



Rapid DNA Results in 90 Minutes, Safer Communities

**IntegenX Technology Update
RTI Rapid DNA Technology Forum
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IntegenX Technology Update

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250+ instruments in 40+ countries



The only Rapid DNA uploaded to both CODIS and NDNAD



May 2015: Arizona Department of Public Safety is first NDIS lab to upload DNA profiles to national database utilizing Rapid DNA



Aug 2015: Profile uploaded to UK NDNAD identifies dangerous sex offender while suspect in custody, with >1,000 samples since 2014

Share our vision of Rapid DNA

**Partner with leaders in forensics DNA to make
Rapid DNA a reality in the United States**

Receive your feedback

Arrestee Testing

Casework in Forensic Labs

Victim Identification

Mobile DNA Labs

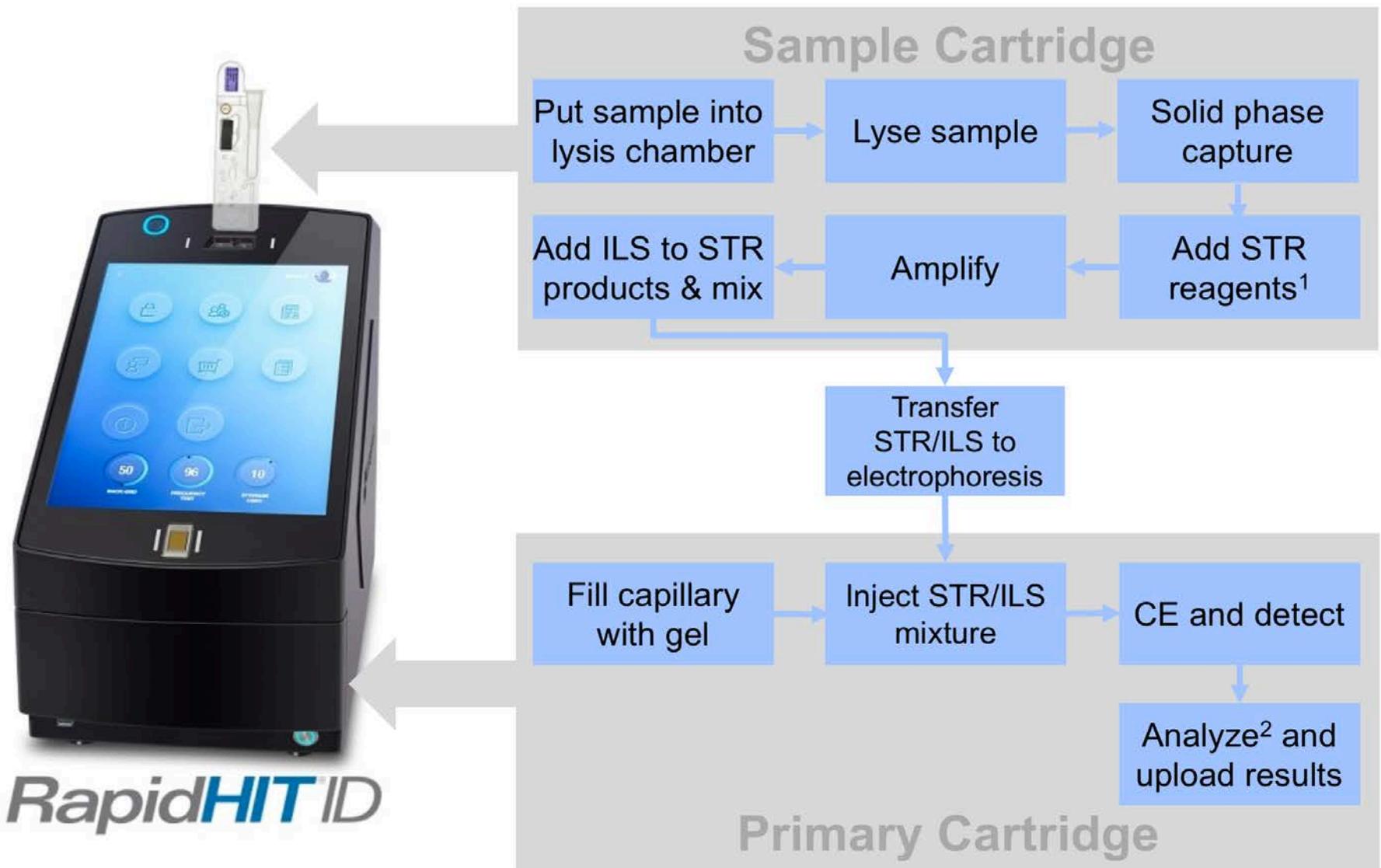
