency: Forensic DNA Laboratory, Central Institute of Forensic Science (CIFS), Ministry of Justice Thailand
3. Location: Pernambuco, Brazil
4. Date of Crime: 2008
5. Date of Hit: 2019
6. Significance: This case shows the power of convicted offender databases.
7. Executive Summary: A 2008 rape case went cold until in 2019 a DNA match hit to the case from an inmate's DNA profile. The inmate was convicted of drug trafficking in 2016 but was due to be released in 2019. Thailand does not release convicted offenders until they are set to be released and only on a voluntary basis.
8. Submitted Facts:
 1. Back in 2008, an exhibit from a suspected rape case was submitted to the Forensic DNA laboratory of the Central Institute of Forensic Science (CIFS), Ministry of Justice of Thailand. The victim was a girl who lived with a single mother. On June 17, 2008, she was attacked and raped at around 3 AM while she had been alone at home. The girl could not recognize her assailant. She was terrified and in distress. Her mother came home that evening and she took her daughter to report the incident at the police station. Several pieces of evidence were collected from the victim including from her underwear and submitted to the CIFS laboratory. Sperm stain was discovered which revealed a complete DNA profile of a male. At that time the police officer could not identify any suspect. The DNA profile was therefore kept in the CIFS criminal-justice DNA database.
 2. Several years passed until May 2019, a match between the profile from the evidence of the rape case and a reference sample was reported. The reference sample was from another DNA database of inmates who had been incarcerated in the prisons under the Department of Correction. In this case, the CIFS forensic scientists collected buccal cells from an inmate who had committed a crime of drug trafficking in 2016. The inmate was due to be released in late 2019. After the result of DNA analysis came out, it was found to match with the complete DNA profile that had been retrieved from sperm stain on the victim's underwear in the CIFS criminal-justice database. The report was immediately sent to the law enforcement agencies resulting in a suspension of his release.
 3. The CIFS DNA database of the convicted criminals was established since 2004. Biological samples have been voluntarily collected from inmates who are due to be released. It has proved, in this case, that after eleven years a cold case was able to

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be solved by the power of the DNA database. Nonetheless, due to a considerable long gap between the occurrence of the crime and the time when DNA profiles matched, the collection of biological samples from convicted criminals at an earlier stage should be considered. Additionally, the data from the convicted criminal DNA database show a pattern of “Recidivism”. In 2019, the matching algorithm has reported 347 matches, in which 248 matches were repeated offenses. Among the repeated convicts, drug abuse was the highest proportion of overall offenses, resulting in 139 matches or 56%. The others included those who had been convicted of drug abuse and committed other crimes such as body assault, murder, robbery, theft, rape and illegal possession of deadly weapons. The latter group was found to be under the influence of drugs or related to drug trafficking for 28% or 70 matches. This clearly demonstrates the power and value of forensic DNA databases to solve cold cases and monitor recidivism.

9. Links:

1. No links provided.

39. A Deceased Suspect

1. Name of Submitter: Rashed Alghafri
2. Agency: Dubai Police
3. Location: Dubai, United Arab Emirates
4. Date of Crime: 2011
5. Date of Hit: 2016
6. Significance: Dubai Police employ familial matching to help solve a case.
7. Executive Summary: A woman was raped in 2011 by an unknown man. After exhausting several avenues of DNA analysis, familial searching eventually led to a match with a previously convicted offender but who had by then become deceased. His personal belongings/remains were tested leading to a match.
8. Submitted Facts:
 1. In mid-2011, grisly rape case reported a woman attacked and raped by an unknown man. Investigation started with retrieving the video from the CCTV, and samples collection from the crime scene, victim's items including biological swabs, and her reference sample. Several biological examination tests made on the samples to identify the stains. Suspected semen samples confirmed using presumptive and confirmatory tests including "Acid Phosphatase Test" and "RSID™-Semen". The presence of sperm was confirmed using "Microscopic Analysis Test". These samples were rape-kit swabs and the stain lifted from the bed sheet. All samples extracted and identified using Identifiler STR kit. A clean single contributor profile obtained from the bed sheet sample and matched the rape-kit swabs, and searched against the local database, with no matches returned. Based on the CCTV video, it was unclear shots of the suspect's physiognomy, yet the skin color was clearly identified. Investigation extended to encounter up to 5711 suspects taken for DNA testing, with no match hit. After reported as a cold case for several years, the case was re-examined in 2015 using Y-STR techniques. The Y-chromosome haplotype including 17 markers successfully obtained and searched against local Y-STR

