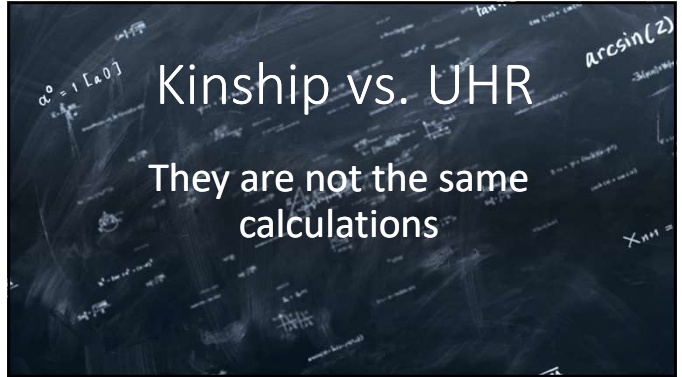


BRUTUS
GRAPHICAL KINSHIP CALCULATOR

Kinship vs. Unidentified Human Remains
kharman@genetictechnologies.com

1



Kinship vs. UHR
They are not the same calculations

2

Kinship has been used as a proxy for UHR

Probably because:
Kinship and UHR results are the same for simple pedigrees.
When using the Kinship Proxy for UHR calculations it is typical to question every relationship touching the UHR sample.

3

PAR A 2006

Calculation Paper Challenge

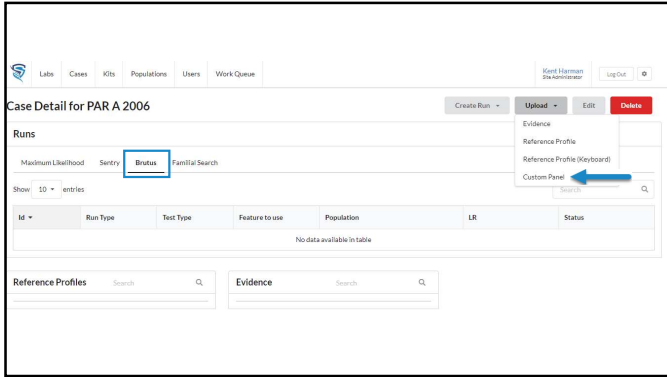
Skeletal remains are found in the desert near Las Vegas that appear to be from a male individual who can not otherwise be identified. During their investigation, authorities identify a woman of Hispanic ethnicity who is missing a son. Samples are obtained from the woman and her daughter (who are the undisputed mother and sister of the **missing** boy). The DNA typing results shown below were obtained from the woman, her daughter, and a sample from the **skeletal remains**.

Locus*	Autosomal STRs			Allele Frequencies
	Alleged Mother	Alleged Sister	Sample from (skeletal remains)	
DBS1179	14,15	11,14	14,15	11=0.091; 14=0.280; 15=0.090
DD1511	30,31,2	30,31,2	30,31,2	30=0.310; 31=0.103
D7S820	11,12	11	11,12	11=0.310; 12=0.180
CSF1PO	10,12	10	10,12	10=0.254; 12=0.392
D5S1588	15	15	15	15=0.344
D13S317	12	9,12	9,12	9=0.195; 12=0.239
D19S433	14	14,15,2	14,15,2	14=0.317; 15,2=0.088
TPOX	8	8	8	8=0.555
D16S51	10,14	10,14	14,17	10=0.011; 14=0.184; 17=0.162
FGA	20,28	21,26	23,26	20=0.193; 21=0.137; 23=0.158; 26=0.103

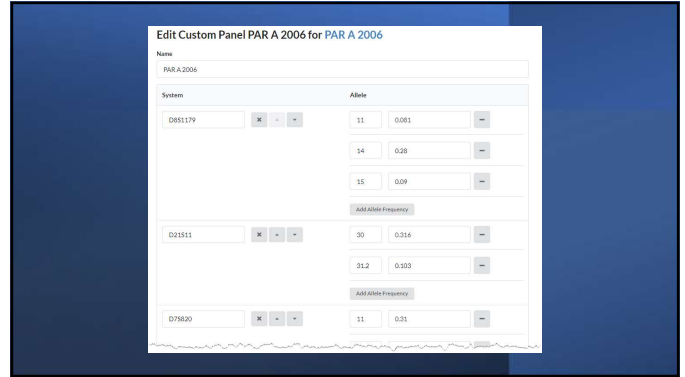
*The nature of the sample obtained from the skeletal remains precluded obtaining results from all loci.

