

THE RELEASE OF OSIRIS PUBLIC DOMAIN SOFTWARE FOR DNA PROFILE QUALITY ASSURANCE

Authors: Lisa Forman Neall (NCBI), Robert Goor (NCBI), Douglas Hoffman (NCBI), Stephen Sherry (NCBI), Kerry Zbicz (NCBI), Michael Coble (AFDIL), Margaret Kline (NIST), Becky Hill (NIST), and John Butler (NIST)

Analysis

Select All Clear Selection Cancel Selection Cancel All Resnallyze Selection... View Selection

ocuments\Osiris\0831\Identifiler\STRbaseIF\MIX05case1_victim.png | Browse..

✓ View File Location

OK Cancel Preview

OK Cancel Preview

Osiris analysis report (.oar) remains

Osiris edited report (.oer) maintains

Change artifacts to peaks and vice

Apply Cancel

Remove peaks & /or artifacts

Annotate/document changes

2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 44

Time (seconds)

Peak Editing

versa

unchanged

audit record

Stand-alone Open Source Software

 Installs automatically when downloaded from:

http://www.ncbi.nlm.nih.gov/ projects/SNP/osiris/

 Documented with NIST Mix 05 .fsa files included as a tutorial

Nove Uses

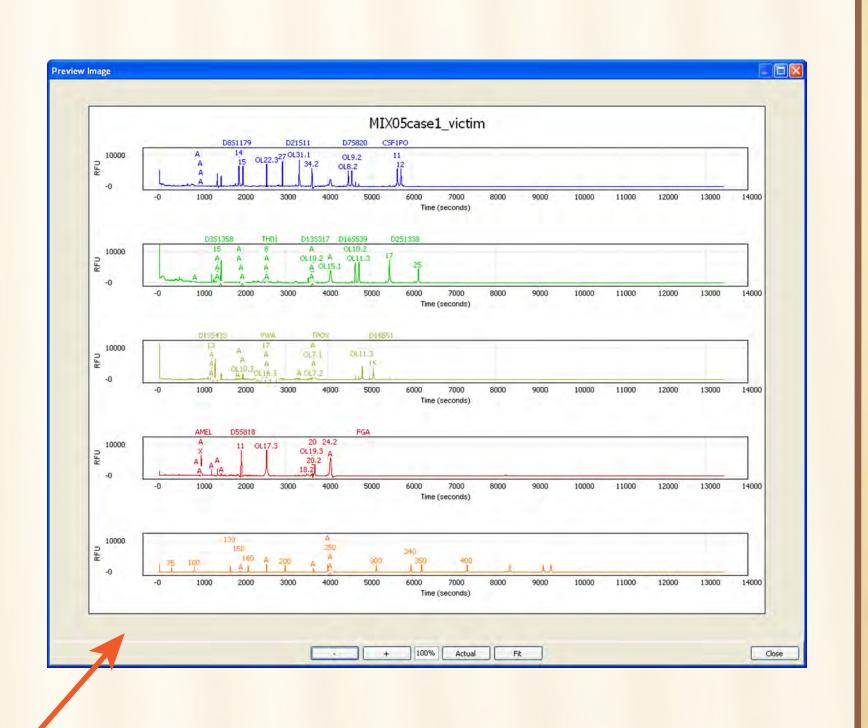
- Contract development & compliance
- Training tool
- Metric goal setting
- Protocol development
- Hardware monitoring