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database and no match reported. Later, a search attempted on YHRD & USYSTRDATABASE.org, retrieving haplogroup information relative to the Arabian Peninsula Arab population. The number of suspects taken in for DNA testing was elevating, and no match reported until the end of the same year. Simultaneously, mtDNA analysis applied to the unknown sample that supported the maternal lineage of the Arabia Peninsula Arab population. In addition, the unknown sample was analyzed using SnapShot® technology, which showed different ethnicity than the above-mentioned haplogroup. However, the skin color verified what been retrieved from the CCTV. By late 2016, unified DNA database launched that pooled all the samples from all local forensic labs. A methodology established to support familial searches. The unknown sample searched using familial search tool and a high likelihood ratio obtained for known profile for previously convicted individual. The profile marking the likelihood ratio have been checked and reanalyzed for Y-Chromosome. Analysis arrays extended to cover 30 Y-STR markers (38 alleles). The reanalyzed sample reported 100% Y-STR match suggesting close male relative to the suspect. Investigation narrowed down and very soon, it reported that a deceased family member suspected. Surprisingly, family informed that some leftover belongings of the deceased were still in place, which then immediately sent for DNA extraction and analysis. Remarkably, the unknown sample from the crime scene, and the belongings of the deceased reported a match. Case closed in 2019.

9. Links:

1. <https://gulfnews.com/uae/crime/dubai-rape-case-solved-after-eight-years-thanks-to-advanced-dna-technology-1.68577106>

40. The Burned House and the Human Remains inside of it

1. Submitter of Case: Ann Marie Gross
2. Agency: Minnesota Bureau of Criminal Apprehension Forensic Science Laboratory
3. Location: Milaca County, Minnesota
4. Date of Crime: 1970
5. Date of Hit: 2019
6. Significance: A partial match on CODIS helps solve a missing persons case from the 1970s
7. Executive Summary: A cold case from 1970 is solved via DNA when the parent's of a missing woman submit their DNA to authorities to determine a match.
8. Submitted Facts:
 1. On November 9, 1970 a house fire in Milaca County, Minnesota was allowed to burn to the ground by the fire department since it was abandoned. A curious neighbor discovered burned human remains in the fire debris the following day. The remains were sent to the Hennepin County Medical Examiner's Office (HCMEO) for an autopsy. The ME determined that the remains were from a young female and that she had died prior to the fire. The Milaca County Sheriff's Office tried unsuccessfully to make an identification through dental records. After all leads were investigated the case went cold.

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2. In November of 1970, an 18-year-old University of Minnesota student went missing. It is unclear whether a missing person's report was filed at that time.
3. Fast forward to 2013: While watching the news, Rich Rieken saw a story about the BCA and their efforts to identify Minnesota's missing persons using DNA technology. Rich Rieken knew that his parents often wondered what happened to their oldest daughter, Gloria, who had gone missing in 1970 from the University of Minnesota. Rich got in contact with the Minnesota Missing Person's Clearing House and made arrangements for samples to be collected from his parents, Peter and Frederike Rieken for DNA profiling and upload to CODIS. These samples were processed at the Minnesota BCA Forensic Science Laboratory and uploaded to CODIS in 2014.
4. In 2016 while reviewing the department's cold cases, the original investigator requested that slides taken at autopsy and retained by the HCMEO be submitted to the BCA for DNA testing in an effort to identify the young woman. Unfortunately, the slides did not yield any DNA for testing. Through coordination between the Sheriff's Office, the Clearinghouse, the Laboratory and the Midwest Medical Examiner's office, an exhumation of the burned remains from Milo Cemetery in Milaca County was conducted on August 23, 2018. The remains were transferred to the Midwest ME's office where BCA scientists and a Forensic Anthropologist sorted through the bones and were able to retrieve an intact petrous bone. Nuclear and mitochondrial DNA testing were performed on the petrous bone and the profiles were uploaded to CODIS in January 2019. In February 2019, an association was made between the samples from Peter and Frederike Rieken and the unidentified person from the Milaca County house fire. Finally, after 49 years, Gloria Rieken was brought home to her family. This case highlights the teamwork that enabled Gloria to be identified which then led to re-opening this case as a homicide investigation.
9. Links:
 1. https://www.messagemedia.co/millelacs/news/local/what-happened-to-gloria/article_a3ca2336-344b-11e9-b5a4-1f33d8d81ae7.html