Arrestee Testing

Casework in Forensic Labs

Victim Identification

Mobile DNA Labs

Extract, amp and generate profiles on a single instrument

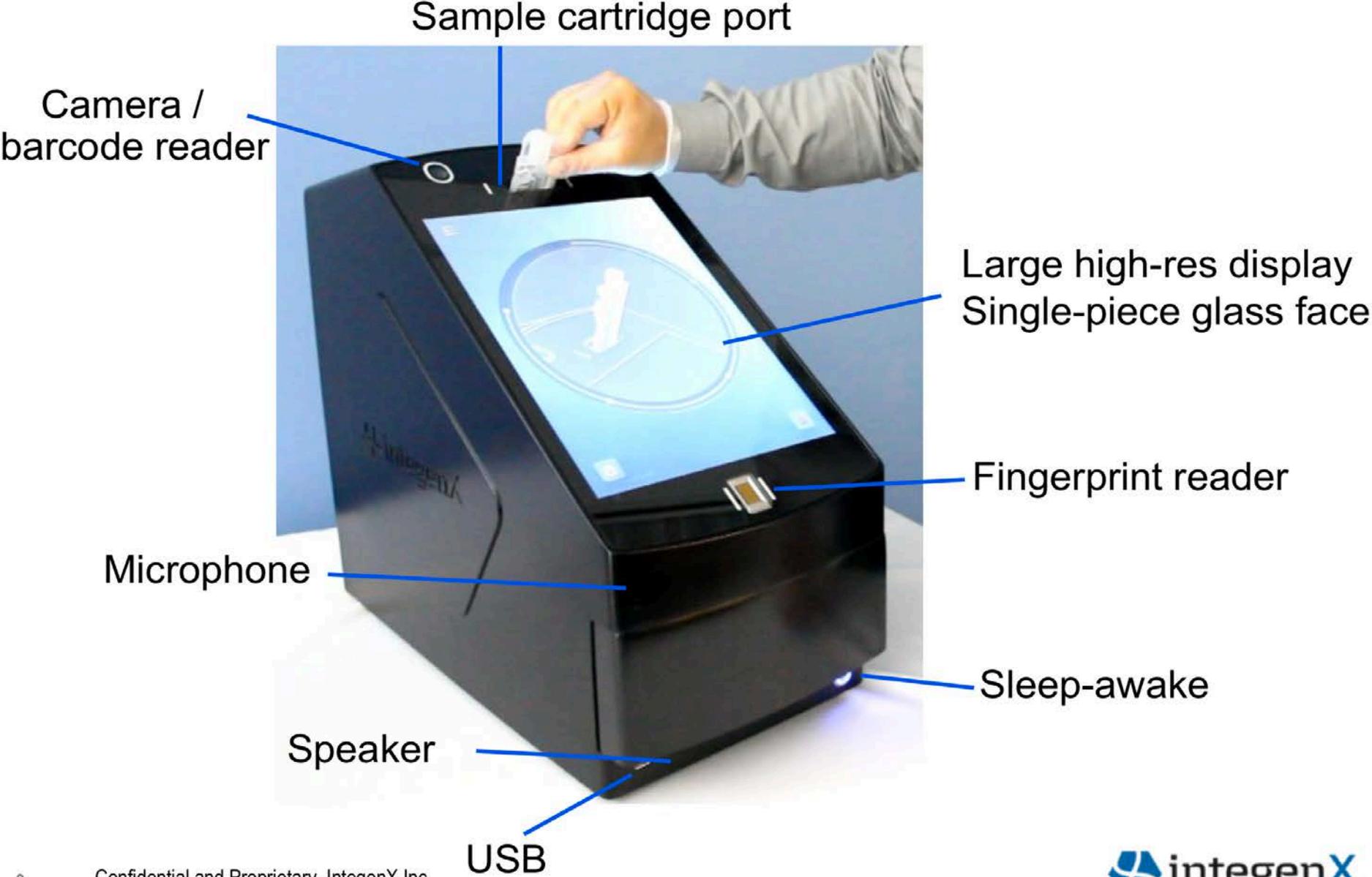


RapidHIT ID

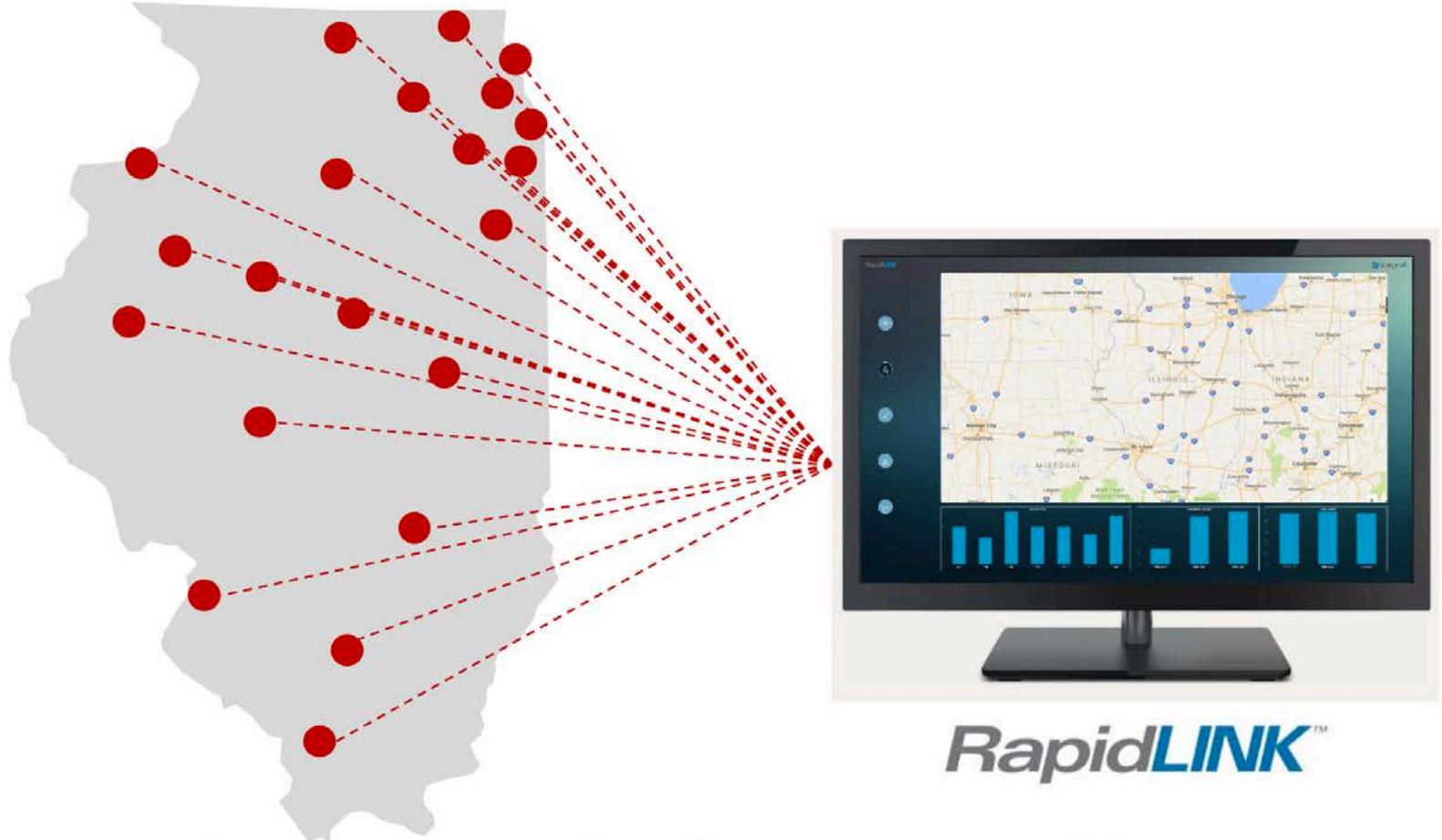
1. NDIS approved chemistry

Confidential and Proprietary, IntegenX Inc.
2. NDIS approved software

Instrument designed with data integrity in mind



Ultimately link booking stations together with RapidLINK



***Control over the data generated by
RapidHIT instruments in booking stations***

Link forensic labs together with RapidLINK



Centralized oversight over the data quality and performance of the system

RAPID: Richland Assesses Potential of near Intant DNA testing



**RapidHIT at
Richland County
Sheriff's Dept**



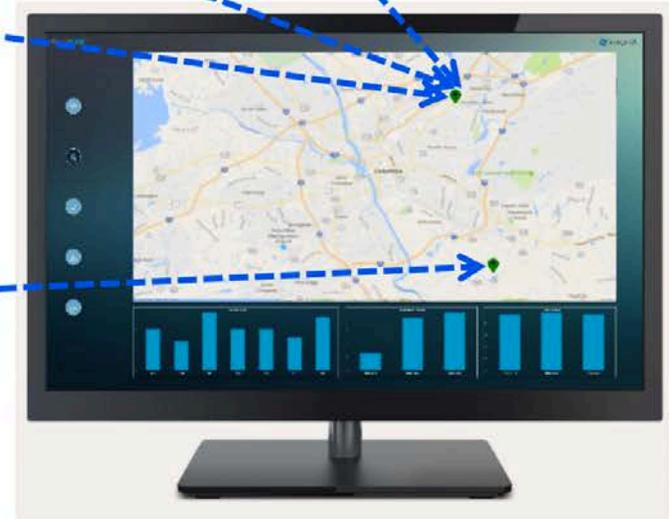
**ABI 3500 at
Richland County
Sheriff's Dept**



