

## Cromossomas sexuais: discussão dos resultados



Hundertwasserhaus (Viena)



Grupo de Habla Española  
y Portuguesa de la  
International Society for  
Forensic Genetics

## XVI Jornadas del GHEP-ISFG

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Universidad de Viena  
Dr. Karl Lueger Ring 1, A-1010 Viena

Leonor Gusmão

## Y-STRs - básico

Marcador	n	M2	M3	
DYS_456	63	16	16	C
DYS_456	1	17	17	D
DYS_389_I	86	13	13	C
DYS_390	86	23	23	C
DYS_389_II	84	29	29	C
DYS_389_II	1		29	NH
DYS_458	65	15	15	C
DYS_458	1	29	29	D
DYS_19	85	15	15	C
DYS_19	1		15	NH
DYS_385	84	11/14	11/14	C
DYS_385	1	11-14	11-14	N
DYS_393	86	13	13	C
DYS_391	86	12	12	C
DYS_439_GATA_A4	85	13	13	C
DYS_635_GATA_C4	67	23	23	C
DYS_392	84	13	13	C
DYS_392	1		13	NH
GATA_H4	59	12	12	C
GATA_H4	5	28	28	C
GATA_H4	2	21	21	C
GATA_H4	1	21*	21*	C
GATA_H4.1	1	21	21	C
DYS_437	85	15	15	C
DYS_438	85	12	12	C
DYS_448	65	19	19	C
DYS_460_GATA_A71	5	10	10	C
DYS_461_GATA_A72	4	12	12	NC
GATA_A10	5	15	15	C
DYS_388	1	12	12	NC



### Resumo

Laboratórios	86	
Determinações (consenso)	2560	
Erros	4	0,16%
Laboratórios con erros	2	2,33%

Y-STRs

M2=M3=M5 (D1+D3)



Evaluación individual

Precinto	Marcador	M2	M3	M5
23246	DYS_456	17	17	17
23246	DYS_389_I	13	13	13
23246	DYS_390	23	23	23
23246	DYS_389_II	29	29	29
23246	DYS_458	15	15	15
23246	DYS_19	15	15	15
23246	DYS_385	11/14	11/14	11/14
23246	DYS_393	13	13	13
23246	DYS_391	12	12	12
23246	DYS_439_GATA_A4	13	13	13
23246	DYS_635_GATA_C4	23	23	23
23246	DYS_392	13	13	13
23246	GATA_H4	12	12	12
23246	DYS_437	15	15	15
23246	DYS_438	12	12	12
23246	DYS_448	19	19	19

AMOSTRAS

DE

REFERÊNCIAS!

Y-STRs



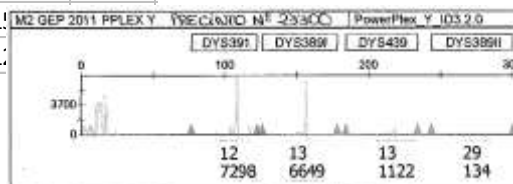
Evaluación individual

Preci	Marcador	M2	M3
23300	DYS_389_I	13	13
23300	DYS_390	23	23
23300	DYS_458	29	29
23300	DYS_19	15	15
23300	DYS_385	11/14	11/14
23300	DYS_393	13	13
23300	DYS_391	12	12
23300	DYS_439_GATA_A4	13	13
23300	DYS_392	13	13
23300	DYS_437	15	15
23300	DYS_438	12	12

REVISÃO

DOS

RESULTADOS!



