

## AYMARA AND QUECHUA AMERINDIAN POPULATIONS CHARACTERIZED BY HUMTH01 AND HUMVWA STR POLYMORPHISMS

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**Systems and Loci:** HUMTH01 (TC11, 11p15.5), HUMvWA (12p12-12pter).

**Populations and sample sizes:** Quechuas and Aymaras are two ancient precolumbian ethnic groups in South-America. Quechua samples (n= 68) were collected in Dalence (Oruro. Bolivia), and Aymara samples (n=80) in Pacajes and Murillo provinces (La Paz. Bolivia). DNA samples were obtained from single hairs.

**Methods:** Standard PCR amplifications were accomplished with fluorescein labelled primers. HUMTH01 primers (Edwards 1992) HUMVWA primers (Kimpton 1992). Electrophoretic methods: 6% polyacrylamide denaturing gel electrophoresis. The gels were run for 4h. at 1450 V, 38 mA, 45W, 50 °C and laser power at 3 mW on the ALF DNA Sequencer. The allelic ladders used were composed by a cocktail of samples with alleles of known size from each polymorphism.

### Results:

Table 1. Observed genotypes in a Aymara population sample.

HUMTH01		HUMVWA31	
6/6	3	14/15	1
6/7	21	14/16	2
6/9	2	15/16	4
6/9.3	5	15/17	3
7/7	36	15/20	1
7/9	1	16/16	8
7/9.3	11	16/17	17
9.3/9.3	1	16/18	3
		16/19	3
		17/17	9
		17/18	1
		17/19	2
Chi <sup>2</sup> = 4.42		Chi <sup>2</sup> = 18.74	
df= 6		df= 21	
0.750 > p > 0.500		0.650 > p > 0.600	

Table 2. Observed genotypes in a Quechua population sample.

HUMTH01		HUMVWA31	
6/6	1	15/16	1
6/7	15	15/17	1
6/9.3	3	15/18	1
7/7	26	16/16	3
7/9.3	6	16/17	17
9.3/9.3	7	16/18	5
		16/19	3
		17/17	16
		17/18	10
		17/19	4
		18/18	3
		18/19	2
Chi <sup>2</sup> = 4.61		Chi <sup>2</sup> = 2.59	
df= 3		df= 10	
0.250 > p > 0.100		0.995 > p > 0.975	

Table 3. Allele frequencies in a Aymara sample population.

Allele	HUMTH01 n= 80		Allele	HUMVWA31 n= 54	
	Freq.	bp. <sup>a</sup>		Freq.	bp. <sup>a</sup>
6	0.2125	184	14	0.0277	138
7	0.6562	188	15	0.0833	142
8	0		16	0.4166	146
9	0.1875	196	17	0.3796	150
9.3	0.1125	199	18	0.0370	154
10	0		19	0.0463	158
11	0		20	0.0092	162

(a) Fragment sizes determined automatically using Fragment Manager v.1.1 software Pharmacia

Table 4. Allele frequencies in a Quechua sample population.

Allele	HUMTH01 n= 68		Allele	HUMVWA31 n= 66	
	Freq.	bp. <sup>a</sup>		Freq.	bp. <sup>a</sup>
6	0.1470	184	14	0	
7	0.6103	188	15	0.0227	142
8	0		16	0.2424	146
9	0		17	0.4848	150
9.3	0.2426	199	18	0.1818	154
10	0		19	0.0681	158
11	0		20	0	

(a) Fragment sizes determined automatically using Fragment Manager v.1.1 software Pharmacia

Table 5. Forensic diagnosis suitability results.

	Aymara HUMTH01	Aymara HUMVWA31	Quechua HUMTH01	Quechua HUMVWA31
HI.	50	68.52	50	66.66
PD.	0.70	0.83	0.73	0.84
CE.	0.27	0.42	0.29	0.42
EM	9.78	9.65	9.79	9.68

**Comments:** The allelic frequencies, compared to other populations, show a high degree of variation between amerindians and caucasoids.

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### References

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