

Short communications

Transferrin (TF) polymorphism in Libyans

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Summary. The genetic polymorphism of transferrin (TF) was investigated in 110 unrelated Libyans, using ultrathin layer polyacrylamide gel isoelectric focusing followed by staining with Coomassie brilliant blue R250. Five common and one rare phenotypes were observed. The estimated allele frequencies were as follow: TF*C1 = 0.7455, TF*C2 = 0.2091, TF*C3 = 0.0409 and TF*D = 0.0045. The theoretical exclusion rate in cases of disputed paternity is 19.2%.

Key words: Transferrin – Genetic polymorphism – Libyan population

Zusammenfassung. Der genetische Polymorphismus des Transferrin (Tf) wurde mit Hilfe der isoelektrischen Fokussierung in ultradünnen Polyacrylamidgelen aufgetrennt und mit Coomassie Blue angefärbt. Bei Libyern aus Tripoli ($n = 110$) wurden folgende Allel-Frequenzen gefunden: TF C1 = 0,7455, TF C2 = 0,2091, TF C3 = 0,0409 und TF D = 0,0045. Aufgrund unserer Untersuchungsergebnisse errechnet sich für das Transferrinsystem eine theoretische Ausschlußchance von 19,2%.

Schlüsselwörter: Transferrin – Genetischer Polymorphismus – Libyer

Table 1. Transferrin phenotypes and allele frequencies

Pheno- types	Observed number	Expected number	χ^2	Allele frequencies
C1	61	61.14	0.000	TF*C1 = 0.7455
C1C2	33	34.29	0.049	TF*C2 = 0.2091
C1C3	8	6.71	0.248	TF*C3 = 0.0409
C2	6	4.81	0.294	TF*D = 0.0045
C2C3	1	1.88	0.412	
C3	0	0.18	0.180	
C1D	1	0.74	0.99	0.000
C2D	0	0.21		
C3D	0	0.04		
D	0	0.00		
Total	100	110.00	1.183	(0.95 < P < 0.99, 6df)

Introduction

The use of isoelectric focusing (IEF) for separation of transferrin (TF) has revealed further genetic heterogeneity in the most common transferrin phenotype, TFC, and the total number of C variants has now reached 13 (for review, see ref. [1]). The present study presents the genetic polymorphism of transferrin in Libyans and compares the results with those reported for other Arab populations.

Materials and methods

Details of the serum samples used in this investigation ($n = 110$) have been reported elsewhere [2]. Pre-treatment of samples, iso-

Table 2. Transferrin allele frequencies among Arab populations

Population	n	TF*C1	TF*C2	TF*C3	TF*B	TF*D	References
Libyans	110	0.7455	0.2091	0.0409	–	0.0045	This study
Egyptians	156	0.7640	0.1930	0.0310	0.0060	0.0060	[3]
Tunisians	404	0.7700	0.2150	–	–	0.0150	[4]
Lebanese	120	0.8100	0.1900	–	–	–	[4]
Jordians							
Bedouins	121	0.7300	0.2600	–	–	0.0050	[5]
Non-Bedouins	382	0.7700	0.2300	–	–	0.0050	[5]

electric focusing and staining procedures were carried out as previously described [3].

Result and discussion

The analysis of transferrin variants in the Libyan population sample with calculations assuming Hardy-Weinberg equilibrium are shown in Table 1. The reported allele frequencies in some other Arab populations are presented in Table 2, in which the allele frequencies obtained in this study are also given.

The observed allele frequencies in Libyans are similar to those reported in Egyptians [3]. Comparison of our results with those of Tunisians, Lebanese or Jordanians [4, 5] is not possible because of the absence of TFC*3 allele and the different methods applied.

References

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