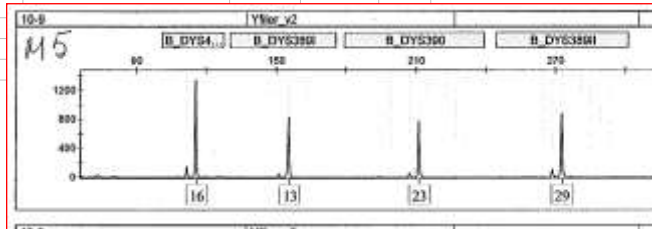
## Y-STRs



## Evaluación individual

Orden	Precinto	Marcador	M2	M3	M5
36	23359	DYS_456	16	16	16
37	23359	DYS_389_I	13	13	16
38	23359	DYS_390	23	23	23
39	23359	DYS_389_II	29	29	29
40	23359	DYS_458	15	15	15
41	23359	DYS_19	15	15	15
42	23359	DYS_385	11/14	11/14	11/14
43	23359	DYS_393	13	13	13
44	23359	DYS_391	12	12	12
45	23359	DYS_439_GATA_A4	13	13	13
46	23359	DYS_635_GATA_C4	23	23	23
47	23359	DYS_392	13	13	13
48	23359				
49	23359				
50	23359				
51	23359				

REVISÃO  
DOS  
RESULTADOS!



## X-STRs



Precinto	Orden	Marcador	M1	M2	M3	M4	M5	M1-Ref	M2-Ref	M3-Ref	M4-Ref	Ref M5
23275	63	DXS6809	32.1	34.1	32.1	30/34.1	32.1	32	34	32	30/34	32
23230	64	DXS7132	13/16.1	14	16.1	14	13/16.1	13/16	14	16	14	13/16
23275	64	DXS7132	13/16.3	14	16.3	14	13/16.3	13/16	14	16	14	13/16
23275	65	DXS9902	13.1	11	13.1	11/12.1	13.1	13	11	13	11/12	13
23234	66	DXS6789	20	22	20	15.2/22	20	20	22	20	15/22	20
23296	66	DXS6789	20	22	20	14/22		20	22	20	15/22	20
23290	68	DXS10134	34/36	35	36	33/39.3	34/36	34/36	35	36	33/40.3	34/36
23279	69	DXS10074	10	18	10	17/18	10	8	18	8	17/18	8
23263	63	DXS6809	32	33	32	31/33	32	32	34	32	30/34	32
23298	63	DXS6809	32	32	32	30/34		32	34	32	30/34	32
23263	66	DXS6789	20	12	20	15/22	20	20	22	20	15/22	20

## Resumo

Laboratórios	41	
Determinações (consenso)	1616	
Erros	25	1,55%
Laboratórios con erros	8	19,51%

## X-STRs



Resultados M1-M5							
Precint	Orden	Marcador	M1	M2	M3	M4	M5
23275	63	DXS6809	32.1	34.1	32.1	30/34.1	32.1
23230	64	DXS7132	13/16.1	14	16.1	14	13/16.1
23275	64	DXS7132	13/16.3	14	16.3	14	13/16.3
23275	65	DXS9902	13.1	11	13.1	11/12.1	13.1

**BINS!**

**REFERÊNCIAS!**

É **MUITO IMPORTANTE** ter em conta que existem diferenças de mobilidade entre diferentes aparelhos, pelo que é necessário tipar amostras de referência para AJUSTE dos "bins" de acordo com as condições de corrida e aparelho de cada laboratório.

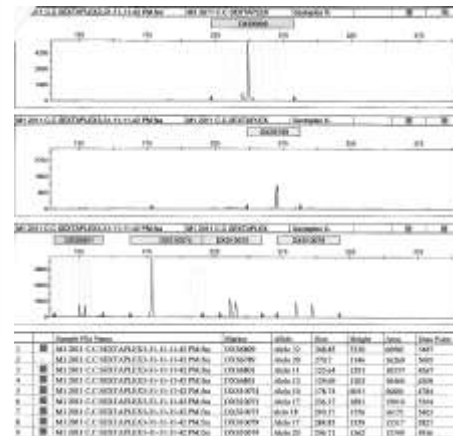
## X-STRs





Resultados M1-M5					
Marcador	M1	M2	M3	M4	M5
DXS8378	11/12	10	12	10	11/12
DXS9898	12	11	12	11/12	12
DXS7133	9/11	11	11	9/11	9/11
GATA31E08	9/13	9	9	12/13	9/13
GATA172D05	8/12	6	8	8/9	8/12
DXS7423	14/15	13	15	14	14/15
DXS6809	32	34	32	30/34	32
DXS7132	13/16	14	16	14	13/16
DXS9902	13	11	13	11/12	13
DXS6789	20	8	20	8	20
DXS10074	10	18	10	8	10
DX10075	17/18	19	17	18	17/18
DX6801	11/12	11	11	11/14	11/12
DX10079	17/20	18	20	17/19	17/20