**RapidHIT ID at
Richland County
Sheriff's Dept**

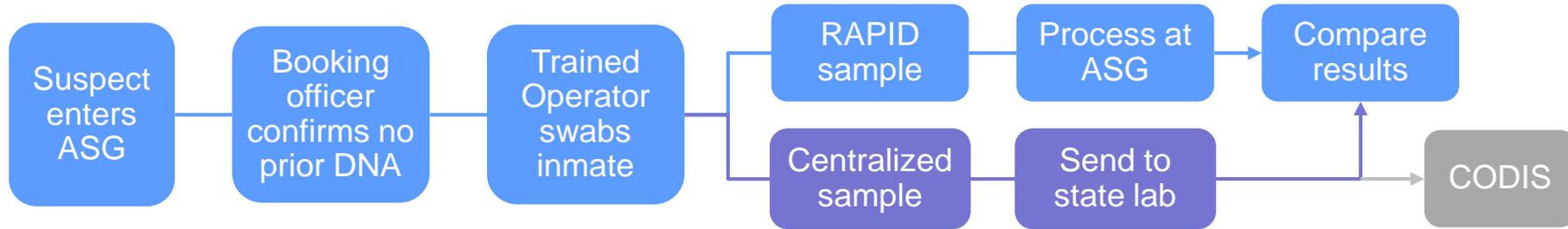


**RapidHIT ID at
Alvin S. Glenn
Detention Center**



RapidLINK™

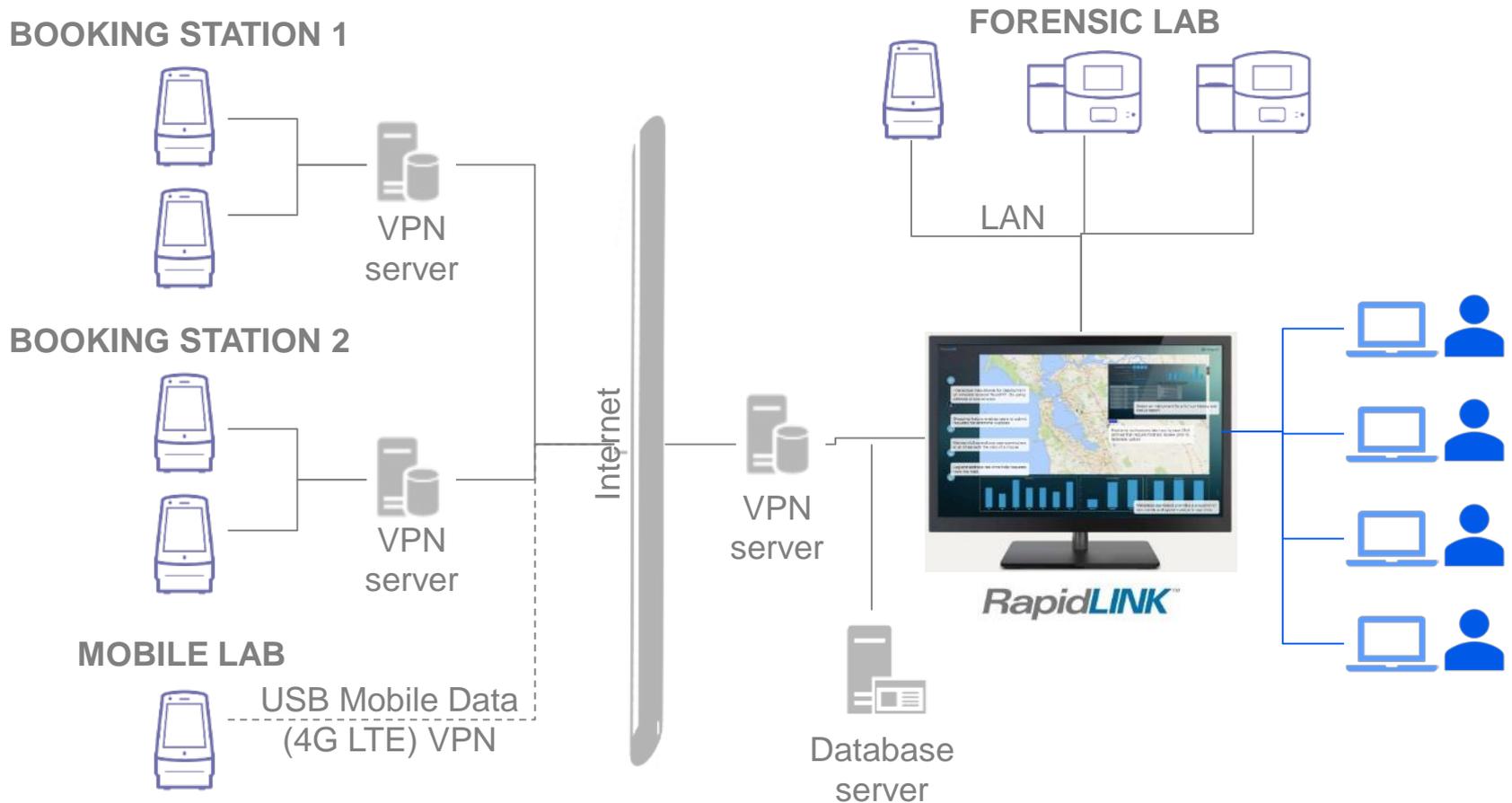




- Primary endpoint: time to results
- DNA collection in parallel to regular databanking process
 - State sample continues to CODIS
 - RAPID sample de-identified, time-to-result recorded

Can use existing infrastructure to demonstrate improved time-to-results

Rapid DNA arrestee testing setup in practice



**+100 database samples, 89% success rate,
within the first four months of operation**

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Single-use cartridges with economies of scale in mind