[Kinship in Brutus](#)

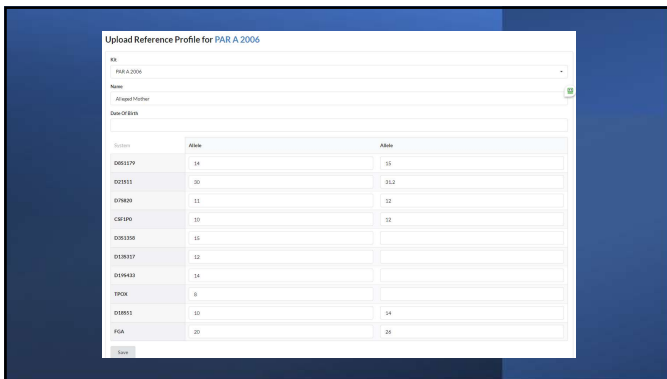
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5



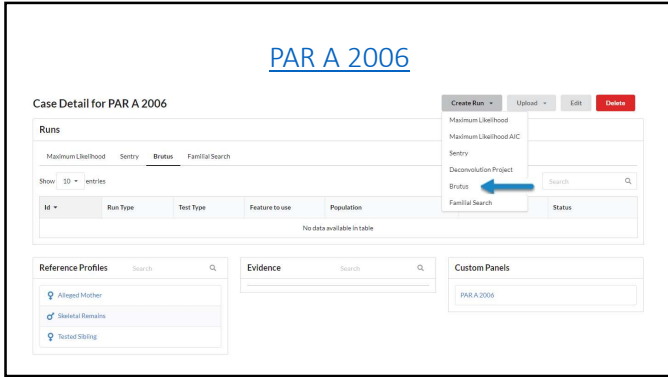
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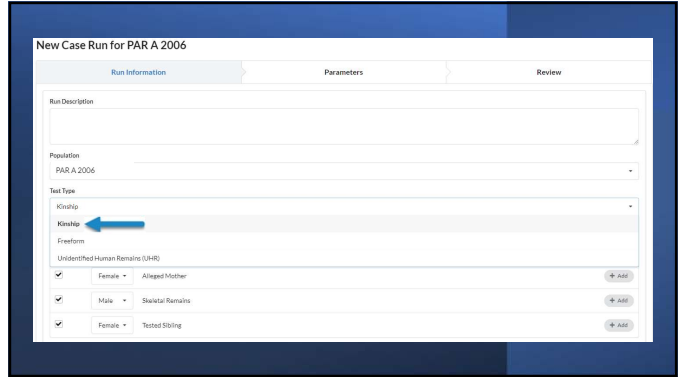
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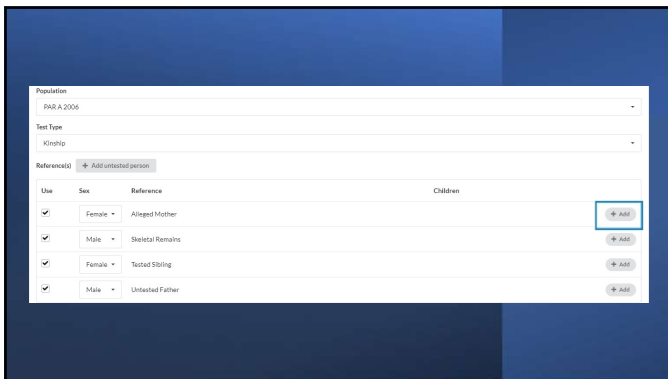
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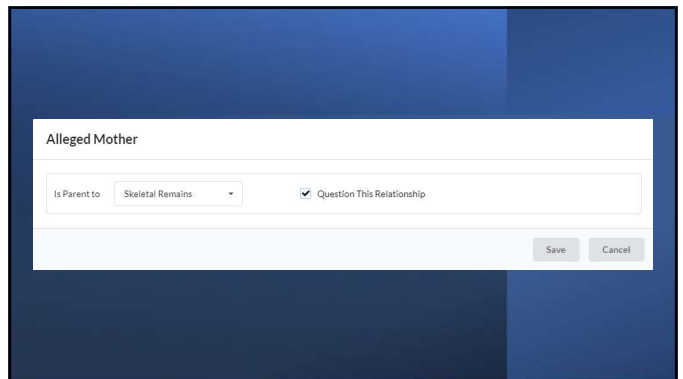
9



