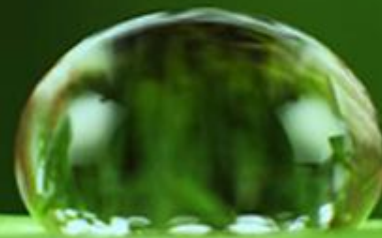


Enhancing PCR & STR Experiments

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Outline

- **PCR experiments**

- Sample challenges
- Introducing Biomātrica's PCRboost®
 - o Performance examples
 - o Summary

- **STR Experiments**

- Sample challenges
- Introducing Biomātrica's STRboost®
 - o Performance examples
 - o Summary

- **Product Information**

Sample Challenges for PCR

PCR amplification is difficult in samples with the following issues:

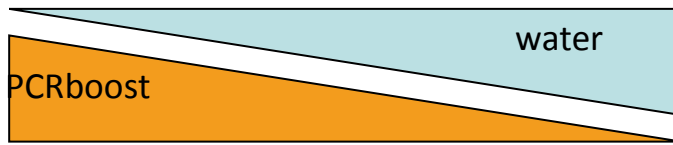
- Degraded
- Low copy transcripts
- Sample containing inhibitors (from blood...)
- Multiplexing
- Crude cell lysate

Introducing Biomātrica's PCRboost[®]

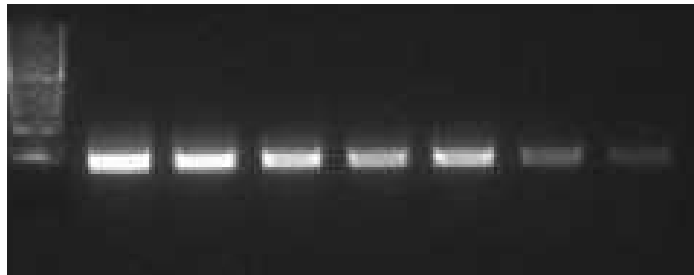


- A PCR enhancing reagent
- Enhance amplification of difficult samples such as:
 - o Degraded DNA samples
 - o Low copy transcripts
 - o Samples with inhibition from heme, indigo dyes, etc..
 - o multiplex
- Usage
 - o Simply replace your water addition with PCRboost.
 - o No change to PCR protocol.
- Observed performance boost >30%

Example PCRboost[®] Performance



Gradient (right-to-left) represents replacement of water with PCRboost[®]

