

## FOR THE RECORD

*J. J. Builes,<sup>1,2</sup> M.Sc.; M. L. J. Bravo,<sup>1</sup> M.Sc.; M. A. Moreno,<sup>1,2</sup> MSc.; A. M. Gaviria,<sup>2</sup> Biol.; and C. Espinal,<sup>1</sup> Biol.*

# Genetic Data Analysis of HLA-DQA1 in Four Colombian Populations: Pereira, Armenia, Manizales, and Chocó

**POPULATION:** Pereira, Armenia, Manizales, and Chocó (Colombia).

**KEYWORDS:** forensic science, DNA typing, population genetics, HLA-DQA1, Pereira, Armenia, Manizales, Chocó, Colombia

Blood samples from unrelated individuals of four Colombian populations (Pereira, Armenia, Manizales, and Chocó) were collected. DNA was extracted from 200  $\mu$ L of peripheral blood obtained from each individual by the salting-out procedure (1).

HLA-DQA1 locus was amplified and typed using the Ampli-Type<sup>®</sup> HLA-DQ $\alpha$ , PCR Amplification and Typing Kit (Perkin Elmer Corporation, Foster City, CA) according to the manufacturer's protocol.

Data were analyzed by using exact test (2), the Promega Software (POWERSTAS), the software GENEPOP Version 3.2a (3) and the software GDA Version 1.0 (4). The complete data set is available upon request from the Juan José Builes G, MSc., GENES Ltda., Lab. de Genética Forense y Huellas Digitales del DNA, Cra. 48 No. 10–45. Cons. 612, Medellín-Colombia. E-mail: genforense@epm.net.co.

<sup>1</sup> GENES Ltda, Laboratorio de Genética Forense y Huellas Digitales del DNA, Medellín-Colombia.

<sup>2</sup> Instituto de Biología, Universidad de Antioquia, Medellín-Colombia.

## References

1. Miller SA, Dykes DD, Polesky HF. A simple salting-out procedure for extracting DNA from human nucleated cells. *Nucleic Acids Res* 1988;16:1215.
2. Gou SW, Thompson EA. Performing the exact tests of Hardy Weimberg proportion for multiple alleles. *Biometrics* 1992;48:361–72.
3. Raymond M, Rousset F. GENEPOP (Version 1.2): population genetics software for exact tests and ecumenicism. *J Heredity* 1995;86:248–9.
4. Lewis PO, Zaykin D. Genetic data analysis: computer program for the analysis of allelic data. Version 1.0 (d16c). 2001. Free program distributed by the authors over the internet from <http://lewishome/software.html>

Additional information and reprint requests:

Juan José Builes G.  
GENES Ltda.  
Lab. de Genética Forense y  
Huellas Digitales del DNA  
Cra. 48 No. 10–45. Cons. 612.  
Medellín-Colombia  
Phone: (0574) 268 48 75  
Fax: (0574) 318 52 70  
E-mail: genforense@epm.net.co

TABLE 1—Observed HLA-DQA1 allele and genotype frequencies in four Colombian populations.

	Pereira		Armenia		Manizales		Chocó	
	Number	Frequency	Number	Frequency	Number	Frequency	Number	Frequency
<i>Allele</i>								
1.1	50	0.1042	68	0.1298	113	0.1527	38	0.1293
1.2	63	0.1313	67	0.1279	85	0.1149	97	0.3299
1.3	41	0.0854	38	0.0725	45	0.0608	15	0.0510
2	58	0.1208	63	0.1202	94	0.1270	16	0.0544
3	117	0.2438	133	0.2538	192	0.2595	24	0.0816
4	151	0.3146	155	0.2958	211	0.2851	104	0.3537
<i>n</i>	480		524		740		294	
<i>Genotype</i>								
1.1–1.1	2	0.0083	3	0.0115	8	0.0216	2	0.0136
1.1–1.2	6	0.0250	7	0.0267	10	0.0270	17	0.1156
1.1–1.3	5	0.0208	6	0.0229	9	0.0243	4	0.0272
1.1–2	6	0.0250	8	0.0305	13	0.0351	2	0.0136
1.1–3	13	0.0542	16	0.0611	25	0.0676	1	0.0068
1.1–4	16	0.0667	25	0.0954	40	0.1081	10	0.0680
1.2–1.2	4	0.0167	1	0.0038	4	0.0108	14	0.0952
1.2–1.3	6	0.0250	4	0.0153	5	0.0135	3	0.0204
1.2–2	7	0.0292	9	0.0344	11	0.0297	7	0.0476
1.2–3	13	0.0542	18	0.0687	25	0.0676	3	0.0204
1.2–4	23	0.0958	27	0.1031	26	0.0703	39	0.2653
1.3–1.3	3	0.0125	1	0.0038	0	0.0000	0	0.0000
1.3–2	3	0.0125	8	0.0305	5	0.0135	1	0.0068
1.3–3	12	0.0500	10	0.0382	13	0.0351	4	0.0272
1.3–4	9	0.0375	8	0.0305	13	0.0351	3	0.0204
2–2	5	0.0208	4	0.0153	9	0.0243	0	0.0000
2–3	16	0.0667	15	0.0573	22	0.0595	1	0.0068
2–4	16	0.0667	15	0.0573	25	0.0676	5	0.0340
3–3	13	0.0542	19	0.0725	29	0.0784	1	0.0068
3–4	37	0.1542	36	0.1374	49	0.1324	13	0.0884
4–4	25	0.1042	22	0.0840	29	0.0784	17	0.1156
<i>n</i>	240		262		370		147	

TABLE 2—Parameters of forensic interest for the HLA-DQA1 locus in four Colombian populations.

Parameter	Pereira	Armenia	Manizales	Chocó
Observed heterozygosity	0.783	0.809	0.786	0.769
Expected heterozygosity	0.793	0.797	0.796	0.740
HWE - Heterozygosity test (p)	0.273	0.790	0.428	0.859
Exact test ( <i>p</i> )	0.967	0.649	0.869	0.104
Power of Discrimination (PD)	0.926	0.927	0.928	0.875
Power of Exclusion (PE)	0.568	0.616	0.574	0.542
Matching Probability (MP)	0.074	0.073	0.072	0.125
Polymorphism Information Content (PIC)	0.760	0.770	0.760	0.700
Typical Paternity Index (TPI)	2.310	2.620	2.340	2.160