**REFERÊNCIAS!**

**BINS?**



Y-STRs: M9 =  +  D2



n	Marcador	M9	M2	
4	DYS_456	16	16	C
4	DYS_389_I	13	13	C
3	DYS_390	23	23	C
4	DYS_389_II	29	29	C
4	DYS_458	15	15	C
4	DYS_19	15	15	C
4	DYS_385	11/14	11/14	C
5	DYS_393	13	13	C
5	DYS_391	12	12	C
4	DYS_439_GATA_A4	13	13	C
3	DYS_635_GATA_C4	23	23	C
3	DYS_392	13	13	C
3	GATA_H4	12	12	C
1	GATA_H4	28	12 - 21 / 28	N - está correcto
4	DYS_437	15	15	C
3	DYS_438	12	12	C
3	DYS_448	19	19	C

\* 61 determinações consensuadas com base na M2

X-STRs: M9 =  +  D2



Evaluación individual					
Orden	Precinto	Marcador	M9	M2	
57	23258	DXS8378	10	10	C
57	23269	DXS8378	10	10	C
58	23258	DXS9898	11	11	C
58	23269	DXS9898	14	11	D
59	23258	DXS7133	11	11	C
59	23269	DXS7133	9/11	11	D
60	23258	GATA31E08	9	9	C
60	23269	GATA31E08	5	9	D
61	23258	GATA172D05	6	6	C
61	23269	GATA172D05	6/8/11	6	D
62	23258	DXS7423	13	13	C
62	23269	DXS7423	13/16	13	D
63	23258	DXS6809	34	34	C
63	23269	DXS6809	33	34	D
64	23258	DXS7132	14	14	C
64	23269	DXS7132	6	14	D
65	23258	DXS9902	11	11	C
65	23269	DXS9902	11	11	C
66	23269	DXS6789	19/21	22	D

Y-STRs: M8 = D2 + D4 + D6

CuentaDePr	Marcador	M8	M2	D6
35	DYS_456	15/16	16	15
1	DYS_456	15	17	
1	DYS_456	16		
1	DYS_456	16/17		
1	DYS_456	14/15/16		
41	DYS_389_I	13/14	13	14
1	DYS_389_I	14		
1	DYS_389_I	11/13/14		
39	DYS_390	23/24	23	24
1	DYS_390	24		
1	DYS_390	22/23/24		
1	DYS_390	23/24		
38	DYS_389_II	29/31	29	31
2	DYS_389_II	31		
2	DYS_389_II	29/30/31		
1	DYS_389_II	19/30/31		
37	DYS_458	15/18	15	18
1	DYS_458	18	29	
1	DYS_458	15/17/18		
41	DYS_19	14/15	15	14
1	DYS_19	14		
42	DYS_385	11/14	11/14	11/14
42	DYS_393	13	13	13
1	DYS_393	12/13		
41	DYS_391	10/12	12	10
1	DYS_391	10		
1	DYS_391	9/10/12		
40	DYS_439_GATA_A4	12/13	13	12
1	DYS_439_GATA_A4	12		
1	DYS_439_GATA_A4	13		
39	DYS_635_GATA_C4	23	23	23
41	DYS_392	13	13	13
1	DYS_392	13/14		
35	GATA_H4	11/12	12	11
2	GATA_H4	27/28		
1	GATA_H4	20/21		
1	GATA_H4	20/21*		
1	GATA_H4	11		
1	GATA_H4	27		
1	GATA_H4.1	20		
42	DYS_437	14/15	15	14
1	DYS_437	14		
42	DYS_438	12	12	12
1	DYS_448	18/19	19	18
1	DYS_448	18		