Sample-to-CODIS

- Buccal swabs



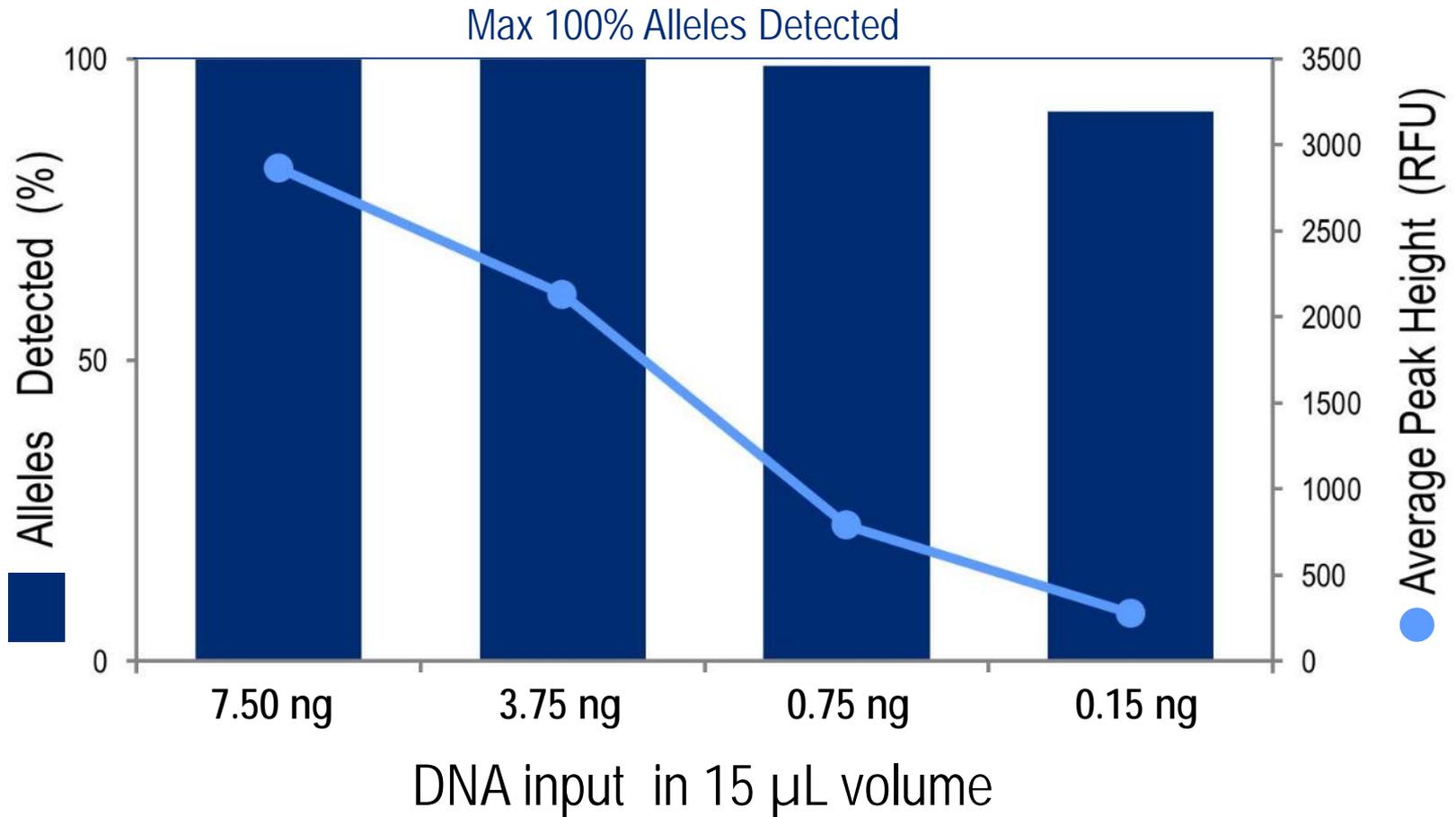
Extracted DNA in a lab

- Blood stains
- Cigarette butt
- Swab of a cup lip
- Swab of a gun

Reduce analyst workload with hands-off DNA analysis

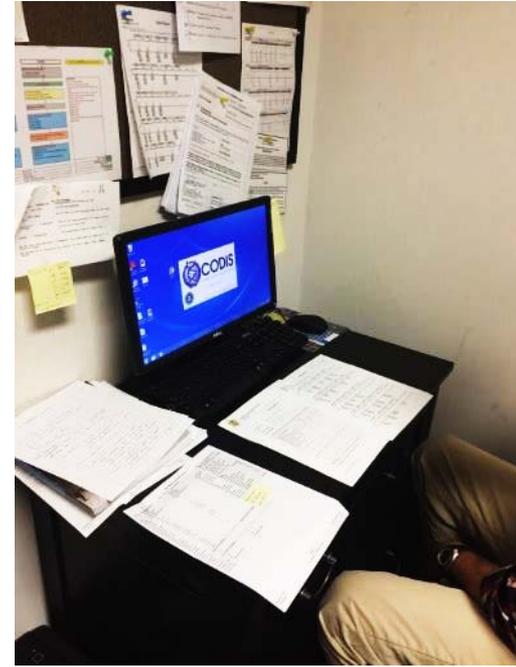
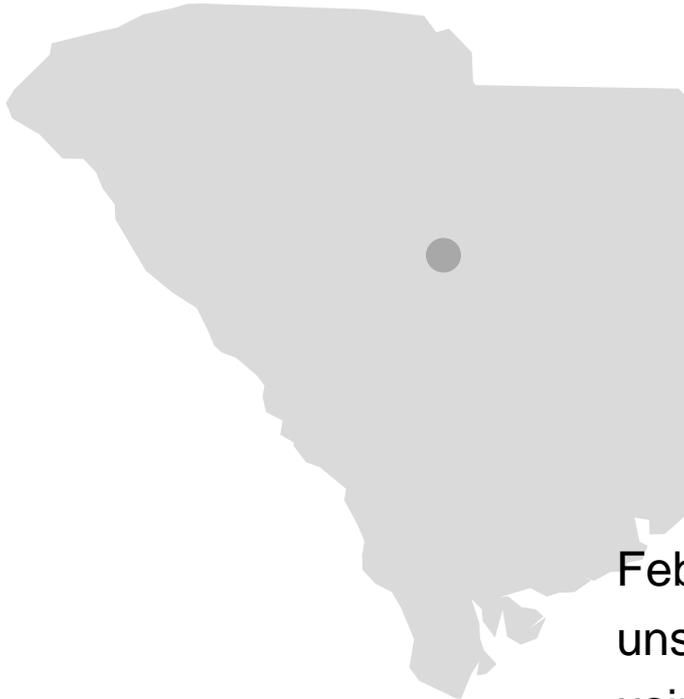


