POLYMORPHISMS OF COAGULATION FACTORS 13A AND 13B IN WEST GERMANY

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AIMS OF THE STUDY

- definition of the phenotypes of the coagulation factors 13A (F13A) and 13B (F13B) in a population sample of West Germany,
- population genetics of F13A and F13B,
- use of F13A and F13B in paternity testing.

MATERIALS AND METHODS

- blood samples: from healthy, unrelated inhabitants of Aachen (West Germany)

- F13A and F13B typing: method according to Dykes et al. (1986) by isoelectrofocusing in polyacrylamide gel pH 5 - 6.5; detection of the gene products by Western blotting (rabbit anti-F13A and anti-F13S [Behring] respectively, and peroxydase-labelled pig anti-rabbit-immunoglobulin-serum [Dakopatts]).

RESULTS

The methods used for typing F13A and F13B are fast and simple techniques giving reliable results.
The F13A and F13B phenotype and allele frequencies are given in the Table.

Table F13A and F13B phenotype and allele frequencies in West Germany

F13A phenotypes		F13A allele frequencies	
1	307 (66%)	*F13A*1*	0.8194
2-1	148 (32%)	*F13A*2*	0.1806
2	10 (2%)	Σ	1.0000
Σ	465		

Advances in Forensic Haemogenetics 3
Edited by H. F. Polesky and W. R. Mayr

F13B phenotypes		F13B allele frequencies	
1	299 (59%)	*F13B*1*	0.7623
2-1	62 (12%)	*F13B*2*	0.0815
3-1	111 (22%)	*F13B*3*	0.1513
4-1	5 (<1%)	*F13B*4*	0.0049
2	4 (<1%)	Σ	1.0000
3-2	13 (3%)		
3	15 (3%)		
Σ	509		

The numbers of the phenotypes observed show no significant difference to the figures expected under Hardy-Weinberg equilibrium (F13A: X^2 = 2.47, 1 df, p = 0.12 and F13B: X^2 = 2.69, 6 df, p = 0.85).
The allele frequencies for F13A and F13B are also in good agreement with data published for other Caucasoid populations (see e.g. Dykes et al. 1986 or Kreckel et al. 1983).
The chances of paternity exclusion in cases of disputed parentage by using F13A and F13B are 12.6% and 20.3%, respectively.

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ACKNOWLEDGEMENTS

We are grateful to Prof. Dr. G. Mauff (Köln, FRG) for the definition of some rare F13B phenotypes.