



Rapid DNA Technology in a Medical Examiner's Office

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DNA for Identification

- Challenging for Medical Examiner's Offices that do not have immediate access to a DNA Laboratory
- Mass fatality planning and daily operations
- Outsourcing
 - State Police DNA Laboratory
 - Private DNA Laboratory
 - Build a lab
 - University of North Texas (UNTCHI)
 - FBI
- Turnaround time and sample issues
- Chain of custody issues



Benefits of Rapid DNA at MA OCME

- Dramatically reduced turnaround time
- Expedite release of decedents to families
- Technology that is easy to use
- Small instrument

Based on these considerations, OCME purchased a rapid DNA system June 2015



Rapid DNA at MA OCME

- Initial testing was with the PowerPlex® 16 Chemistry with ANDE LDC kits
- Bone from decomposed human remains
- Results presented at NAME Conference Oct. 2016
- February 2017 Upgraded to the ANDE FlexPlex kits
- Worked with ANDE to modify current bone procedure



Sample Pre-Processing

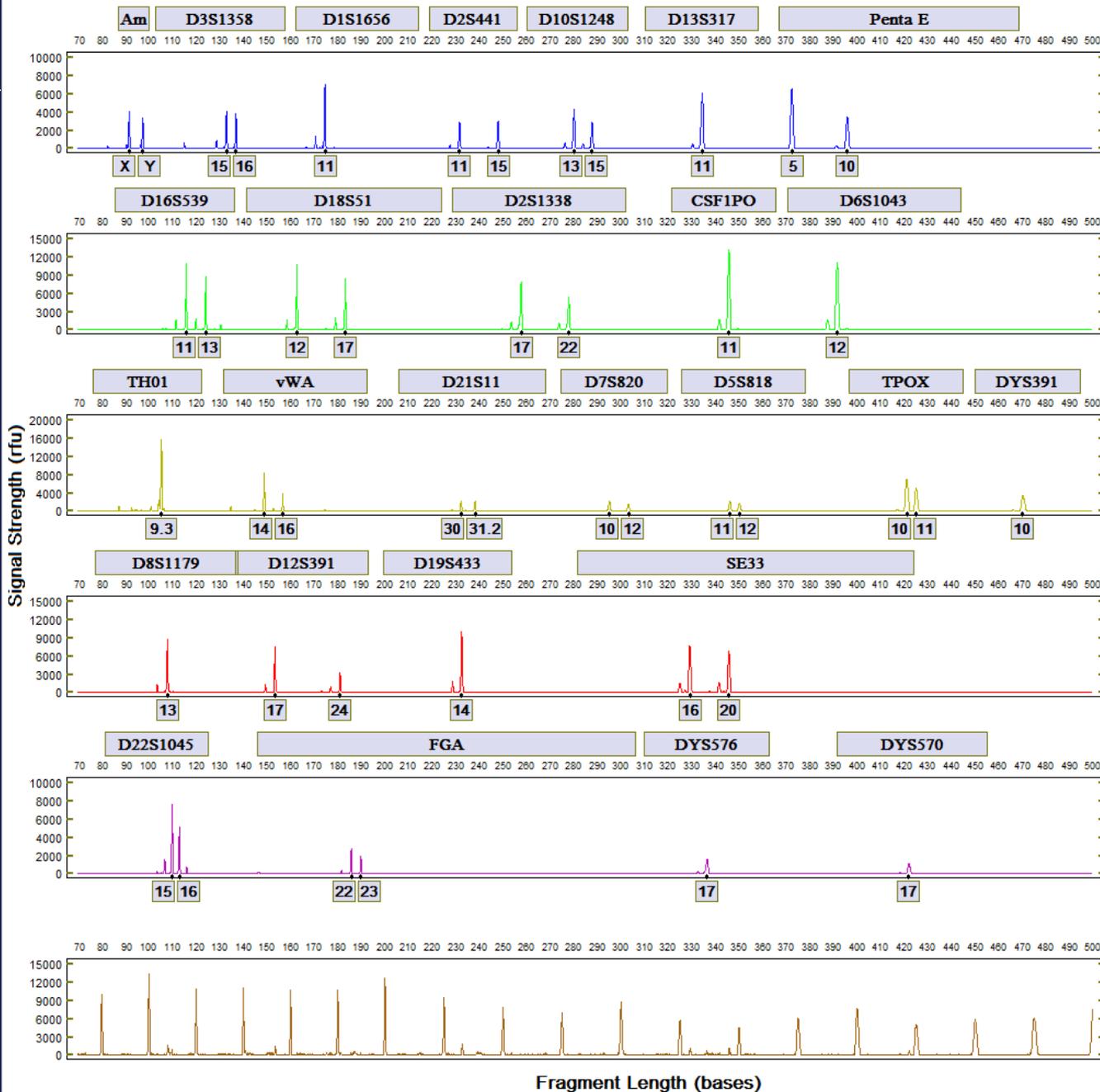
- Bone prep– Day 1
 - 1x1 inch section of bone
 - Cleaned
 - Crush into fragments smaller than 1/8”
 - Weight approximately ~500 mg
 - Add NetBio Buffer and Proteinase K
 - Overnight incubation at 56°C
 - Agitate samples for 20 minutes



Preparing and Processing

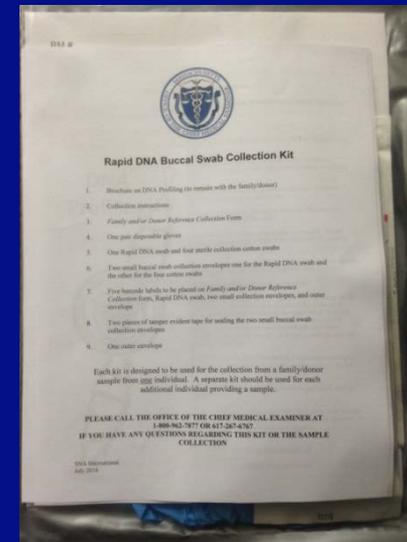
- Two day procedure – Day 2
 - Vortex then centrifuge 1 minute at 16,000 rcf
 - Pipette 10uL of bone supernatant on ANDE swab
 - PP16 – concentrated with Amicon filter
 - Complete profiles





Application of Rapid DNA

- Using Rapid DNA, generate STR profiles from tissue obtained from decedents
- Generate STR profiles from buccal swabs donated by relatives of missing persons
- Direct reference samples with Rapid DNA swabs from personal items (e.g. toothbrush)
- Identification method in a mass fatality





Boston Office



Cape Cod Office



Future Western Mass Office