41. Newborn Bloodspots

1. Submitter of Case: Carolyn Weigand
2. Agency: California Department of Justice
3. Location: Woodland, California
4. Date of Crime: 2007
5. Date of Hit: 2018
6. Significance: This is the first time that a kinship search of unidentified human remains was undertaken in an attempt to identify a potential close relative in the convicted offender database. With the success of this case, the door is now open for other unidentified human remains cases to be investigated using this approach. Without this innovative search, the deceased infant would have never been identified, and his four siblings would have never been revealed as additional potential homicide victims.
7. Executive Summary: In 2007, the remains of an infant boy were discovered in a metal chest cooler in an irrigation canal in California. The infant's remains showed evidence of blunt force trauma. A partial DNA profile was recovered from the remains, and it was

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uploaded to the Combined DNA Index System (CODIS) where it was regularly searched against DNA profiles from other unidentified human remains, missing persons, relatives of missing persons, and convicted offenders. For over a decade, these searches did not result in a CODIS hit or any investigative leads. In 2018, a kinship search was conducted to determine if a potential close relative of the deceased infant may be in the convicted offender database. The results of this search provided an investigative lead that led to the identity of both the deceased infant and his alleged biological father. The alleged biological father has since been charged with the murders of his deceased infant son and four of his other children.

8. Submitted Facts:

1. On March 29, 2007, a fisherman discovered the skeletonized remains of a 1-3-month-old infant boy inside a weighted metal chest cooler that had been submerged in an irrigation canal near Woodland, California. In April 2007, the remains, which were discovered wrapped in a Winnie the Pooh baby blanket, were submitted to the California Department of Justice Missing Persons DNA Program for DNA testing. The partial short tandem repeat (STR) DNA profile obtained from the infant's remains was uploaded to the Combined DNA Index System (CODIS) for searching against DNA profiles from other human remains as well as DNA profiles from missing persons, relatives of missing persons, and convicted offenders. Despite searching since 2007, no database hits or investigative leads resulted from the weekly searches of the deceased infant's profile. More than a decade after discovery of the infant's remains, kinship searching was available but additional DNA testing was necessary to generate additional genetic information needed to comply with kinship search requirements. As the original DNA profile was incomplete, additional DNA typing, including male-specific Y-STR DNA typing, was performed to obtain a more complete DNA profile from the infant remains.
2. With the additional genetic information, a kinship search of the deceased infant's DNA profile was performed. In 2018, the California Department of Justice Missing Persons DNA Program released the results of the kinship search to the Yolo County Sheriff's Office. This provided an investigative lead that led to the identification of Paul Allen Perez as a possible biological father of the infant. The identity of the deceased infant, Nikko Lee Perez (DOB 11/8/1996), was confirmed in October 2019. Nikko Lee Perez had one sibling who was known to have died as an infant and three siblings whose whereabouts were unknown as there is no record of their lives after birth. In January 2020, almost thirteen years after the remains of Nikko Lee Perez were discovered, Paul Perez, who was about to be released from prison for unrelated crimes, was charged with the premeditated murders of Nikko Lee Perez and his four siblings. Authorities believe that all five of Paul Perez's children were under six months old when they were allegedly killed. The remains of three of the infants have not been recovered.