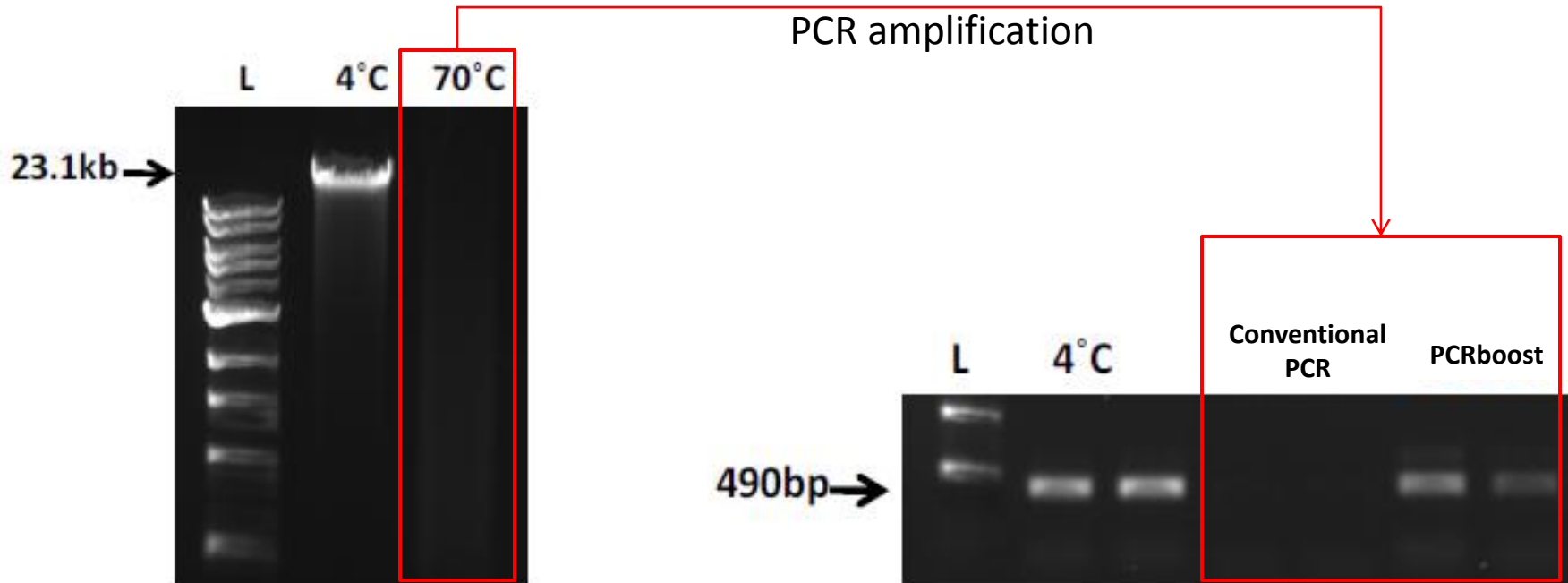


490bp

50 ng of human genomic DNA

>30% enhancement with PCRboost

Enhancing thermally degraded gDNA

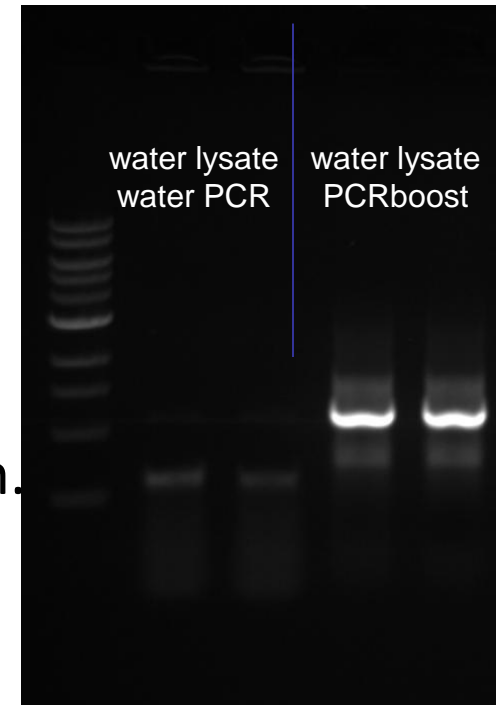


*Human genomic DNA was degraded at 70°C for 20hrs.

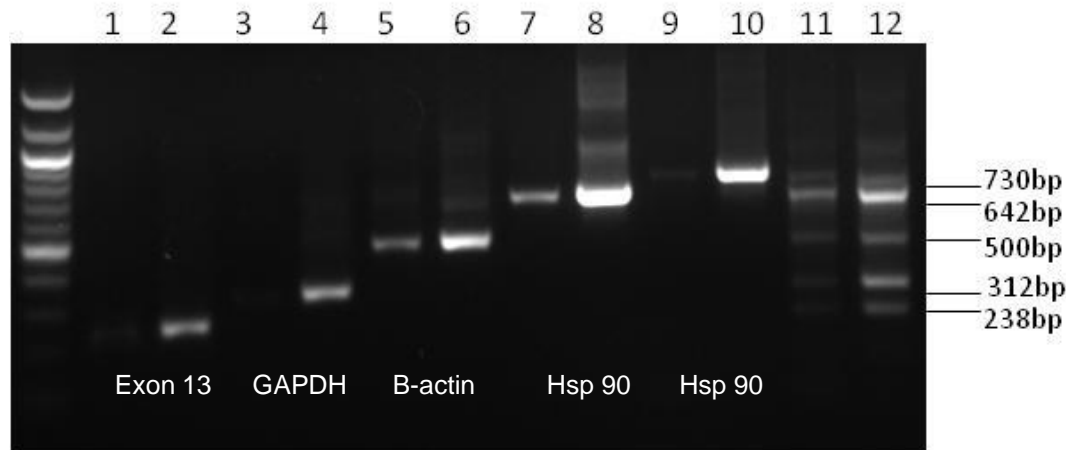
PCRboost enhances amplification of degraded DNA samples

Enhanced amplification with Crude 293 cell Lysate

- 10^5 cell lysate in water was tested in both the PCR rxn containing water, and the PCR rxn containing PCRboost.
- The final product is a 1.2kb β -actin amplicon.



Multiplex PCR with & without PCRboost



50 ng of human genomic DNA

Lanes 1,3,5,7,9, and 11 are samples **without** PCRboost.
Lanes 2,4, 6,8, 10, and 12 are samples **with** PCRboost.

Summary

PCRboost®

- Significant enhancements to challenging PCR experiments
 - Supports multiplex PCR
 - Enhancements >30% across many experiments
- Easy use
 - Simply replace water in PCR reaction to get added boost
 - No change in PCR cycling conditions required
- Compatible with all downstream applications.

