Two RFLPs for the human dihydrofolate reductase gene (DHFR)

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SOURCE AND DESCRIPTION OF CLONES: A 1.1 kb EcoRI / ApaI fragment was isolated from the human DHFR-containing clone pHFR1.8 (Chen *et al.*) and was used in oligonucleotide labelling to detect the RFLPs.

POLYMORPHISMS: RsaI produces a 3 allele polymorphism, with fragments at 1.9 kb, 0.9 kb or 0.86 kb. ScrFI identifies a 2 allele polymorphism with fragments of either 2.0 kb or 1.7 kb.

FREQUENCY: Studied 23 Caucasian individuals:

RsaI:	1.90 kb allele(A1)	0.43	ScrFI:	2.0 kb allele(A1)	0.74
	0.90 kb allele(A2)	0.24		1.7 kb allele(A2)	0.26
	0.86 kb allele(A3)	0.33			

NOT POLYMORPHIC FOR: ApaI, AvaII, BanII, BglI, BglII, DraI, EcoRI, HindIII, PstI, SstI, StuI, TaqI, XbaI, XmnI, all tested on six individuals chosen at random.

CHROMOSOMAL LOCALIZATION: DHFR has been localized to chromosome 5q11-q22 (Anagnou, *et al.*).

MENDELIAN INHERITANCE: Co-dominant segregation has been observed in three families (see figure for example).

PROBE AVAILABILITY: Direct request for the human DHFR probe to Dr. Arthur W. Nienhuis (see Chen *et al.*).

OTHER COMMENTS: No problems detecting the polymorphisms under stringent conditions.

REFERENCES: Anagnou, N.P., *et al.*, Chromosomal organization of the human dihydrofolate reductase genes. Proc. Nat'l Acad. Sci. USA 81: 5170-5174, 1984. Chen, M.-J., *et al.*, The functional human dihydrofolate reductase gene. J. Biol. Chem. 259: 3933-3943, 1984.

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