



GRUPO DE HABLA ESPAÑOLA Y PORTUGUESA DE LA ISFG

GRUPO DE LÍNGUAS ESPANHOLA E PORTUGUESA DA ISFG


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INTERCOMPARISON PROGRAM

“ANALYSIS OF DNA POLYMORPHISMS IN BLOODSTAINS AND OTHER BIOLOGICAL SAMPLES”

ADVANCED LEVEL**EXERCISE Nr 20 (2012)****DEADLINE: 27-04-2012**

Forensic Paper Challenge

Participants are asked to solve the proposed paper challenge

4. Kinship paper challenge

4.1. Approach

- It deals with a typical kinship trio. Alleged father and mother are not related. The trio typing is performed and the following STR profiles are obtained.
- The aim is to calculate the LR (Likelihood Ratio) value for the paternity of the alleged father with respect to the child.
- Use the allele frequencies provided in the Appendix.
- One step mutation rate for D3S1358= 1×10^{-3}
- Silent allele frequency for D3S1358= 5×10^{-3}

	Alleged father	Child	Mother
CSF1PO	12	12/13	12/13
D13S317	9/12	8/9	8/12
D16S539	9/10	9/14	12/14
D18S51	14	12/14	12/16
D21S11	32/33.2	32/32.2	28/32.2
D3S1358	15	16	15
D5S818	10/11	9/10	9/11
D7S820	10/11	9/11	9/11
D8S1179	12/14	13/14	13
FGA	24	23/24	23/25
Penta E	16/20	11/16	11/14
Penta D	9/13	9/13	11/13
TH01	7	6/7	6/7
TPOX	10/11	8/11	8
VWA	16/18	18	16/18
AMEL	XY	XY	X

4.2 Are these results consistent with the biological paternity of the alleged father to the child?

 Yes

4.3 Report the LR values for each marker and the total LR value.

TABLE 8

Report the values with four decimal places using comma as the decimal separator, round off the obtained values and report them in scientific notation (Excel format). Ex. 4,5674421 should be reported as 4,5674E+00; 0,1234567 should be reported as 1,2346E-01.

	LR
CSF1PO	
D13S317	
D16S539	
D18S51	
D21S11	
D3S1358	
D5S818	
D7S820	
D8S1179	
FGA	
Penta E	
Penta D	
TH01	
TPOX	
VWA	
TOTAL LR	

4.4 Indicate the software you used to carry out the statistical calculations.

Please, remember that a paper copy of the records generated by the software used for statistical calculations must be submitted.

5. Forensic Paper Challenge

5.1. Instructions

If you consider necessary to compute the LR (Likelihood Ratio) and/or MI (Maternity Index): for autosomal STRs, use the population database provided in the Appendix; for mitochondrial DNA, please use the EMPOP database, selecting the following parameters:

- a) *Disregard indels in length variants at positions 16193, 309, 455, 573*
- b) *Source: Forensic + Literature data*
- c) *Geographic affiliation: EUROPE; Metapopulation: All*

5.2. Approach

A mother reported her missing son (Individual A). In order to facilitate a possible identification of this individual A in the future, the mother gave a biological sample (**Sample 1**) and also provided personal belongings of the missing son (**Sample 2**).

5.2.1. Would you analyze both samples?

Yes ☐

No ☐

5.2.2. If your response above is NO, please indicate the sample you would analyze:

Sample of the mother (Sample 1)

☐

Personal belongings of the missing son (Sample 2)



Two months later, an unidentified human body is found in Madrid. The authorities consider the hypothesis that these remains could belong to the son of the woman who reported the missing. A biological sample is taken from the body (Sample 3). The genetic analysis results are displayed in the following tables:

AUTOSOMAL STRS									
Sample	<i>D8S1179</i>	<i>D21S11</i>	<i>D7S820</i>	<i>CSF1PO</i>	<i>D3S1358</i>	<i>TH01</i>	<i>D13S317</i>	<i>D16S539</i>	<i>Penta E</i>
Sample of the mother (Sample 1)									
1	8/10	29/30	8/11	11	15/18	9.3	11/12	11/12	7/13
Personal belongings of the missing son (Sample 2)									
2	10/12	28/30	NR	NR	16/18	6/9.3	11/12	NR	NR
Biological sample from the human remains (Sample 3)									
3	10/12	28/30	11	11/12	16/18	6/9.3	11/12	11/12	13

NR = No results

AUTOSOMAL STRS									
Sample	<i>D2S1338</i>	<i>D19S433</i>	<i>VWA</i>	<i>TPOX</i>	<i>D18S51</i>	<i>Amel</i>	<i>D5S818</i>	<i>FGA</i>	<i>Penta D</i>
Sample of the mother (Sample 1)									
1	17/24	14/16	16/17	8/11	15/17	X	11/13	20/23	12/13
Personal belongings of the missing son (Sample 2)									
2	NR	15/16	16/17	8/11	NR	XY	11/12	NR	NR
Biological sample from the human remains (Sample 3)									
3	24	15/16	16/17	8/11	12/15	XY	11/12	23/25	12

NR = No results

MITOCHONDRIAL DNA		
Sample	Edition	Haplotypes
Sample of the mother (Sample 1)		
1	16024-576	16126C 16294T 16304C 16519C 73G 152Y 263G 315.1C
Personal belongings of the missing son (Sample 2)		
2	16024-576	16126C 16294T 16304C 16519C 73G 263G 315.1C
Biological sample from the human remains (Sample 3)		
3	16024-576	16126C 16294T 16304C 16519C 73G 263G 315.1C

5.2.3. Compute LR_s and/or MI_s that you would consider necessary according to your response to the first question and specify your hypotheses.

Please, remember that a paper copy of the records generated by the software used for statistical calculations must be submitted.

5. Remarks about this exercise**6. Suggestions for subsequent exercises**

The analyses, the generated results and their statistical evaluation have been performed **in the facilities of the participating laboratory** and by its own staff, following working protocols used in routine casework together with safety precautions. In accordance with the donors' consent, **these samples will be processed anonymously and used exclusively** for the Intercomparison Exercise GHEP-ISFG 2012.

Name of the person in charge

Date and signature

WOULD YOU LIKE TO RECEIVE A CERTIFICATE OF PARTICIPATION?

Kinship Module (Advanced level) (Yes/No)	Forensic Module (Advanced level) (Yes/No)

Note.- In order to receive the certificate of participation you must return this authorization duly signed.