9. Links:

1. <https://sacramento.cbslocal.com/2020/01/28/dna-newborn-bloodspot-biobank-accused-serial-infant-killer/>

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2. <https://www.kcra.com/article/arrest-made-in-infant-killing-cold-case-in-yolo-county/30678793>
3. <https://www.usatoday.com/story/news/nation/2020/01/27/paul-perez-california-man-arrested-killings-his-5-infants/4591648002/>
4. <https://www.washingtonpost.com/nation/2020/01/28/perez-baby-killings/>
5. https://www.huffpost.com/entry/paul-perez-charged-infants-deaths_n_5e30770dc5b6e8375f63d8e5

42. Heart-Shaped Tattoo

1. Submitter of Case: Nidia María Modesti
2. Agency: Forensic Genetic Center, Justice Department of Córdoba
3. Location: Córdoba, Argentina
4. Date of Crime: 2007, est.
5. Date of Hit: 2018
6. Significance:
7. Executive Summary: A young girl was raped and the only detail she could remember about her attacker was a heart-shaped tattoo on his chest. However, biological samples taken from the girl's rape kit does easily lend itself to DNA analysis and extraction. In the end, the laboratory overcomes the hurdles. Police then locate a man with a similar tattoo and sample his DNA, which leads to a match in the case.
8. Submitted Facts:
 1. An 8-year-old girl who was begging in the downtown of Córdoba city of Argentina, was taken by a man to a wasteland and raped. After a couple of hours, the mother finds the girl bleeding and takes her to the hospital. She had suffered serious injuries for which she had to be hospitalized. The little one was very affected by the lived horror, and could not give details on the physiognomy of the aggressor. She could only describe that the attacker had a heart-shaped tattoo on his chest.
 2. After the criminal investigation, a man who was a corner glass cleaner was arrested. The evidence against him was a tattoo of a soccer team shield, the shape of which could resemble a heart, and a physical appearance similar to the image captured by a street surveillance camera.
 3. Samples corresponding to the victim's garments were analyzed, which gave unsuitable results for comparison. The vaginal swab showed abundant presence of blood, which is why DNA purification was performed with a variation of the classical differential fractionation methodology, where an additional lysis step was incorporated to remove as much biological material from the victim as possible. Two lysis steps were performed with TE/SDS/ proteinase K, obtaining two epithelial fractions A and B. The precipitate was lysed with TE/SDS/proteinase K plus DTT, obtaining the sperm fraction. A DNA profile compatible with the victim was typed in epithelial fraction A. In the epithelial fraction B, a mixed profile compatible with the victim's profile and a male profile was typed. A male profile was typed in the sperm fraction, which comprised 21 autosomal STRs and 25 Y chromosome STRs. This male profile was different from the profile of the accused person, which is why he was released.

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4. When the typified male profile was incorporated into the DNA database of Córdoba, a match was obtained with the CODIS program with the sample of a convicted. The decoding of that sample showed that it corresponded to a person who had been convicted of a crime of seriously outrageous sexual abuse aggravated by minor injuries to a girl. He had served his sentence and was free at the time the event occurred.
5. In this case, was important the modification of the methodology that favored the typing of a unique profile corresponding to the aggressor. In the legal field, it was a great contribution to identify the aggressor through CODIS, which led to the arrest and trial. Which was crucial not only for the victim and her family, so that getting to the truth in some way contributes to the healing of the victim for the damage suffered, but also for the society because an innocent was exonerated, which is also an objective of the justice system. The innocent, like the victim belong to a very vulnerable sector of society where often suffer prejudice from society. This case highlights the importance of DNA database, not only to identify the aggressor but also to contribute against the discrimination that people in vulnerable sectors suffers daily in the field of criminal proceedings.
9. Links:
 1. No links provides.

