

STS for minisatellite MS607 (D22S163)

John A.L.Armour and Alec J.Jeffreys
Department of Genetics, University of Leicester, University Road, Leicester LE1 7RH, UK

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The locus detected by the minisatellite clone cMS607 (D22S163) in human DNA digested with *Mbo*I has a population heterozygosity of about 90% (1). This variation, however, has since been shown to be due to two distinct minisatellite arrays in the clone: the first of these, 607A, has a modest variability (heterozygosity @ 50%) and a small number of relatively common alleles; the second, 607B, appears to contribute the greater part of the variation detected by the probe. Only part of this array appears to have been cloned in cMS607 (Figure 1 and unpublished data). We here define an STS for this locus, in which the minisatellite 607A can be amplified from genomic DNA and subsequently used as a hybridization probe for the entire locus.

400 ng genomic DNA was amplified using primers 607A [5′ CCTCTACAACCAGGTGCGACTGTG 3′] and 607B [5′ GCAGAGACAAGCCAGTAGGTATAC 3′] in a 20 μl reaction with 2.5 units of Taq polymerase (3); after 30 cycles (95°C, 1 minute; 67°C 1 minute; 70°C 10 minutes) and a single 'chase' consisting of the last two segments only, PCR products were analysed on a 1.5% agarose gel. Figure 2 shows the results of an analysis of three unrelated individuals from the CEPH panel (134101, 134501 and 136201), all of which were known to be homozygous for a common small (@ 2.3 kb) allele at 607A. Allele sizes range from 2.3 to about 4 kb, and the smallest (2.3 kb) allele has a population frequency of about 0.5. Note the presence below the main product of a series of minor products differing by single repeat units from each other. The PCR product from one amplification was recovered from the gel, and 2 ng subjected to reamplification for 16 cycles (+ chase) under the same conditions as for amplification from genomic DNA. Although this resulted in the degeneration of the product into a smear of differently sized products (2), it gave a high yield (about 500 ng). From this smear, a 1−2.5 kb fraction was recovered, of which 10 ng was oligo-labelled and used to probe a Southern blot of *Mbo*I-digested genomic DNA. Filters were washed at 65°C in 0.1×SSC, 0.01% SDS. The result of this method of analysis on DNA from three unrelated individuals is shown in Figure 3.

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