Challenges for STR experiments

Detection of STR signals difficult in samples that are:

- In trace amounts (<1ng)
- Contains inhibitors such as heme in blood and Humic acid in soil and bone samples
- Low copy transcripts

Introducing Biomātrica's STRboost

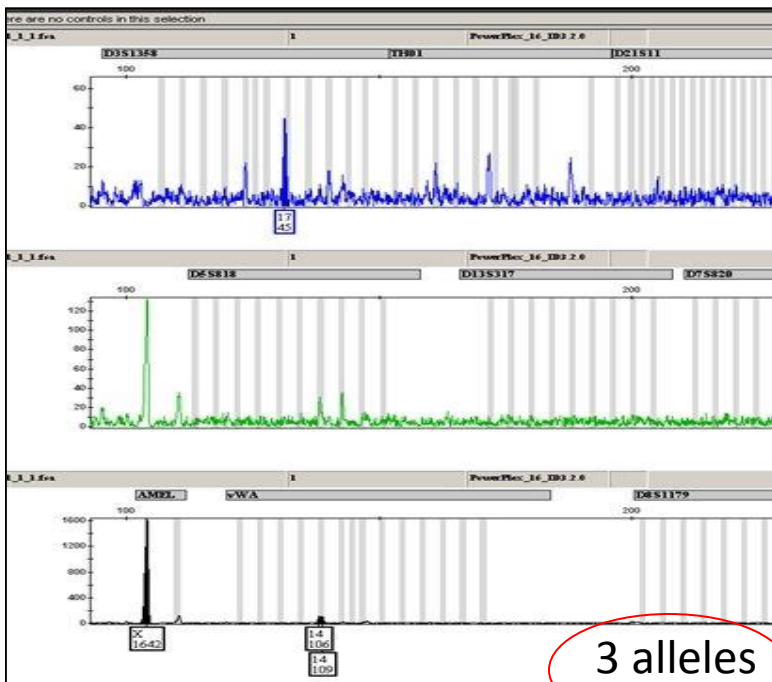
- Simply add STRboost to current amplification method at a final concentration of 10%
- No change to current protocol required.
- Compatible with:
 - o ABI's Identifiler®
 - o Promega's PowerPlex® 16

