

SERUM GENETIC MARKERS IN SARDINIA.II. Gc AND PI IN CAGLIARI AND NUORO

Romano Petrucci(*), Piero Congedo(*),Ernesto D'Aloja (°),
and Vincenzo L.Pascali(°)

(*)Dept Genetics and Molecular Biology, University of Rome

(°)Istituto di Medicina Legale, Università Cattolica del S.
Cuore, Rome, Italy

This study is part of a general survey aimed at investigating the genetic variability of blood markers in Sardinia(1). Sardinia island was long since an isolated region where malignant malarian endemia would impress a peculiar selective pressure(2). For this reason special attention has been as yet paid by Anthropologists and Geneticists to the structure of Sardinian populations. Thus detailed maps are presently available of the distribution of erythrocyte markers (3). Conversely data are still lacking on further classes of markers, such as serum isoproteins. The purpose of this study is to contribute at filling the lack of data concerning two major isoprotein systems (Gc and PI) in Cagliari and Nuoro. One more reason to acquire more data on serum markers is that they are needed for biostatistical analysis of paternity.

Materials and methods

Sera were collected from unrelated individuals in Cagliari (316) and Nuoro (205). The Sardinian origin of the blood donors was specially cared. Both sexes were almost equally sampled. Gc separation was performed as usually (4), thereafter the simple immersion of focused gels in 10% sulfosalicylic acid was chosen as detection system. PI typing was performed as elsewhere described (5) with special care to select suspected M4 types, whose diagnosis was confirmed by shallow IPGs (6).

Results and discussion

Table I gives distribution and gene frequencies of PI phenotypes in the two localities. When compared with those reported for the Italian mainland (7), PI gene frequencies showed no peculiar distribution of the M gene products, but in the sample from Cagliari PI M3 was slightly lower (.046) than PI M4 (.056). As for the rest of alleles, while no special remark is to be paid to PIS, the very low frequency of PIZ seemed us to be only close to Greek values among all the European countries (8).

Table I reports as well phenotypes and alleles of Gc. If compared with values we already grouped along the Italian peninsula (4), only Gc1S in Cagliari is slightly differing from the Continental Italy mean frequency; conversely allele freq

encies from Nuoro are tightly clustered around mean values. These results confirmed on the whole our assumption that geographic individuality of Sardinia does not automatically involve a genetic uniqueness of its population structure.

References

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Table I. PI and Gc in Cagliari and Nuoro (Sardinia)

CAGLIARI			NUORO		
PI	obs	exp	PI	obs	exp
M1	118	118.35		93	88.75
M2	20	17.74		9	8.78
M3	1	0.66		1	1.03
M1M2	87	91.66		51	55.84
M1M3	19	17.79		18	19.15
M1M4	20	19.33		5	5.93
M2M3	8	6.89		8	6.02
M2M4	6	7.48		3	1.87
M1S	23	21.65		8	9.71
M2S	8	8.38		3	3.05
M3S	1	1.62		1	1.05
M4S	1	1.76		1	0.32
M1Z	2	1.54		2	1.88
M2Z	1	0.60		1	0.59
S	1	0.99		1	0.26
n.	316			205	

Gc	obs	exp	obs	exp
1S	103	96.98	78	72.33
1F	14	11.05	9	5.65
1F1S	59	65.47	37	40.42
21S	86	90.68	50	58.45
21F	31	30.93	13	13.33
2	23	21.19	18	11.81
n.	316		205	

Gene frequencies

Cagliari	<u>PI</u>	M1	0.611	<u>Gc</u>	1S	0.554
		M2	0.236		1F	0.187
		M3	0.045		2	0.259
		M4	0.049			
		S	0.055			
		Z	0.004			
Nuoro	<u>PI</u>	M1	0.653	<u>Gc</u>	1S	0.594
		M2	0.217		1F	0.166
		M3	0.071		2	0.240
		M4	0.022			
		S	0.030			
		Z	0.007			