X-STRs

M8

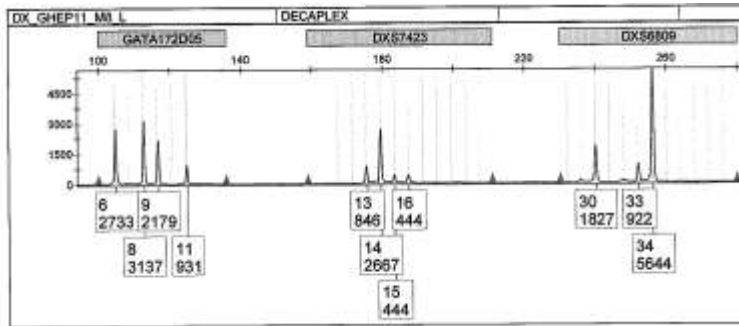
Resultados M8

Orden	Marcador	n	M8
57	DXS8378	12	10/12
57	DXS8378	1	12
58	DXS9898	13	11/12/14
58	DXS9898	1	14
59	DXS7133	6	9/10/11
59	DXS7133	6	9/11
59	DXS7133	1	9
60	GATA31E08	8	9/11/12/13/14
60	GATA31E08	4	9/12/13
60	GATA31E08	1	13
61	GATA172D05	10	6/8/9/11
61	GATA172D05	3	6/8/9
61	GATA172D05	1	6
62	DXS7423	9	13/14/15/16
62	DXS7423	4	13/14/16
62	DXS7423	1	13/14
62	DXS7423	1	16
63	DXS6809	7	30/33/34
63	DXS6809	4	30/34
63	DXS6809	1	31/33/34
63	DXS6809	1	34
64	DXS7132	9	12/13/14
64	DXS7132	5	14
64	DXS7132	1	12/13/14/16
65	DXS9902	12	11/12/13
65	DXS9902	1	13
66	DXS6789	10	15/21/22
66	DXS6789	1	15.2/21/22
66	DXS6789	1	15/20/21/22
66	DXS6789	1	21

X-STRs

M8

23219 DX S6809		30/34
23226 DX S6809		30/34
23230 DX S6809		30/33/34
23231 DX S6809		30/33/34
23232 DX S6809		30/33/34
23234 DX S6809		30/33/34
23246 DX S6809		30/33/34
23255 DX S6809		30/33/34
23258 DX S6809		30/34
23263 DX S6809		31/33/34
23269 DX S6809		30/34
23269 DX S6809	FE	34
23351 DX S6809		30/33/34



X-STRs

DXS6809

Allele structure: (CTAT) <sub>n</sub> (ATCT) <sub>m</sub> N <sub>1</sub> (TATC) <sub>k</sub> (ATCT) <sub>l</sub> N <sub>2</sub> (ATCT) <sub>p</sub>	n	Reported in
27 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> (CTAT) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
27 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	CAF
28 (1) (2bp-4bp) (CTAT) <sub>2</sub> ATAT (CTAT) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
28 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	2	CAF
29 (1) (2bp-4bp) (CTAT) <sub>2</sub> ATAT (CTAT) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
29 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
29 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	CAF
29 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	CAF
30 (1) (2bp-4bp) (CTAT) <sub>2</sub> ATAT (CTAT) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
30 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
30 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	CAF
30 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	CAF
30A (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	2	AFB
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	CAF
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	CAF
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	4	AA, CAF
31A (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	2	AFB, CAF
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	3	AA, CAF
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AA
31A (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	3	AA, CAF
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AA
31A (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	4	AFB
31A (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	1	AFB
31 (1) (2bp-4bp) (CTAT) <sub>2</sub> (ATCT) <sub>1</sub> N <sub>1</sub> (TATC) <sub>1</sub> (ATCT) <sub>1</sub> N <sub>2</sub> (ATCT) <sub>1</sub> (4bp-10bp) (C)	6	AFB, CAF, AA