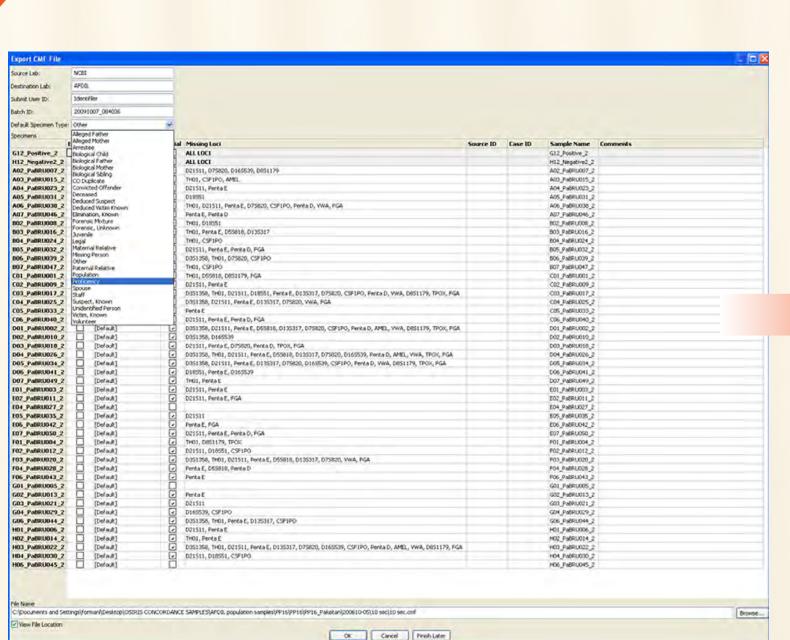
Data collected from multiple metrics

Graph Preview	Edit	Hist	tory So	et Parame	eters Dis	splay: Al			CMF	RIS\John Butler\STRBase Interlab MIX			
	ILS	Channels	D851179-1	D21511-1	D75820-1	CSF	Affeles BPS		351358-2		TH01-2	D135317-2	D165539
dentifiler LADDER		1, 2, 3, 4	?	?	?		RFU Time				?	?	?
ositive control(2)		1, 2, 3, 4	13, 13	30, 30	10, 11		Peak Ar	ea			8, 9.3	11, 11	11, 12
4IX05case3_victim		2, 4	15, 15	29, 30	8, 13	10, 1	11	17, 18			8,9	10, 12	12, 12
4IX05case4_evidence	xx	1, 2, 3	12, 13	28, 32	9, 11	10, 1	2	OL9.1,	OL10.1, 1	5, 16	9.3, 9.3	13, 13	11, 11
4IX05case4_victim		1, 2, 3, 4	12, 13	28, 32	9, 11	10, 1	2 15, 16				9.3, 9.3	13, 13	11, 11

Laboratory Settings Security Enabled: changes require authorization File name recognition for controls, ladders and custom samples File Name Settings Allele Exception Settings SIRIS Lab Settings File Names Thresholds Allele Exceptions File Names Thresholds Allele Exceptions Enter control-specific elements of file names for identification Elimination, Known Forensic Mixture Forensic, Unknown Threshold settings File Names Thresholds Allele Exceptions File Names Thresholds Allele Exceptions Minimum RFU: Max. pull-ups per sample: Max, stutter per sample: Fraction of max. peak: 0.4 Adenylation threshold: 0.3333 Save Cancel Save Cancel < Back Next > Save Cancel File Parameters Sets the parameters used for the current analysis Stores run information for easy recall during analysis Can be changed "on the fly" by analyst OK Cancel Sensitivity Familiarity with OSIRIS allows labs to identify best settings for their conditions Change RFU 12,15 95,022 10,11 7,10 16,17 7,16 10,11 10,21 10,32 15,18 7,11 12,15 17,10 12,15 18,27 13,19 15,18 7,11 12,15 17,10 12,15 18,27 13,19 15,18 12,18 18, 13 29,29 10,10 12,12 16,16 6,9 11,12 11,11 16,17 11,13 17,17 10,11 12,14 7,1 11,11 24,24 13 20,32.2 6,10 7,10 15,15 7,9.3 12,14 10,15 17,21 13,13 15,15 6,10 17,18 7,1 6,13 20,24 14 26,30.2 11,12 30,12 16,17 6,8 12,12 9,10 20,22 12,13 16,18 11,11 19,19 7,1 11,13 20,25

Multiple batch processing of .fsa files Multiple kit support Peak location and quality assessment Independent algorithm Graphical display CODIS CMF 3.2 and graphic file export





Acknowledgements

Duplicate profiles were generated at NIST using both Powerplex16 and Identifiler

- 1 non-concordant sample between kits attributed to a reannealing of the

Forensic Science International: Genetics 2 (2008) 257-273, McLaren et al

OSIRIS Export into LISA

OSIRIS CMF Export File uploaded into AFDIL's Laboratory Information Systems

- Test set of full profiles to assure concordance using AFDIL's ASAP program

- XML integrated appropriately into the corresponding samples contained in LISA

unlabled, unincorporated vWA primer in Pre-Powerplex16HS kits as

reagent kits and the .fsa files analyzed by OSIRIS.

OSIRIS CMF format produced valid XML

592 Identifiler profiles (missing some files)

- 752 Powerplex 16 profiles (52 duplicates)

0 Discordancies identified

Proof of Demonstration

Applications (LISA)

documented in:

We thank Jennifer Luttman, Taylor Scott, Mandy Sozer, Chris Carney, Demris Lee and Mas Kimura for their time discussing OSIRIS and our State and local collaborators from Alabama, New York City, Miami, Ohio and Palm Beach, Florida. We also thank Jalinda Hull for her always excellent administrative assistance.

Work at NCBI is supported by the Intramural Research Program of the NIH, National Library of Medicine.