10



11



12

Alleged Mother

Is Parent to: Tested Sibling Question This Relationship

Save Cancel

13

Untested Father

Is Parent to: Skeletal Remains Question This Relationship

Save Cancel

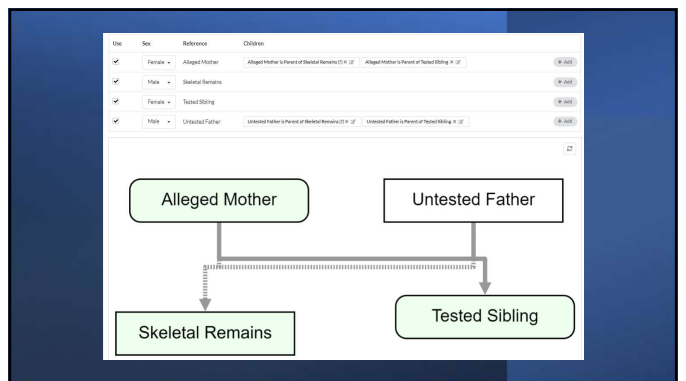
14

Untested Father

Is Parent to: Tested Sibling Question This Relationship

Save Cancel

15



16

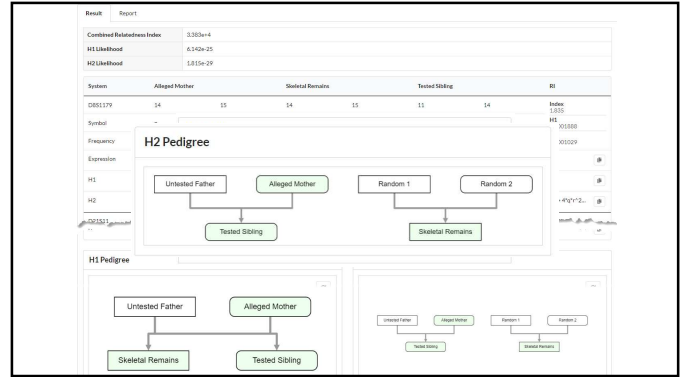
New Case Run for PAR A 2006

Run Information Parameters Review

Parameter	Value
Feature to use	None
Use Population Substructure	<input type="checkbox"/>
Use Marker Specific MU Settings	<input type="checkbox"/>
Female MU	0.001
Male MU	0.0035
Prior Probability	0.5
Rare allele frequency type	BP

Next

17



18

New Case Run for PAR A 2006

Run Information Parameters Review

Run Description

Population: PAR A 2006

Test Type: Unidentified Human Remains (UHR) ←

Reference(s) Add untested person

Use	Sex	Reference	Children	Missing person
<input checked="" type="checkbox"/>	Female	Alleged Mother	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Male	Skeletal Remains	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Female	Tested Sibling	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Male	Untested Father	<input type="checkbox"/>	<input type="checkbox"/>

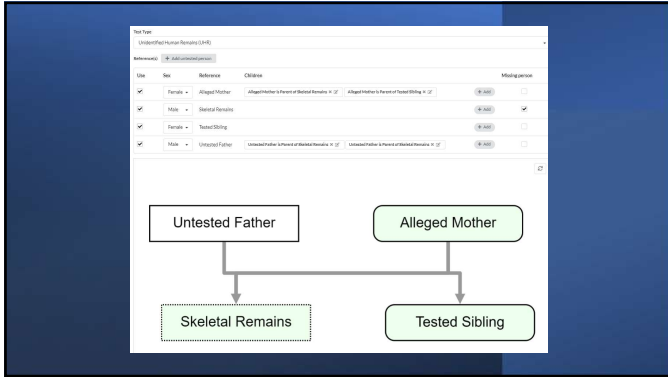
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Alleged Mother

