A hypervariable minisatellite locus D20S73 (pMS214.2) is located on 20q

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Source/Description: MS214 was detected by probe 33.15 (1) in a lambda L47.1 library made from *Mbo*I digested, size fractionated (5–20kbp) genomic DNA, pooled from 20 unrelated individuals (2). The 6.8kbp insert was ligated into the *Bam*HI site of pUC13 to generate the subclone pMS214.1a and propagated in *E. coli* strain DH5 α (BRL).

Polymorphism: pMS214.1a detects a locus with multiple alleles 0.5–15kbp long in genomic DNA digested with *Alu*I. Some alleles contain internal *Alu*I sites and generate haplotypes of linked DNA fragments in Southern blot analysis. The polymorphic locus can also be detected in genomic DNA digested with *Hinf*I but partial digestion products are frequently observed which probably result from partial methylation at a flanking *Hinf*I site. This locus cannot be detected in *Hae*III digests as this enzyme cuts every repeat unit.

Heterozygosity: The D20S73 locus has a heterozygosity of 82% among 80 unrelated Caucasians tested.

Chromosome Localization: D20S73 was localized to chromosome 20 by hybridization to a human-rodent somatic cell hybrid panel of DNAs. Linkage analysis, using the CEPH database, located D20S73 to 20q, distal to the D20S4 (pMS1–27; 3) and D20S15 (CRI-L355; 4) loci but proximal to a subterminal interspersed repeat, D20S26 (IP20K09; 5).

Mendelian Inheritance: Co-dominant inheritance of the *Alu*I DNA fragments has been demonstrated among the 40 reference CEPH families.

Other Comments: Partial DNA methylation at this locus has been observed in lymphoblastoid DNA using the enzyme pairs *Mbo*I/*Sau*3AI and *Msp*I/*Hpa*II which also cut occasionally within the array of tandem repeats. The cloned pMS214.1a contains approximately 1.4kbp of tandem repeat units from an internal *Mbo*I site of a D20S73 allele followed by 5.4kbp of non-repeat DNA, including an *Eco*RI site 2.4 kbp from the end of the repeat array. This flanking *Eco*RI site is polymorphic in Caucasians.

Probe Availability: pMS214.1a is available for research purposes and can be obtained from the UK DNA Probe Bank (Imperial Cancer Research Fund, Clare Hall Laboratories, Blanche Lane, South Mimms, Potters Bar, Herts, EN6 3LD, UK).

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Two hypervariable minisatellites D19S192 (pMS207.2) and D19S193 (pMS301.2) located at the distal ends of 19p and 19q respectively

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Source/Description: Clones MS207 and MS301 were detected by probe 33.15 (1) in a lambda L47.1 library made from size fractionated (5–20kbp) genomic DNA pooled from 20 unrelated individuals (2). The 5.5kbp *Sau*3AI insert of MS207 and the 6.8kbp *Sau*3AI insert of MS301 were cloned into the *Bam*HI site of pUC13 to generate the subclones pMS207.2 and pMS301.2 and propagated in the *E. coli* strains DH5 α (BRL) and JC8679 (recB21, recC22, sbcA23, his60) respectively.

Polymorphism: pMS207.2 detects a hypervariable minisatellite locus D19S192 in genomic DNA digested with *Mbo*I or *Hinf*I, revealing about 9 alleles observed as DNA fragments of 5–20kbp. pMS301.2 detects a hypervariable minisatellite locus D19S193 in genomic DNA digested with *Mbo*I, with more than 9 alleles 4–8kbp in length. Some of the D19S193 (pMS301.2) alleles have internal *Alu*I sites, which generate relatively complex haplotypes of variable bands on Southern blots of *Alu*I digests. *Hinf*I cleaves all repeat units and destroys minisatellite alleles at this locus.

Heterozygosity: D19S192 (pMS207.2) has a heterozygosity of 65% among 80 unrelated Caucasians analysed. D19S193 (pMS301.2) has a heterozygosity of 70% among 99 unrelated Caucasians tested.

Chromosome Localization: D19S192 and D19S193 were assigned to chromosome 19 by hybridization to a human-rodent somatic cell hybrid panel of DNAs (1). Linkage analysis using the CEPH database shows that the closest marker to D19S192 (pMS207.2) is D19S20 (pJCZ3.1) on 19p and that D19S193 (pMS301.2) is located distal to D19S22 (pEFD4.2) and the PKCG gene, close to the end of the linkage map of chromosome 19q (3,4).

Mendelian Inheritance: Co-dominant inheritance of the *Mbo*I DNA fragments has been demonstrated for both loci among the 40 reference CEPH families.

Probe Availability: pMS207.2 and pMS301.2 are available for research purposes and can be obtained from the UK DNA Probe Bank (Imperial Cancer Research Fund, Clare Hall Laboratories, Blanche Lane, South Mimms, Potters Bar, Herts. EN6 3LD, UK).

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