

**C. ALAN KEEL**  
**FORENSIC BIOLOGY/DNA ANALYSIS UNIT SUPERVISOR**  
**DNA TECHNICAL LEADER**  
*Curriculum Vitae*

## **PROFESSIONAL EXPERIENCE**

Mr. Keel is responsible for consultative, analytical, and expert witness testimony services on a wide variety of cases involving biological material. He has been performing traditional serological and DNA investigations in forensic casework for over 37 years from 36 US States and has provided expert testimony in 20 state and federal courts. He possesses extensive knowledge and experience in physical evidence examination, biological material isolation, and its subsequent DNA analysis and interpretation utilizing the polymerase chain reaction (PCR) amplification of short tandem repeat (STR) genes, classical population statistics, and probabilistic genotyping.

## **PROFESSIONAL AFFILIATIONS**

- American Academy of Forensic Sciences, current
- California Association of Criminalists, current
- The American Board of Criminalistics
  - Diplomate in General Criminalistics, 1991-2012; November 2015, current
  - Fellow in Molecular Biology, 1995-2012; November 2015, current
- DNA Technical Leader/Manager, current, pursuant to the 1994 Identification Act and DNA Advisory Board Standard 5.2.1.1, advanced degree waiver conferred December 1999
- Licensed by the Texas Forensic Science Commission in Forensic Biology/DNA, January 2019

## **EDUCATION**

- Bachelor of Science (Zoology), Texas A & M University, College Station, 1978
- Graduate Course Work, Texas A & M University, College Station, 1978-80 in Food Science and Technology/Human Physiology
- Graduate Course Work, University of California, Berkeley, 1993 in Nucleic Acid Biochemistry

## **OTHER PROFESSIONAL EXPERIENCE**

- Criminalist/Consultant in Forensic Science, Forensic Science Associates, Richmond, California, 1999 – 2011
- Criminalist, San Francisco Police Department, San Francisco, California, 1996 – 1999
- Criminalist, Tulsa Police Department, Tulsa, Oklahoma, 1996
- Consultant in Forensic Science, Shreveport, Louisiana
- Death Investigator, Caddo Parish Coroner's Office, Shreveport, Louisiana, 1994 – 1996
- Criminalist III, Oakland Police Department, Oakland, CA, 1984 - 1993
- Criminalist, North Louisiana Crime Lab, Shreveport, Louisiana, 1982 - 1984

## **SPECIALIZED TRAINING**

- Recombinant DNA Technology, University of California Extension, Berkeley, CA 1986
- Forensic DNA Analysis, University of California Extension, Berkeley, 1989
- The Application of DNA Technology to Forensics, University of California Extension, Riverside, 1990
- PCR/DQA1 Typing Methods, CETUS/California Department of Justice, Berkeley, 1991
- Bloodstain Pattern Interpretation, California Criminalistics Institute, Sacramento, California, 1991
- Advanced PCR Analysis Methods: PM, D1S80, and Quantiblot, Roche Molecular Systems, Alameda, California, 1993
- Advanced Crime Scene Reconstruction, California Criminalistics Institute, Sacramento, CA 1996
- Instrumental DNA Typing and Analysis
  - Capillary electrophoresis 310 instrumentation and GeneScan data collection/Multiplex STR analysis/GenoTyper data analysis, Perkin-Elmer/Applied Biosystems, Foster City, CA 1996
  - Profiler Plus/Cofiler Multiplex STR analysis internal validation SFPD, 1998

- Identifiler Multiplex STR analysis internal validation FSA, 2001
  - Yfiler Multiplex STR analysis internal validation FSA, 2005
  - Minifiler Multiplex STR analysis internal validation FACL, August 2014
  - ABI Genetic Analyzer CE 3500/Genemapper ID-X Multiplex STR analysis: internal vendor training/internal validation FACL, October 2016
  - Investigator 24Plex QS Multiplex STR analysis internal vendor training/internal validation FACL, April 2017
  - STRmix Probabilistic Genotyping: vendor workshop Prague, Czech Republic April 5, 2017; internal validation FACL, January 2018
- FBI Quality Assurance Standards Auditor Training, June 2012

## PUBLICATIONS & PRESENTATIONS

- *A Collaborative Study of DQAI Typing by PCR* presented to the California Association of Criminalists, 1991 Spring Seminar, Berkeley
- *A Collaborative Study of DQAI Typing by PCR* presented to the American Academy of Forensic Sciences, 1992 Annual Seminar, New Orleans
- *Penile Swab Evidence in the Investigation of Rape* presented at the 1993 International Forensic DNA Analysis Symposium, Quantico, Virginia
- *Sampling Approach and DNA Analysis of Fingernail Evidence Specimens* presented at the Third Joint International Seminar of the Forensic Science Society [United Kingdom] and the California Association of Criminalists, May 2000, Napa, California
- *Finding the Roscetti Stone: a review of the Lori Roscetti homicide investigation and trial transcripts* presented to the California Association of Criminalists, 2005 Spring Seminar, Oakland
- Freedom and Justice Award, presented by the Northeast Council of the Wrongfully-Convicted, Innocence Network Conference, Santa Clara University School of Law, March 2008
- *The Essential Elements of a Forensic DNA Analysis Laboratory Report; The Essential Elements of Expert Peer Review of a Forensic Laboratory DNA Investigation; The Utility of and Access to CODIS; and Some Potential Adverse Consequences of Regulation and Accreditation on Applied Forensic DNA Analysis* presented to the California Public Defender's Association, May 2014, Hayward

- *Adverse Effects of Blanket Quality Assurance Criteria on Sample-to-Sample and Lab-to-Lab Variable Genetic Data*, presented to the Joint California Association of Criminalists/Northwest Association of Forensic Scientists Seminar, October 2014, Rohnert Park, CA.
- *Demystifying “Touch DNA,”* presented to the 2015 National Innocence Network Conference, May 2, 2015, Orlando, FL.
- *The Difference between Low-Level DNA Analysis and Low-Copy Number (LCN) DNA Analysis and Why It Matters to You*, presented to the 2015 National Innocence Network Conference, May 2, 2015, Orlando, FL.
- *The Fundamentals of Forensic DNA Analysis*, presented as training to the Federal Habeas Corpus Resource Center, September 2015, San Francisco, CA
- *A Benchmark for Meaningful Forensic DNA Analysis: Field (Beta) Testing of the Qiagen Investigator Quantiplex Pro qPCR Assay*, presented at the 6<sup>th</sup> Annual Qiagen Investigator Forum, Prague, Czech Republic, April 5, 2017.
- *The Twenty-six Year Investigation of the Kidnapping, Rape, and Murder of Dana Ireland*, presented at the California Association of Criminalists Seminar, May 2017, San Francisco, CA.