

POLYMORPHISM OF PLASMINOGEN IN WEST GERMANY

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AIMS OF THE STUDY

- definition of the plasminogen (PLG) phenotypes in a population sample of West Germany,
- population genetics of PLG,
- use of PLG in paternity testing.

MATERIALS AND METHODS

- blood samples: from 510 healthy, unrelated inhabitants of Aachen (West Germany),
- PLG typing: method according to Skoda et al. (1986), isoelectrofocusing in polyacrylamide gel pH 3.5 - 9.5 (LKB); detection of the gene products by using a caseinolytic overlay and by Western blotting (rabbit anti-PLG and peroxydase-labelled pig anti-rabbit-immunoglobulin-serum, Dakopatts).

RESULTS

The technique used for PLG typing is a fast and simple method giving reliable results.

The products of the following alleles could be defined: *PLG*A*, *PLG*B*, *PLG*A1*, *PLG*A2*, *PLG*A3* and *PLG*M2*.

The phenotype and allele frequencies are given in the Table.

Table PLG phenotype and allele frequencies in West Germany

| <u>PLG phenotypes</u> | | <u>PLG allele frequencies</u> | |
|-----------------------|-------------------|-------------------------------|---------------|
| A | 245 (48%) | <i>PLG*A</i> | 0.6823 |
| A B | 196 (38%) | <i>PLG*B</i> | 0.3059 |
| B | 57 (11%) | <i>PLG*A1</i> | 0.0010 |
| A1 A | 1 (<1%) | <i>PLG*A2</i> | 0.0010 |
| A3 A | 6 (1%) | <i>PLG*A3</i> | 0.0069 |
| A M2 | 3 (<1%) | <i>PLG*M</i> | <u>0.0029</u> |
| A2 B | 1 (<1%) | Σ | 1.0000 |
| A3 B | <u>1 (<1%)</u> | | |
| Σ | 510 | | |

The comparison of the functional assay (caseinolytic overlay) with the immunoblotting technique gave no indication for the existence of a *PLG*Q0* allele in the samples tested.

The numbers of the phenotypes observed show no significant difference to the figures expected under Hardy-Weinberg equilibrium ($X^2 = 4.82$, 3 df, $p = 0.19$).

Furthermore, the allele frequencies are in good agreement with data published for other Caucasoid populations (see e.g. Weidinger et al. 1985).

The chance of paternity exclusion in cases of disputed parentage by using the PLG polymorphism is 18.3%.

REFERENCES

Skoda U, Bertrams J, Dykes D et al: Proposal for the nomenclature of human plasminogen (PLG) polymorphism. Vox Sang 1986; 51: 244-248

Weidinger S, Schwarzfischer F, Müller H et al: Plasminogen (PLG): A useful genetic marker for paternity examinations. Z Rechtsmedizin 1985; 94: 165-171

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