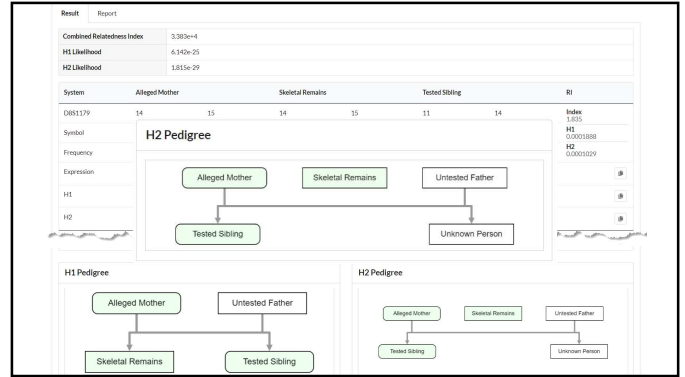
Is Parent to: Skeletal Remains

Save Cancel

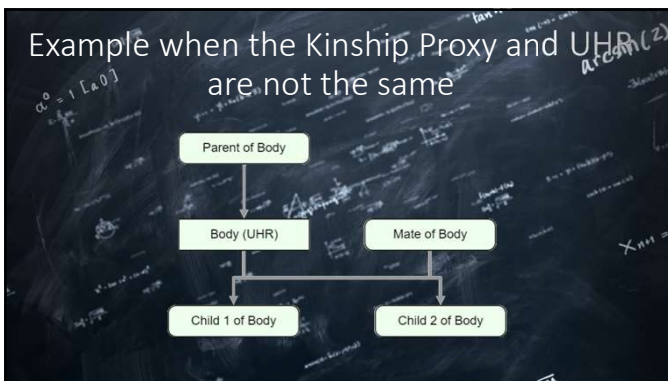
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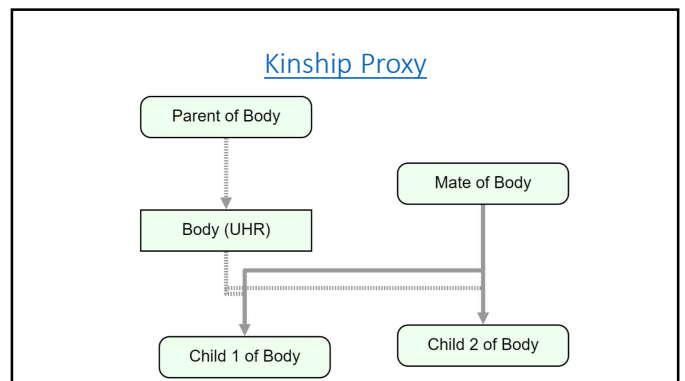
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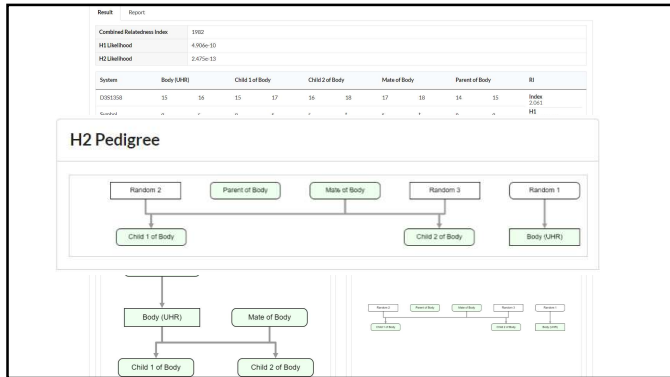
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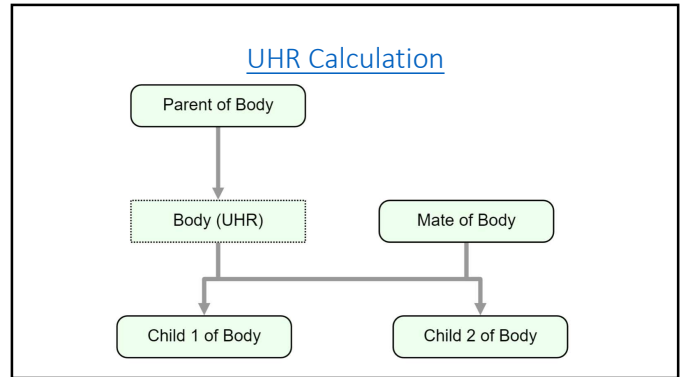
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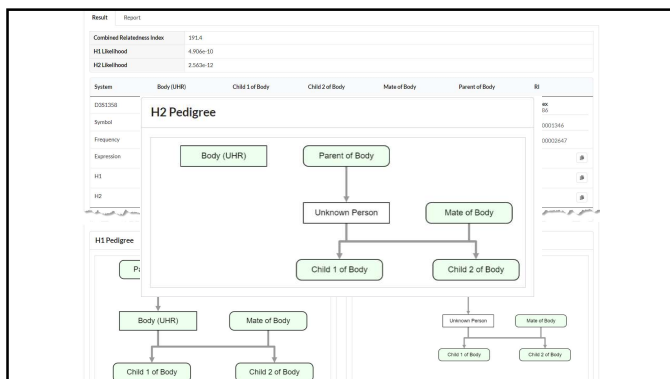
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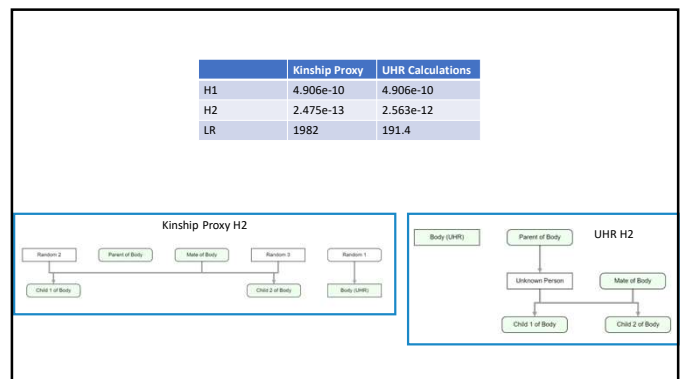
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26