PCR-STR Performance

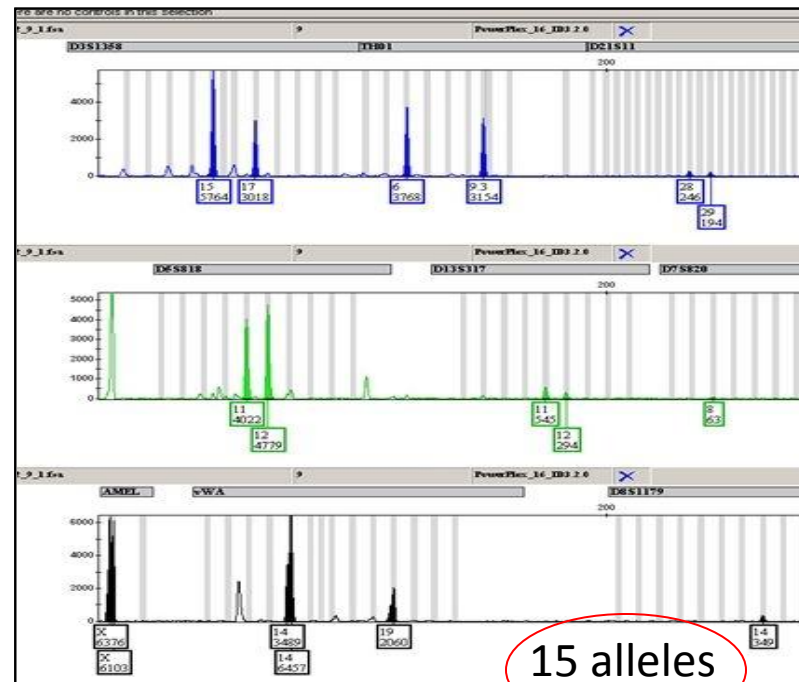
Amplification of 300 yr old bone DNA

Conventional PCR-STR

Analysis with STRboost



3 alleles

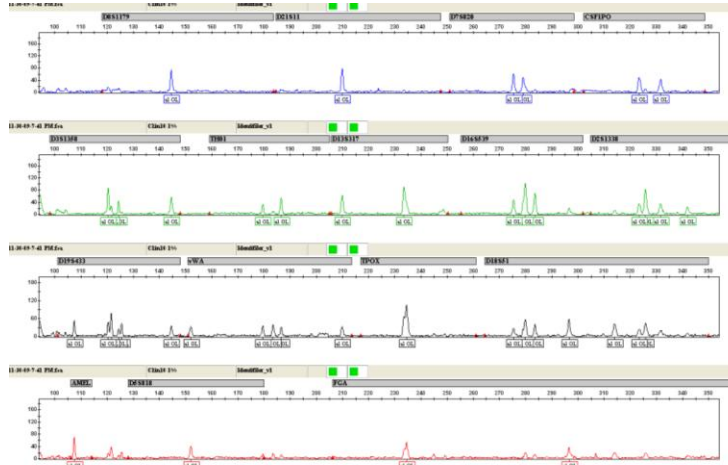


15 alleles

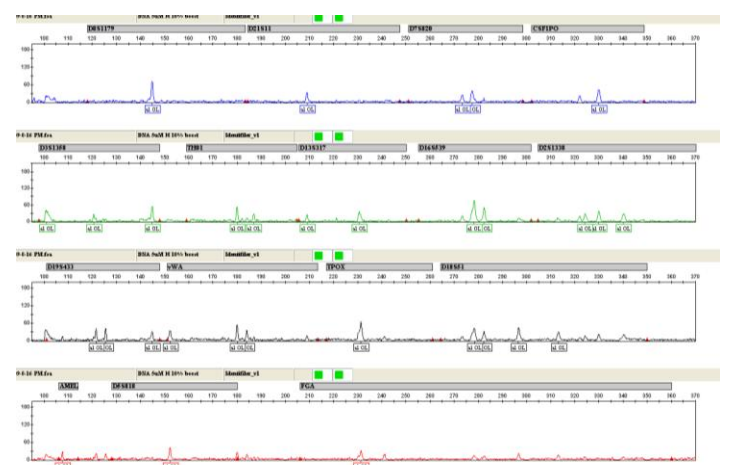
Improved profiles for compromised samples

STR Performance examples

100 pg DNA



100 pg DNA + 5µM hematin



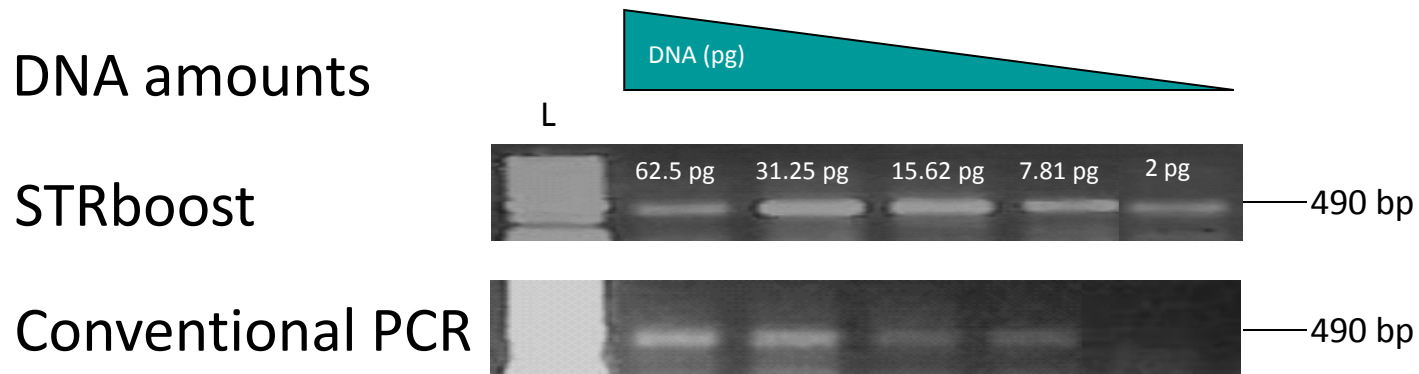
with STRboost
STRboost retains
signal strength
& intensity



w/out STRboost
Loss of signals
& intensity

*Data kindly provided by Dr. John Gillespie (formerly at NCI)

STRboost[®] Performance for low quantity DNA samples



Amplification of human genomic DNA with β -actin.

Improved amplification of low concentration samples

Summary

- **STRboost[®] helps**
 - overcome inhibitory factors
 - enhance peak height definition
 - increase number of allele calls
 - No need to make changes to current protocol
 - Does not interfere with automated detection systems such as ABI 3100 PRISM Genetic Analyzer

Product information

PCRboost

Available in the following formats:

PCRboost Trial Kit
Code: 63301-001

PCRboost 1ml kit
Code: 63301-011

PCRboost 10ml kit
Code: 62301-021

STRboost

Available in the following formats:

STRboost Trial Kit
Code: 63400-001

STRboost 50 reaction kit
Code: 63401-001

STRboost 300 reaction kit
Code: 63401-011

www.biomatrica.com/products

Thank You !

Questions?