Cybergenetics

April Newsletter

Better Justice Through Better Science™

End the Backlog with Mariska Hargitay

Mariska Hargitay is an actress, director, philanthropist – and the president of the Joyful Heart Foundation. Hargitay established the Joyful Heart Foundation in 2004 to provide support to survivors of sexual assault, domestic violence, and child abuse. The mission of the foundation is to heal, educate, and empower survivors and victims, while shedding light into the darkness that surrounds these issues.

END THE BACKLOG is an initiative of the Joyful Heart Foundation that focuses on exposing the rape kit backlog in the United States. As stated in their mission, "Our goal is to end this injustice by identifying the extent of the nation's backlog and best practices for eliminating it; expanding the national dialogue on rape kit testing through increasing public awareness; sharing groundbreaking research; engaging communities and government agencies and officials; and advocating for comprehensive rape kit reform legislation and policies."

Read about End the Backlog

Finish the Backlog with TrueAllele® Database

Increased awareness of America's rape kit backlog brought legislation and funding. Processing these cases significantly reduced the rape kit backlog, and produced vast amounts of DNA data. Unfortunately, producing data is not enough. Limited interpretation of this data lost most of the DNA identification information. Rape cases went unsolved.

The answer is unlocking the DNA identification information contained in the already processed backlog data. TrueAllele Casework routinely reinterprets crime lab data deemed "inconclusive" or "too complex". TrueAllele analysis delivers useful DNA information to police and prosecutors. And the TrueAllele genotype results can be uploaded to an automated TrueAllele Database.

Cybergenetics' TrueAllele Database compares suspect and non-suspect genotypes. DNA matching is done automatically within and between cases, finding DNA matches. By better using under-analyzed lab data, the TrueAllele Database can make new DNA connections. These linkages generate investigative leads that help police solve cold cases.

It's not enough to merely end the rape kit *processing* backlog. We must also close unresolved rape cases by getting useful DNA information from the evidence. Government has given us the data. TrueAllele computing can now finish the job.

Watch the TrueAllele Solves Sexual Assault Cases Talk

Zip tie dropped on Quantico road by rapist fleeing Bakersfield apartment after 911 call.

Bakersfield Eastside Rapist: Justice Delivered through Science

In July and August of 2013, a masked man broke into four separate Bakersfield, California homes and assaulted nine women and children. Three women were raped, and one child was molested.

The police recovered biological evidence from three of the crime scenes. The Kern Regional Crime Laboratory (KRCL) took thirty-seven swabs and cuttings from garments, blankets, apartment surfaces, skin, body cavities, telephones, and zip ties. DNA analysis showed low-level mixtures of three or four people. Human review of the DNA data was generally uninformative.

But one of the zip ties – found in the road outside a victim's apartment – was a DNA mixture with a clear major contributor. The perpetrator had dropped the zip tie while fleeing the apartment, after a young girl had called 911 about the attack on her mother. A CODIS search connected the zip tie to gang member Billy Ray Johnson.

DNA mixture separation and comparison was done on all 37 evidence items using Cybergenetics TrueAllele Casework probabilistic genotyping technology. Cybergenetics and the KRCL conducted independent TrueAllele mixture interpretations, each using their own in-house computers.

TrueAllele linked eight of the mixture items (purse strap, phone,

phone cord, two pants, shirt, bathtub handle, zip tie) to Johnson. The computer showed the mixtures also contained DNA from victims and other people, consistent with their police statements. Cybergenetics testified at a December 2013 grand jury hearing, and again at the March 2015 trial.

On April 21, 2015, a Bakersfield jury convicted Billy Ray Johnson of 24 felony charges. On May 19, 2015, the serial rapist was *sentenced to life in prison, without the possibility of parole, plus 423 years*. On July 12, 2019, the Eastside Rapist's appeal was denied. TrueAllele computer technology had successfully analyzed otherwise "inconclusive" DNA.

Watch Cybergenetics Chief Scientist Dr. Mark Perlin's Talk on the Eastside Serial Rapist Case

Watch Kern County District Attorney Cynthia Zimmer's Talk on the Billy Ray Johnson Case

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Take Back the Power

Women on college campuses are twice as likely to be sexually assaulted than robbed. Moreover, over half of college sexual assaults occur in August through October (RAINN). These are the vulnerable months when young students transition to campus life.

On September 12, 2010, a 20-year-old University of Pittsburgh female college student was threatened and raped in her Oakland-neighborhood apartment. The perpetrator left a saliva stain on the victim's underwear. Separately, a cast-off sample was recovered from a cigarette butt discarded by suspect Akaninyene Akan.

Using limited manual methods, the county's DNA lab comparison of the underwear with the suspect gave a DNA match statistic of 18 million. But more accurate TrueAllele computer reanalysis of the same evidence items revealed a true – and far stronger – DNA connection of 1.35 quadrillion.

On April 2, 2012, a Cybergenetics scientist testified at the Akan trial in Pittsburgh about the TrueAllele evidence in this case. Mr. Akan was convicted of rape, involuntary deviate sexual intercourse and other charges. On June 26, Akan was sentenced to 32 to 60 years in prison. On January 23, 2013, the appellate court affirmed.

Read about the Pennsylvania Serial Rapist Case

Balancing Forensic Innovation and Defendant Rights

Courts balance the rights of innovators to protect their trade secrets versus the rights of people accused of crimes. The purpose of trade secrets and other privileges (e.g., doctor-patient, lawyer-client, husband-wife) is to promote a social good that outweighs breaching confidentiality. Trade secrets enable innovators to develop and market new technologies that can help society, which might otherwise not be pursued or made available.

One such trade secret is computer source code for forensic software. The scientific and legal reliability of a computer software program is established by testing the software program on input data. The software application program is empirically testable for reliable operation. However, the source code text is not. Moreover, forensic companies already make their software available to defendants for independent testing by defense experts. Courts almost always find that forensic innovation outweighs access to irrelevant source code trade secrets.

On March 25, 2022, Dr. Mark Perlin spoke at the *Santa Clara High Tech Law Journal* symposium on *Data Protection in a More Virtual World*. His talk discussed innovation and transparency for reliable forensic software. The 1977 People of California v. Martell Chubbs *rape-homicide cold case* was used as a motivating example. Dr. Perlin reviewed the science and law of trade secret protection for probabilistic genotyping (PG) software.

Over twenty years ago, Cybergenetics innovated the PG TrueAllele technology to provide reliable match statistics for complex DNA evidence. PG software has provided scientific evidence in hundreds of thousands of cases where manual methods have failed. TrueAllele helps exonerate the innocent and implicate the guilty.

Dr. Perlin explained how scientists empirically validate software for reliability. He showed that nine different computer programs all agreed that Chubbs' DNA was in the rape kit evidence – there was no scientific dispute. The appellate court agreed that source code wasn't needed. Some lawyers try a source code gambit, based on false facts, to escalate a nonissue into irrelevant nonnegotiable demands. This gambit harms truth, justice, innovation, and society.

Dr. Perlin's short talk on *Innovation and Transparency for Reliable Forensic Software* can be seen on Cybergenetics website.

Watch the Innovation & Transparency Talk

Upcoming Event:

North Carolina Homicide Investigators Association

Cybergenetics is attending the North Carolina Homicide Investigators Association (NCHIA) Spring Conference in Asheville at the end of April. Visit our booth to learn more about our powerful TrueAllele computing software.

Learn More about the NCHIA Conference

Share our overview video with someone who needs a Free TrueAllele Screening.

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Free TrueAllele Screening

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