Sensitivity comparable with conventional systems



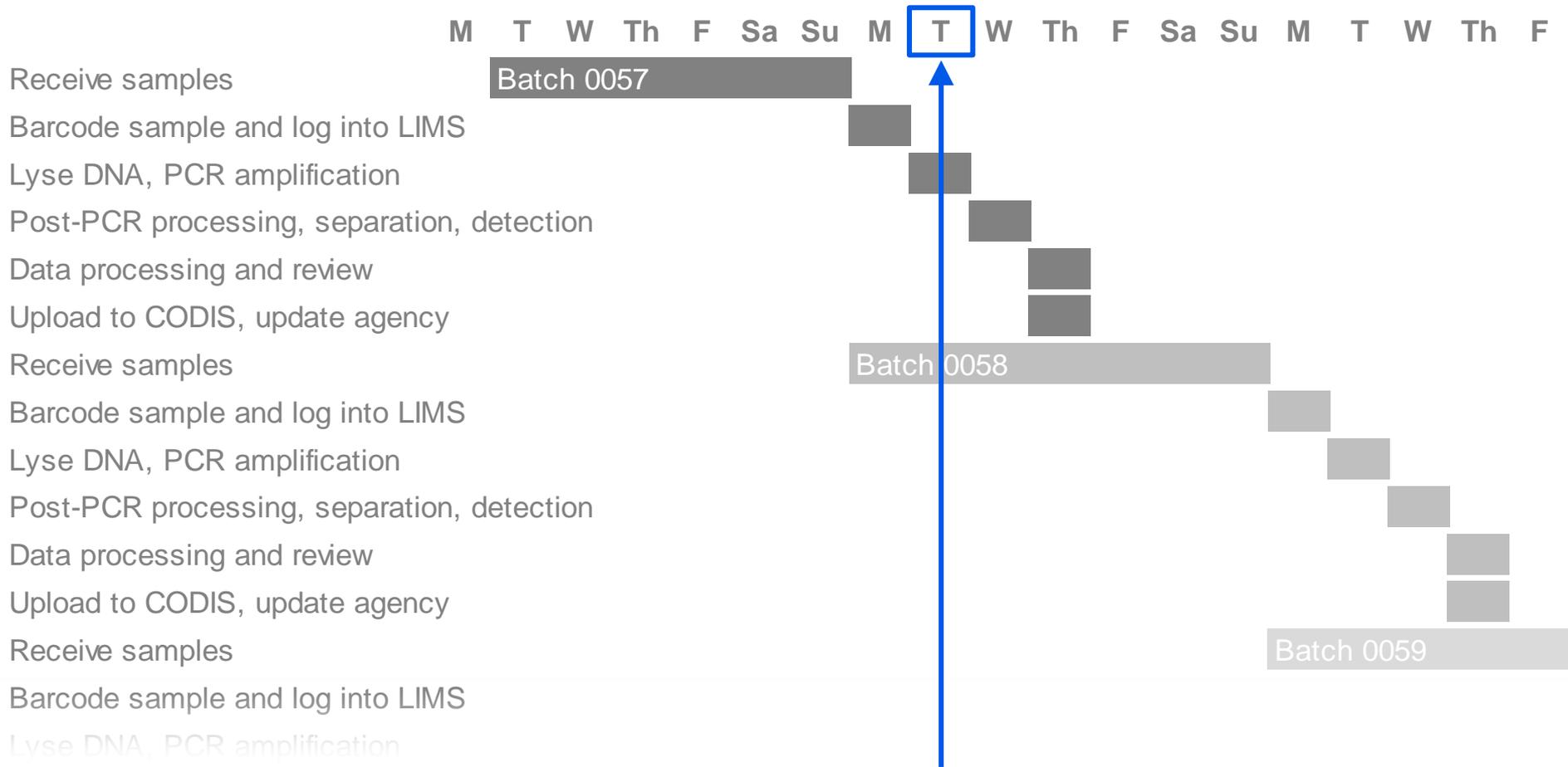
Generate a profile with as little as 150 picograms

CODIS upload with the EXT Sample Cartridge by a lab



Feb 2017: Extracts from a motor vehicle theft (still unsolved) and forcible rape (solved) were analyzed using the RapidHIT ID and EXT Sample Cartridge resulting in suspect full profiles, subsequently uploaded to CODIS/SDIS

Discover flexible capacity to accommodate one-off samples



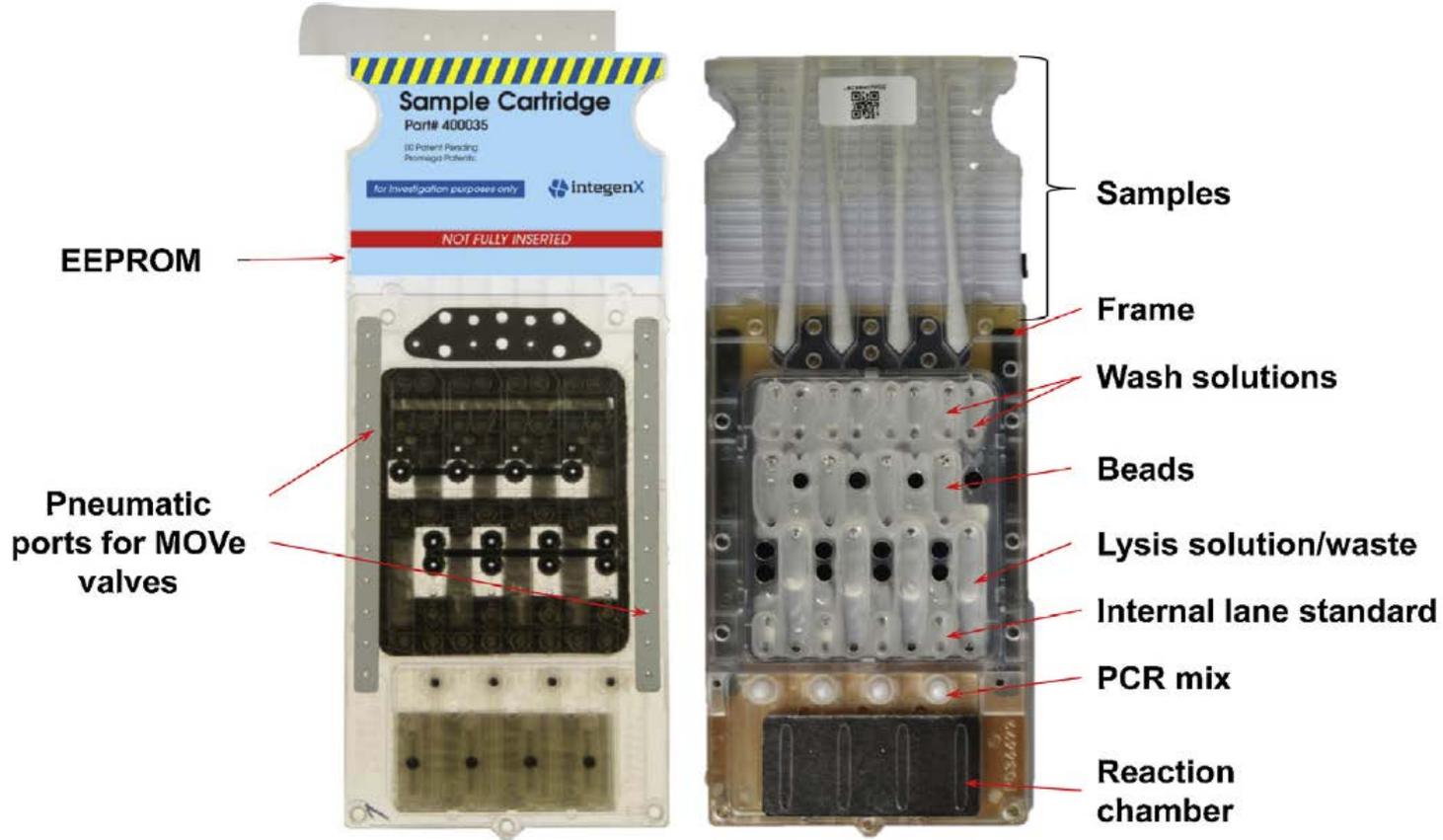
RapidHIT makes it easy to run a mid-week rush case quickly

