



COUNTY OF SAN DIEGO

AGENDA ITEM

BOARD OF SUPERVISORS

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DATE: April 8, 2025

03

TO: Board of Supervisors

SUBJECT

SHERIFF– REQUEST FOR SINGLE SOURCE PROCUREMENTS FOR GENETIC GENEALOGY TECHNOLOGY, VALIDATION SERVICES, AND INSTRUMENT SUPPORT FROM VEROGEN (DISTRICTS: ALL)

OVERVIEW

The ability for the San Diego County Sheriff's Office Regional Crime Laboratory (Crime Lab) to perform Deoxyribonucleic acid (DNA) analysis is vital to the County of San Diego because it leads to the identification of individuals who may be involved in committing crimes and plays a key role in exonerating the wrongly accused. Moreover, future offenses are prevented by apprehending perpetrators before they can commit further crimes. The Crime Lab proposes to utilize the U.S. Department of Justice, Bureau of Justice Assistance, Fiscal Year 2024 Byrne Discretionary Community Project Grant to purchase and validate Next Generation Sequencing (NGS) technology, along with instrument support services, for use in DNA analysis and to generate Combined DNA Index System (CODIS) profiles.

The Crime Lab's Forensic Biology Section has approximately 40 John/Jane Doe cases that need NGS technology. Taking advantage of the increased sensitivity of NGS will allow the DNA Section to get superior results from cases involving unidentified decedents, which are CODIS eligible. The Forensic Biology Section estimates there are over 300 unsolved sexual assault cases since 2018 which may also benefit from NGS, and the Sheriff's Cold Case Homicide Team has identified 25 cases to date that could benefit from NGS. The Forensic Biology Section has a case backlog and has opted to outsource all validations for new technology when possible. By using VEROGEN, Sheriff's staff will be able to perform the full validation for both kits, making VEROGEN a cost-effective alternative to using the DNA analyst's time.

Today's request is for the Board of Supervisors to approve a single source procurement based on precluded competition because of the existence of patent rights, copyrights, secret processes, control of the basic raw material(s) or similar circumstances, and no equivalent good or service is available. VEROGEN is the only vendor to offer ForenSeq Kintelligence® and the MainstAY® typing kit which is the sole CODIS approved DNA analysis kit available for NGS technology and is the sole vendor capable of establishing performance standards necessary for forensic analysis through validation and providing ongoing instrument support.

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RECOMMENDATION

SHERIFF

In accordance with Board Policy A-87, Competitive Procurement, approve and authorize the Director, Department of Purchasing and Contracting, to enter into negotiations with VEROGEN and subject to successful negotiations and determination of a fair and reasonable price, award a contract to purchase and validate Next Generation Sequencing (NGS) technology from VEROGEN, along with instrument support services for up to two years, for use in Deoxyribonucleic acid (DNA) analysis and generation of Combined DNA Index System (CODIS) profiles, and to amend the contract as needed to reflect changes to requirements and funding, subject to the approval of the Sheriff.

EQUITY IMPACT STATEMENT

Identification of people convicted of crimes is crucial in the criminal justice process to deliver accountability and bring justice and healing to victims, their families, and the wrongfully accused. Bringing Next Generation Sequencing (NGS) technology into the Crime Lab is critical for approximately 30 law enforcement and criminal justice agencies to ensure a fair and equitable justice system in both the defense and prosecution of crimes. The single source availability of the requested technology and the specialized need for validation and support services ensures the highest quality service is provided to the County and other criminal justice agencies.

SUSTAINABILITY IMPACT STATEMENT

Today's request to approve a single source contract with VEROGEN supports the County of San Diego's Sustainability Goal of providing just and equitable access for victims of crimes and those who may have been wrongfully accused of a crime. Considering the regional support and the Regional Crime Laboratory's forensic science services provided to law enforcement and criminal justice agencies in San Diego County, it is necessary to obtain equipment that ensures a standardized and validated process.

FISCAL IMPACT

Funds for this request are included in the Fiscal Year 2024–25 Operational Plan for the Sheriff's Office. If approved, this request will result in estimated one-time costs of \$760,000. The funding source is the U.S. Department of Justice, Bureau of Justice Assistance, Fiscal Year 2024 Byrne Discretionary Community Project Grant. There will be no change in net General Fund cost and no additional staff years.

BUSINESS IMPACT STATEMENT

N/A

ADVISORY BOARD STATEMENT

N/A

BACKGROUND

The San Diego County Sheriff's Office Regional Crime Laboratory (Crime Lab) provides forensic science services to approximately 30 law enforcement agencies and criminal justice agencies. Within the Crime Lab, the Forensic Biology Section receives an average of 2,000 requests for

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Deoxyribonucleic acid (DNA) analysis from federal, state, and local law enforcement agencies, including the Sheriff's Office. Forensic DNA typing has evolved with new technology, increased sensitivity, and a high demand for success from the community. Over the last 20 years, DNA grant funding has been used to reduce the backlog and purchase updated equipment to stay current with advances in technology. The Crime Lab proposes to use the funding from the 2024 Byrne Discretionary Community Project Grant to purchase Next Generation Sequencing (NGS) technology. This will increase the Crime Lab's abilities in forensic DNA typing and better serve our customers who have difficult case samples which are not suitable with the current standard in DNA typing, Short Tandem Repeat (STR) analysis.

