

Dinucleotide repeat polymorphisms at the D11S419 and CD3D loci

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Source/Description: For Mfd58, a human genomic *Sau3A* I DNA fragment was cloned into mp19 and selected by hybridization to poly(dC-dA)·poly(dG-dT). Sequencing of the clone provided the information necessary for polymerase chain reaction primer synthesis. For Mfd69, a (dC-dA)_n·(dG-dT)_n sequence was found within an intron of the human gene encoding the delta subunit of the CD3 T-cell receptor complex by computer search of GenBank (Accession numbers M12727 and X03934). Polymerase chain reaction primers were selected from this sequence.

Locus	Clone/Marker Designation	Clone Length	Predicted Length of Amplified Fragment	Primer Sequences	
				(CA strand)	(GT strand)
D11S419	Mfd58	>345 bp	113 bp	CTCATTGGAAGACTGCAGCA AGGGCTTCCTGTCCATCTA	(CA strand) (GT strand)
CD3D	Mfd69	-	93 bp	TAGCTGGTGCATAAGCTCAC GTTAGTGGGAAGAGCAGAGC	(CA strand) (GT strand)

Frequency: Mfd58: Estimated from 118 chromosomes of unrelated CEPH family grandparents (Caucasians). PIC = 0.43.

Allele (bp)	Frequency	Allele (bp)	Frequency
118	0.02	114	0.52
116	0.44	112	0.02

Mfd69: Estimated from 114 chromosomes of unrelated CEPH family grandparents (Caucasians). PIC = 0.69.

Allele (bp)	Frequency	Allele (bp)	Frequency
99	0.01	89	0.35
95	0.10	87	0.20
93	0.30	85	0.03
91	0.01		

Chromosomal Localization: van den Elsen *et al.* (1) and Gold *et al.* (2) mapped the gene encoding the delta subunit of the CD3 T-cell receptor complex to 11q23. Confirmation of the chromosome assignment for Mfd69 and assignment of Mfd58 to chromosome 11 was carried out using DNA templates isolated from panels of somatic cell hybrids.

Mendelian Inheritance: Co-dominant segregation of Mfd58 and Mfd69 was observed in 15 two generation families.

Other Comments: Conditions for the amplification reactions were as described (3) except that samples were processed through 27 temperature cycles consisting of 1 min at 94°, 2 min at 55° and 2 min at 72°. Sizes of the alleles were determined by comparison to mp8 DNA sequencing ladders. The most intense band on the autoradiographs for each allele was used to obtain allele sizes. The dinucleotide repeat sequence in Mfd58 was of the form (CA)₁₆C, and in Mfd69 of the form (AC)₁₈AA(AC)₃. Sequences for both markers have been submitted to GenBank.

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References: 1) van den Elsen,P., Bruns,G., Gerhard,D.S., Pravtcheva,D., Jones,C., Housman,D., Ruddle,F.A., Orkin,S. and Terhorst,C. (1985) *Proc. Natl. Acad. Sci. USA* **82**, 2920–2924. 2) Gold,D.P., van Dongen,J.J.M., Morton,C.C., Bruns,G.A.P., van den Elsen,P., Geurts van Kessel,A.H.M. and Terhorst,C. (1987) *Proc. Natl. Acad. Sci. USA* **84**, 1664–1668. 3) Weber,J.L. and May,P.E. (1989) *Am. J. Hum. Genet.* **44**, 388–396.

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