RapidHIT System



- Up to 8 samples in one run
 - 1-, 3-, 4-samples per cartridge
 - Two cartridges per run
- Multiple sample types and run conditions published in peer-reviewed papers

Sample cartridge with major parts labeled



Sample types run on RapidHIT

Blood



Saliva



Semen,
Hair,
Tissue,
Bone



Trace DNA on the outside packaging of counterfeit drugs



- Singapore law enforcement and drug regulatory agencies to target drug trafficking
- Law enforcement swab for trace DNA left on the outside of drug bags
- High sensitivity of EXT cartridges ideal for such cases



Victim-suspect matching in sexual-assault cases in India



- Emerging DNA databank
- Relieves pressure from a high visibility, politically charged social issue
- State-level support to use an evidence-based approach to deter future sexual assault offenses





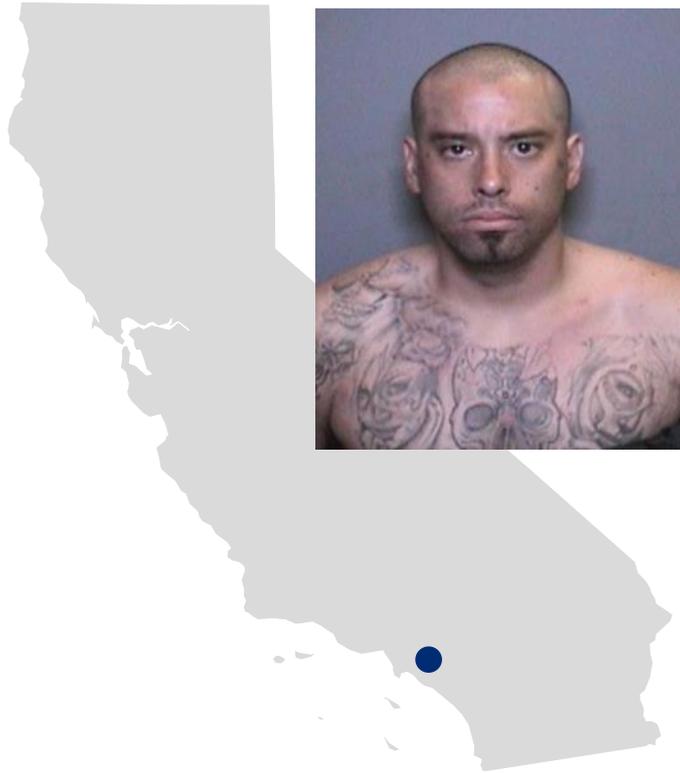
- Male suspect videotaped wearing glasses and hat during bank robbery
- Swab from sunglasses left at the scene was analyzed
- Yielded investigative lead match to convicted offender

+30 Instruments placed throughout China



- Largest DNA databank in the world
- Casework backlog despite excess capacity in high throughput equipment and labor oversupply
- Mobile labs create a network of DNA analysis capabilities accessible to rural locations

Rapid DNA leads to rapid conviction



Mar 9: Suspect forced passenger out of an idling car, fled the scene, abandoned the car two miles away. Police submitted used cigarette for forensic analysis

Mar 15: Investigators matched sample to DNA profile in the local database

Mar 22: Suspect arrested

Apr 27: Gary Munoz, 30, Orange, plead guilty on April 27, 2017 to one felony count of carjacking

***Arrested, charged, convicted
in less than two months***

Puente, Kelly. "Carjacker Convicted after His DNA Is Found on Cigarette in the Recovered Car." *Orange County Register*. Orange County Register, 02 May 2017. Web. 02 May 2017. <http://www.ocregister.com/2017/05/02/carjacker-convicted-after-his-dna-is-found-on-cigarette-in-the-recovered-car/>

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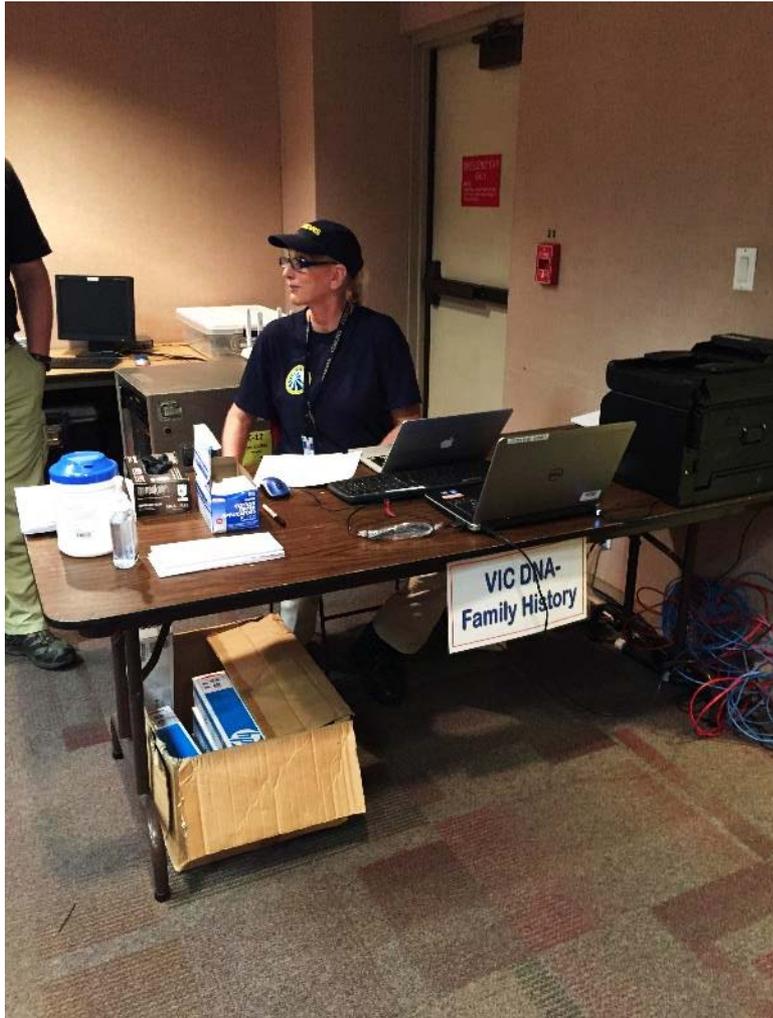
Victim identification in the Oakland Ghost Ship Disaster