Forensic DNA typing continues to advance at a rapid pace. STR DNA typing utilizing mixture deconvolution software, such as STRmix®, has allowed crime labs to do more with mixed DNA profiles. However, STR DNA typing still falls short, as it only examines the length of a strand of DNA, and not the actual sequence of DNA. NGS is the latest technological advancement in the evolution of DNA typing in crime labs, as it examines the length and the sequence of a strand of DNA. This technology has additionally increased sensitivity compared to STR DNA typing and allows for enhanced mixture deconvolution, including cases with mixtures from closely related individuals. The Sheriff's Cold Case Homicide Unit in conjunction with the Crime Lab have been using Forensic Investigative Genetic Genealogy (FIGG) to investigate cold cases for the last four years. Currently, DNA extracts from previously examined cold cases are evaluated by a DNA analyst for its likely development of a Single Nucleotide Polymorphism (SNP) profile for FIGG. Once a case is selected, DNA extracts are shipped to a third party that develops a SNP profile used in constructing a family tree which is then used to identify the person contributing the DNA. Using VEROGEN's ForenSeq Kintelligence® Kit, the Crime Lab will be able to acquire this technology to perform the FIGG DNA analysis in house to aid in investigations of cold cases in a timelier, cost effective, and efficient manner. Cold cases in San Diego County have been submitted to the Sheriff's Crime Lab for decades and many of these cases have been processed using existing DNA technology. Only a small number have yielded DNA profiles eligible to be entered into the Combined DNA Index System (CODIS).

The Sheriff's Cold Case Homicide Unit has identified 25 cases to date that could benefit from NGS. An additional 357 cold cases within the county would be eligible for re-evaluation using this new technology. NGS can be used in unsolved sexual assault cases in addition to many unsolved cases that are not cold homicides. The San Diego Sheriff's Office has 322 sexual assault cases with at least one unknown profile from 2018 to present. A large portion of the DNA profiles generated from sexual assault cases are mixtures of DNA from two or more people. These cases may benefit from additional analysis with the MainstAY® DNA typing kit using NGS. This kit yields a more definitive mixture profile for CODIS entry due to the enhanced sensitivity and mixture resolution abilities of NGS technology. Further, the samples could then be typed using Kintelligence® to pursue investigative leads using FIGG. Using the MainstAY® typing kit, DNA profiles can be generated from very complex mixtures that allow potential deconvolution, not only based on the size of the individual DNA fragments but also based on the sequence of the DNA fragments.

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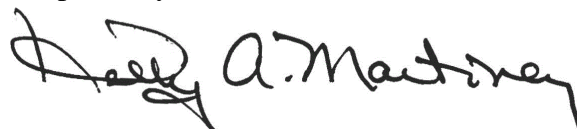
The level of deconvolution provided by MainstAY® DNA typing kit cannot be accomplished with traditional STR based DNA testing. The ability to sequence DNA fragments is beneficial when DNA samples are from closely related individuals. NGS also has greater sensitivity than STR testing, which makes NGS more suitable for challenging samples such as bones from unidentified decedents. The Cold Case Homicide Unit estimates there are 40 John/Jane Doe cases where bones can be processed via NGS to generate a CODIS profile. The MainstAY® DNA typing kit has been accepted at the National DNA Index System (NDIS) for entry into CODIS. These Verogen NGS kits are also maximized to obtain optimal search results in the DNA databases "GEDMatch" and "Gene by Gene," which are both property of Verogen. The Crime Lab proposes purchasing a VEROGEN MiSeq instrument, server, MainstAY® and Kintelligence® kits, and outsourcing the validations for both MainstAY® and Kintelligence®. The Forensic Biology Section has a case backlog and has opted to outsource all validations for new technology when possible. Using VEROGEN, Sheriff's staff will be able to perform the full validation for both kits, making VEROGEN a cost-effective alternative to using the DNA analyst's time. VEROGEN estimates that each validation can take up to six months to complete. During the validation, lab work performed by VEROGEN can be observed by current staff members, allowing Forensic Biology Section staff to become familiar with the analysis process. Post validation, VEROGEN staff will be responsible for training Forensic Biology Section staff with a three-day in-person class that includes instrument operation, sample processing, and data analysis. Ongoing instrument support will also be provided by VEROGEN. Five staff members have been identified who will be initially trained on NGS technology.

Based on Board Policy A-87.1.D.1, competition is precluded because of the existence of patent rights and copyrights and no equivalent good or service is available. VEROGEN is the only vendor that offers this NGS technology and are solely capable of establishing performance standards necessary for forensic analysis through validation and providing ongoing instrument support. Today's request for the Board of Supervisors to approve a single source procurement through VEROGEN will support solving criminal case investigations and bring justice to victims of crime as well as their loved ones.

LINKAGE TO THE COUNTY OF SAN DIEGO STRATEGIC PLAN

Today's proposed action supports the Community and Equity Strategic Initiatives of the County of San Diego's 2025–2030 Strategic Plan by continuing the quality of DNA analysis that is critical in the expedient identification and subsequent apprehension of criminals and providing justice and healing for victims and their families, resulting in a safer community.

Respectfully submitted,



KELLY A. MARTINEZ
Sheriff

ATTACHMENT(S)

N/A