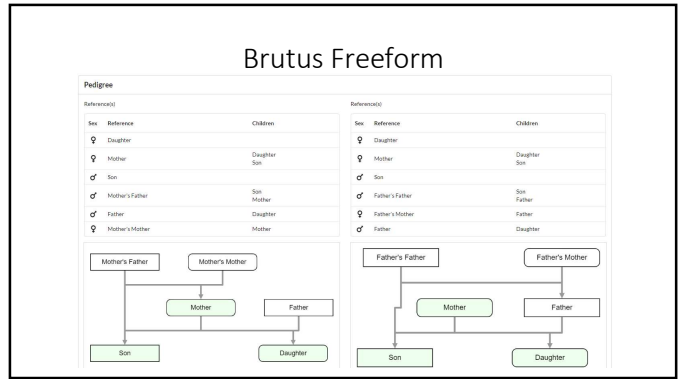
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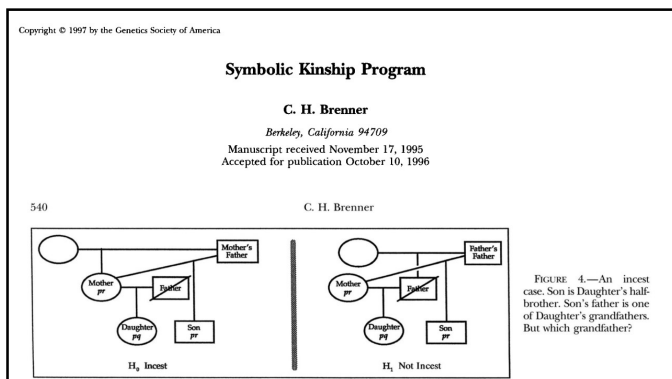
28



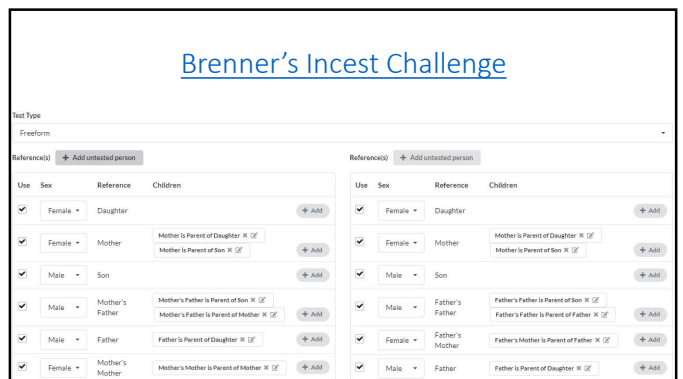
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Brutus Freeform

Run 27694 Details Close Print Export Demo

Information Results

Result Report

Case/Study/Reference Index: 0100
 H1 Method: 1270-10
 H2 Method: 6106-14

System	Yule-1	Yule-2	HL
000011	12	12	12
Symbol	#	#	#
Frequency	0.0000000	0.0000000	0.0000000
Expression	[1] 12 12 12		
H1	[1] 12 12 12		
H2	[1] 12 12 12		
000129	11	11	11
Symbol	#	#	#
Frequency	0.002100	0.002100	0.04100
Expression	[1] 11 11 11		
H1	[1] 11 11 11		
H2	[1] 11 11 11		

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MPS Data Anyone?

BP Brutus is ready for you!

Edit Reference Profile Ref L for MPS Demo Close Download Demo


Information

Name: Sam
 RA: Fred/Red
 Contact: 1111202
 Email: sam@genetic.com
 Address: 123
 Sex: Male
 Date of Birth: 11/11/11

Markers

Marker	RA	HL
000010	12,14,10	14,11,10
000011	12,14,10	14,11,10
000012	12,14,10	14,11,10
000013	12,14,10	14,11,10
000014	12,14,10	14,11,10
000015	12,14,10	14,11,10
000016	12,14,10	14,11,10
000017	12,14,10	14,11,10
000018	12,14,10	14,11,10
000019	12,14,10	14,11,10
000020	12,14,10	14,11,10

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Sentry
PROBABILISTIC GENOTYPING
FORMERLY BulletProof

Email Address

Password

Login

[Forgot Password?](#) | [Request Access](#)

kharman@GeneticTechnologies.com

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