- 36 Victims - All victims identified by the Alameda County Sheriff's Office's Coroner's Bureau
- Identifications made by fingerprint, dentition, and body markings
- Upon request, DNA testing performed on four victims
 - CAL DOJ performed confirmatory DNA testing on the four victims using traditional/validated DNA procedures
 - The Alameda County Sheriff's Office's Forensic Biology Unit performed RapidHIT ID testing
 - RapidHIT ID is not validated for casework
 - RapidHIT ID results
 - 4 of 4 oral swabs from the victims
 - 3 of 4 toothbrushes used as a reference for the victims



Participated in FEMA disaster exercises



Nearly-full profile produced from burnt body in Panama



- Victim's body discovered in burnt home
- Sample taken from crude clavicle bone extraction (no decalcification step) was applied to a swab and processed in the RapidHIT ID
- 20 of 24 loci identified
- Enabled kinship comparison to victim's brother



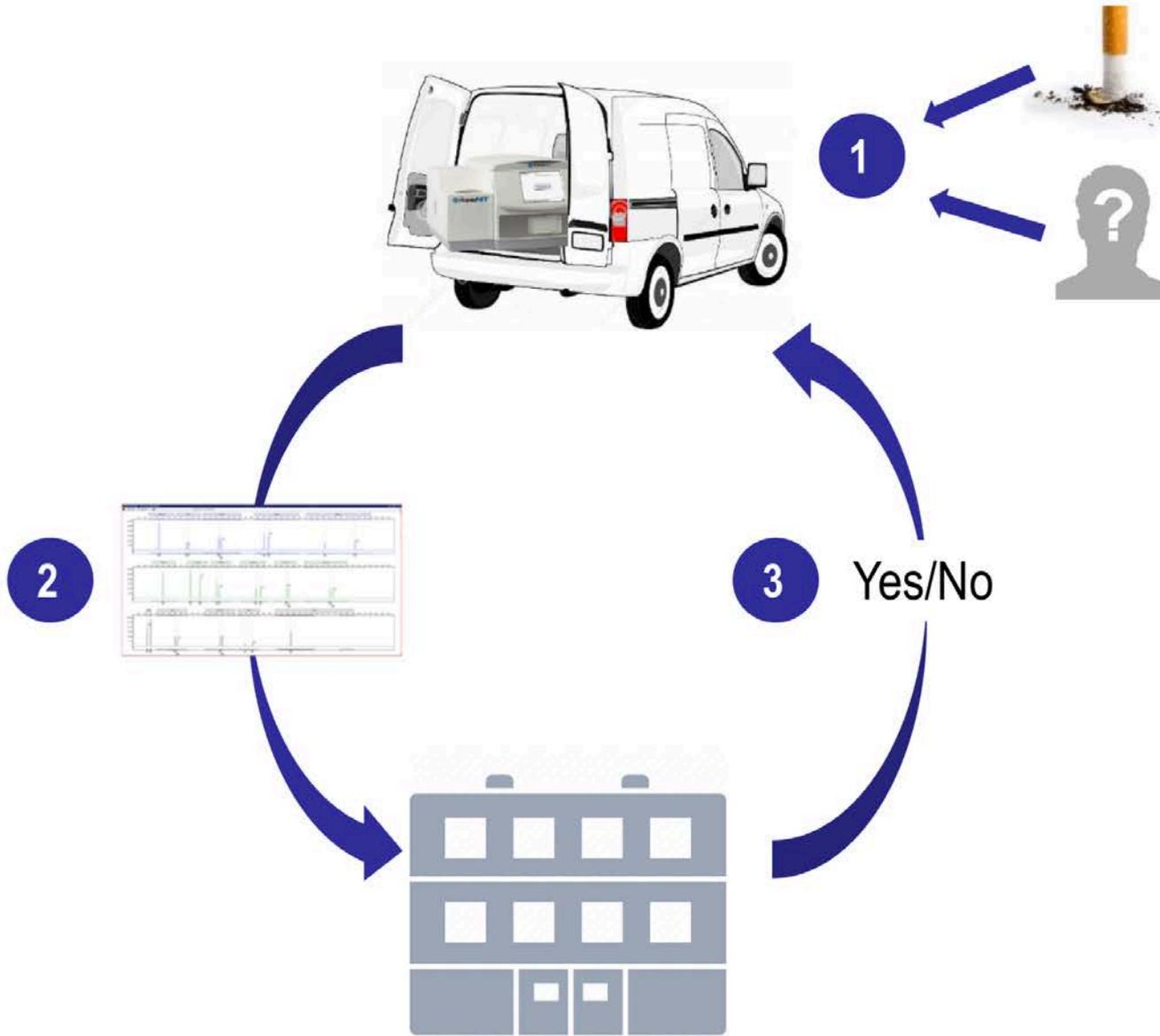
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The Netherlands: Mobile Crime Investigations





Ideal for management of emergencies and disasters

- Provide regular service to a larger geographic territory
- Access remote regions
- Being processing on-site; results may be available before arrival at next scene

