

# FORENSIC RESEARCH AND TECHNOLOGY

September 18-19, 2017 Houston, USA

## Next generation sequencing technology needs to be the “now generation” of forensic testing

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Current forensic workflows prematurely truncate the full power of genomics. By using techniques that pre-date the Human Genome Project and require multiple rounds of analysis to produce mediocre genetic profiles, the forensic community is failing to grasp the full potential and magnitude of current technologies. Despite the name, “next generation sequencing” (NGS), this technology has been around for over a decade and the future of forensic genomics is here. Next-generation sequencing is the “now generation” and it is transforming the capabilities of human identification laboratories. These platforms enable simultaneous analysis of forensically relevant genetic markers to improve efficiency, capacity and resolution, bringing modern science in place of outmoded DNA fingerprinting and STR profiling. With NGS, forensic scientists have access to a greater number of informative loci, superior analysis of degraded samples, higher resolution sequencing and greater overall throughput with library multiplexing. These advances will help solve more cases in a shorter amount of time and will produce investigative leads for cases that would have reached dead ends. Like every previous advancements, in DNA technology, there will be legislative, admissibility, constitutional and public perception issues. We could easily fail to realize the benefits of NGS if, as a community, we don't recognize the concerns that sequencing presents to those who have never trusted government's possession of their genetic identity. Regardless, as NGS emerges as a technology readily applicable to forensics, we will only leverage its benefits to solve crimes and prevent victimization to the extent that we can pave the way for its adoption through solid education and advocacy.

### Biography

Diane I Scaduto earned her PhD in Cell and Molecular Biology from Baylor College of Medicine in 2011 and has been passionate about DNA ever since. She is currently an active Member of the American Society of Clinical Pathology (ASCP), the American Board of Criminalistics (ABC) and is certified as a Molecular Biology Expert with the College of American Pathology (CAP). In 2017, she established DISR DNA Consultants, where she provides genetic counseling to physicians and patients, as well as forensic consulting and expert testimony in high profile cases, including but not limited to The State of Texas v. Philippe Padiou case numbers 219-82276-07, 219-82277-07, 219-82278-07, 219-82279-07, 219-82280-07, and 219-82705-07 (219th Judicial District Court, Collin County, TX, 2009).

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