Recent survey of Basque blood groups*

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J.N. Marshall Chalmers doktoreak 167 euskaldunen odola analizaturik, Rh negatiboak euskaldunen artean duen hedadura handiari buruz aurretik eginiko lanen ondorioak egiaztatu ditu.

Résultats des recherches du docteur J.N. Marshall Chalmers effectuées en Pays Basque sur un groupe de 167 Basques. Confirmant d'autres travaux antérieurs, le docteur Chalmers met en évidence la grande fréquence du Rh négatif chez les Basques.

El doctor J.N. Marshall Chalmers analizó a 167 vascos, confirmando las conclusiones de trabajos precedentes respecto a la gran extensión del Rh negativo entre los vascos.

* *Nature,* 1948, CLXX, p. 27.

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We have determined the full *ABO*, *Rh* and *MN* blood groups of 167 Basques. The persons examined were selected as being of unmixed Basque descent, mostly by the Rev. Prof. J. M. de Barandiaran. None of the persons examined was known to be a blood relation of any of the others. The accompanying tables give a summary of our results.

ABO Groups

Group	Number	Frequency observed	Frequency expected	Gene frequencies
O	85	0.5090	0.5071	A_1 0.2343
A_1	67	0.4012	0.4002	A_2 0.0248
A_2	6	0.0359	0.0359	B 0.0288
B	7	0.0419	0.0418	0 0.7121
A_1B	2	0.0120	0.0135	
A_2B	0	0.0000	0.0014	
	167	1.000	0.9999	1.0000

MN Groups

Group	Number	Frequency observed	Frequency expected	Gene frequencies
M	55	0.3293	0.3068	M 0.5539
MN	75	0.4491	0.4942	
N	37	0.2216	0.1990	N 0.4461
	167	1.0000	1.0000	1.0000

***Rh* Groups**

Reactions with antisera Anti- C	D	E	c	e	Rh phenotype frequencies Commonest genotype in each phenotype	Number	Frequency observed	Frequenc expected
-	-	-	+	+	cde/cde (rr)	48	0.2874	0.3275
-	-	-	+	+	CDe/cde(R,r)	79	0.4731	0.3904
+	+	+	-	-	CDe/CDe(R^1R^1	13	0.0778	0.1246
-	+	+	+	+	cDE/cde (R^2r)	13	0.0778	0.0795
+	+	+	+	+	CDe/eDE(R^1R^2)	10	0.0599	0.0487
+	-	-	+	+	Cde/ede (R^1r)	3	0.0180	0.0180
-	+	-	+	+	cDe/cde (R^2r)	1	0.0060	0.0064
-	+	+	+	-	cDE/cDE (R^2R^2)	0	0.0000	0.0047
+	-	-	-	+	Cde/Cde (R^1R^1)	0	0.0000	0.0002
						167	1.0000	1.0000

Frequencies of gene combinations

cde (r)	0.5723
CDe (R_1)	0.3376
cDE (R_2)	0.0688
Cde (R^1)	0.0157
cDe (R_2)	0.0056
edE (R^1)	0.0000
	1.0000

The high frequency of *Rh*-negative (*D*-negative) persons (30.5 per cent) and of the *d* gene (58.8 per cent) are in agreement with the findings of Etcheverry[1] and support the views recently put forward by one of us[2] regarding the history fo the *d* gene. The low frequency of *cDE* is another notable feature. The excess of *Dd* heterozygotes and the deficiency of *MN* heterozygotes are clearly due to unavoidable errors of sampling. For this and other reasons steps are being taken to examine more persons. The combined results and a full discussion of them will be published elsewhere.

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1. Etcheverry, M.A., *Dia-méd.,* 17, 1237 (1945)
2. Mourant, A.E., *Nature,* 160, 505 (1947)