Mobile vans with RapidHIT – China



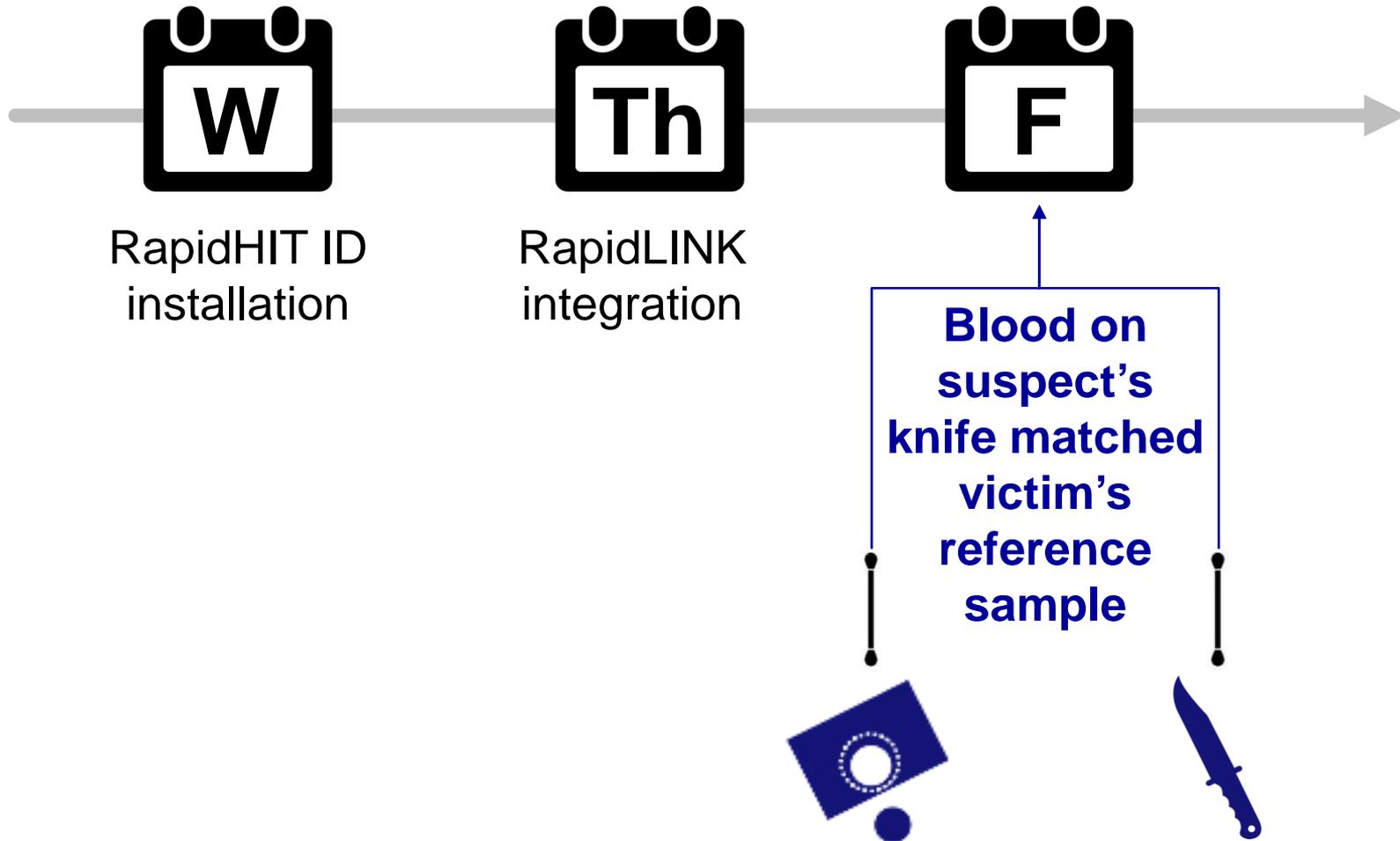
Mobile vans with RapidHIT – Panama



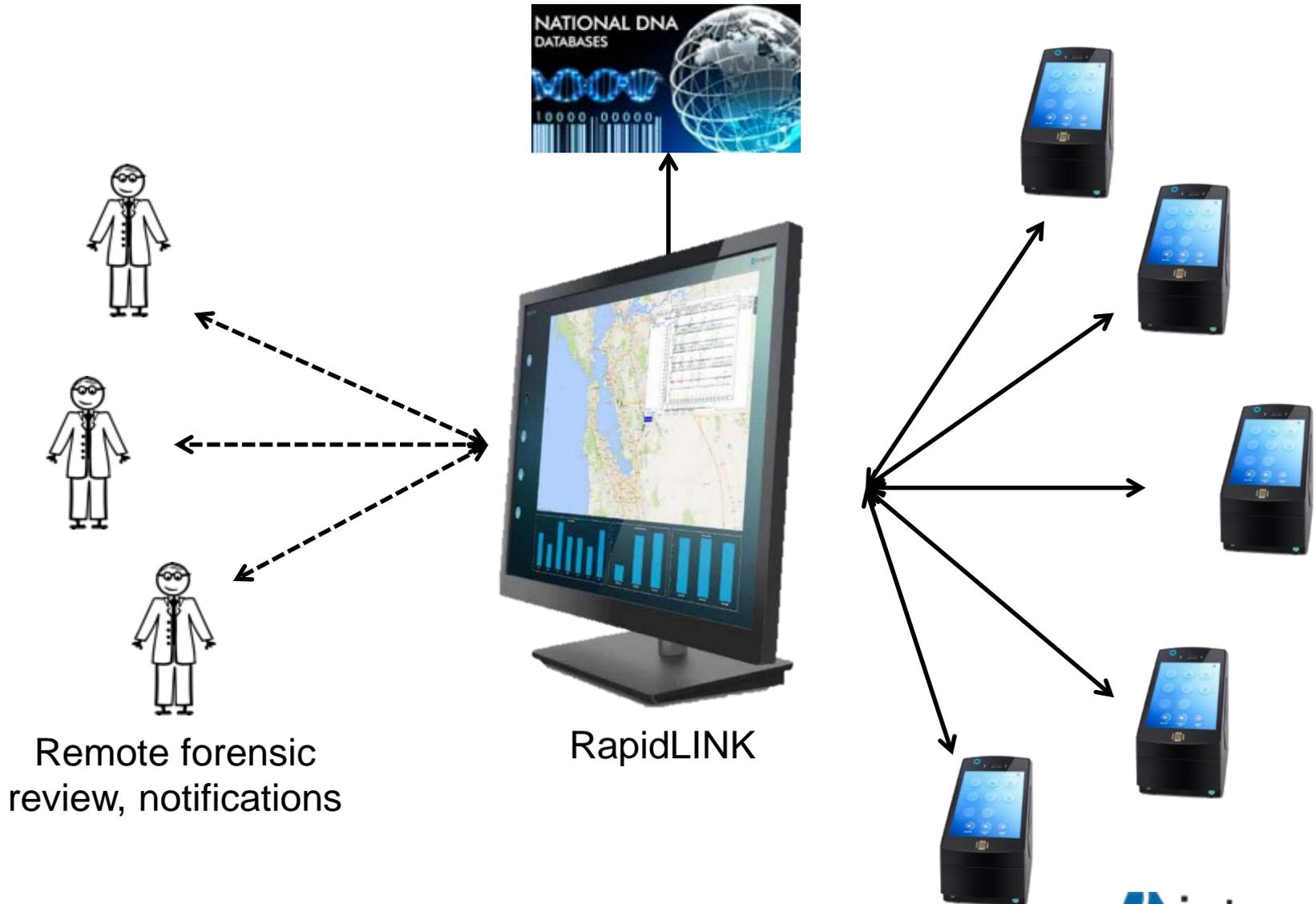
Customer's Mobile Forensics Lab, in which he wants to place RapidHIT ID



Easy installation, results in less than 30 hours



Increase the impact of Forensic DNA with RapidHIT



Trusted by Global Customers in +40 Countries



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