43. The case of Gladys Godfrey

1. Submitter of Case: Kyle
2. Agency: Forensic Intelligence Bureau
3. Location: Mansfield, Nottinghamshire, England, United Kingdom
4. Date of Crime: 2002
5. Date of Hit: 2018
6. Significance: Apparently the first-time familial matching is used to trace and convict a murderer in the UK.
7. Executive Summary: A old woman is murdered in her home in 2002. DNA is recovered from the scene but with no match in the national database and no match with around 1,000 surrounding people whose profiles were collected voluntarily. Investigators eventually resort to using 'familial DNA matching', or partial matches through the national database, to locate likely suspects.
8. Submitted Facts:
 1. <https://www.bbc.com/news/uk-england-nottinghamshire-45561514>
9. Links:

44. The Candy Wrapper Case

1. Submitter of Case: Kyle
2. Agency: Gendarmerie of Chatellerault
3. Location: Nord-Vienne, France
4. Date of Crime: 1998
5. Date of Hit: 2019
6. Significance: DNA extraction from a candy wrapper.

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7. Executive Summary: A 21-year-old rape cold case is solved when the suspect breaks into a building and leaves behind a candy wrapper. On the wrapper is his DNA, which police find and submit to the national French database, leading to a match with the rape from 1998.
8. Submitted Facts:
 1. <https://www.francebleu.fr/infos/faits-divers-justice/cold-case-resolu-dans-la-vienne-un-voleur-arrete-21-ans-apres-les-faits-grace-a-son-adn-sur-un-1571157591>
9. Links:

45. The Sprite Bottle Case

1. Submitter of Case: Kyle
2. Agency:
3. Location: Perth, Australia
4. Date of Crime: 1997
5. Date of Hit: 2016
6. Significance: DNA extraction from a Sprite bottle.
7. Executive Summary: An almost 20-year-old triple murder was solved in large part thanks to DNA extracted from a Sprite bottle from the suspect.
8. Submitted Facts:
 1. <https://www.irishexaminer.com/breakingnews/ireland/dna-sample-from-sprite-bottle-could-be-key-in-ciara-glennon-murder-trial-966691.html>

46. Dakota Avenue

1. Submitter of Case: Kyle
2. Agency: Ottawa Police Service Sexual Assault and Child Abuse (SACA)
3. Location: Ottawa, Canada
4. Date of Crime: 2006
5. Date of Hit: 2019
6. Significance: Convicted offender collection for an unrelated crime leads to a match to sexual assault in 2006.
7. Executive Summary: The assailant in a sexual assault in 2006 was linked to the crime in 2019 after he was convicted for voyeurism.
8. Submitted Facts:
 1. <https://www.recorder.ca/news/local-news/dna-leads-to-charge-in-2006-sexual-assault>

47. Charged for One Crime While in Jail for Another

1. Submitter of Case: Kyle
2. Agency: Palm Beach County Sheriff's Office
3. Location: Palm Beach County, Florida
4. Date of Crime: 1995
5. Date of Hit: 2018
6. Significance: DNA match to rape to convicted offender currently serving prison time for another offense.

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7. Executive Summary: A woman was raped in 1995 and the case went cold. The suspect was serving time in a state prison for vehicle manslaughter after running over and killing two people when detectives with the Palm Beach County Sheriff's Office linked the 46-year-old through DNA to a 1995 unsolved rape.
8. Submitted Facts:
 1. <https://www.oxygen.com/crime-news/octavio-berrera-charged-with-1995-cold-case-rape-while-in-prison>

48. Advance DNA

1. Submitter of Case: Kyle
2. Agency:
3. Location: Cleveland, Ohio
4. Date of Crime: 1991
5. Date of Hit: 2019
6. Significance: Familial matching through a genetic genealogy company called Advance DNA.
7. Executive Summary: A woman's body was raped, stabbed, beaten, and murdered before her body was burned. DNA was recovered, but the case quickly went cold with no matches. A genetic genealogy company called Advance DNA located the suspect using familial matching and ancestral analysis.
8. Submitted Facts:
 1. <https://www.dailymail.co.uk/news/article-8112391/Murder-rape-23-year-old-woman-1991-solved-cops-connect-DNA-profile-man.html>

49. The Murder of Tonya Ethridge McKinley

1. Submitter of Case: Kyle
2. Agency: Pensacola Police Department and the Florida Department of Law Enforcement.
3. Location: Pensacola, Florida
4. Date of Crime: 1985
5. Date of Hit: 2019
6. Significance: Oldest cold-case arrest in Pensacola history and first time familial DNA matching had been used to solve a case in Northwest Florida
7. Executive Summary: A woman was strangled and sexually assaulted in 1985. DNA was recovered from the crime but no match found and the case went cold. With the help of Parabon NanoLabs, police ran the crime scene sample through genetic genealogy databases, identifying distant cousins and kicking off an ancestral analysis of the suspect. The suspect was eventually determined and stalked to surreptitiously obtain his DNA to confirm a match with the original murder scene evidence.
8. Submitted Facts:
 1. <https://www.nbcnews.com/news/us-news/florida-man-arrested-35-year-old-cold-case-murder-thanks-n1164051>

50. "Serial" podcast killer linked to murder via new DNA evidence

1. Submitter of Case: Kyle

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2. Agency: Pensacola Police Department and the Florida Department of Law Enforcement.
3. Location: Myrtle Beach, South Carolina
4. Date of Crime: 1999
5. Date of Hit: 2017 (?)
6. Significance: Advances in DNA technology allow for original crime scene evidence to be tested for a profile, leading to a match.
7. Executive Summary: A woman is killed in 1996. DNA evidence could not be recovered from the crime scene at the time and the case went cold. But in 2017, after advances DNA collection techniques, the case was reopened. The forensics laboratory was found previously undiscovered DNA of the unknown suspect, which was entered into the national DNA database leading to a match.
8. Submitted Facts:
 1. <https://edition.cnn.com/2020/02/14/us/donald-lee-moore-shawn-marie-neal-dna-serial-podcast-trnd/index.html>

51. 42-year-old Cold Case from Buffalo

1. Submitter of Case: Kyle
2. Agency: Buffalo Police
3. Location: Buffalo, New York
4. Date of Crime: 1978
5. Date of Hit: 2017 (?)
6. Significance: Arrestee collection leads to cold case solving.
7. Executive Summary: A woman is killed in 1978 and DNA evidence is recovered. In 2008, the murderer is arrested in Oregon and his DNA collected. However, this did not lead to a hit until rules were recently changed to allow for profile comparison. The suspect is arrested.
8. *(Kyle: Cannot determine rule change reference or why there is almost 12-year delay between profile entry and match)
9. Submitted Facts:
 1. <https://torontosun.com/news/world/dna-leads-to-arrest-in-1978-butcher-of-buffalo-woman>

52. The case of Marsi Belec

1. Submitter of Case: Kyle
2. Agency: Spokane Police Department
3. Location: Spokane, Washington
4. Date of Crime: 1985
5. Date of Hit: 2019
6. Significance: Parabon NanoLabs provides genetic genealogy services to solve the case.
7. Executive Summary: A girl is killed in 1985 and DNA evidence is recovered. However, there was no match and the case went cold. Using the suspect's profile and the help of Parabon NanoLabs, police identify the killer using genetic genealogy. The killer is already deceased, is exhumed, and the match confirmed.
8. Submitted Facts:

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1. <https://www.kxly.com/spokane-police-solve-1985-cold-case-murder-of-12-year-old-girl/>

53. Dubuque Assaults

1. Submitter of Case: Kyle
2. Agency:
3. Location: Dubuque, Iowa
4. Date of Crime: 2011
5. Date of Hit: 2018
6. Significance: This case shows the power of arrestee collection laws.
7. Executive Summary: Federal drug arrestee collection linked suspect to four rapes committed back in 2011.
8. Submitted Facts:
 1. <https://www.washingtontimes.com/news/2020/apr/2/man-whose-dna-linked-him-to-4-sex-assaults-gets-40/>