Discovery of a novel multilocus DNA polymorphism [DNF24]

Nancy Y.Ip, Leric Nicholas, Howard Baum and Ivan Balazs

Lifecodes Corporation, Saw Mill River Road, Valhalla, NY 10595, USA

SOURCE DESCRIPTION: A 1.4 kb genomic fragment, isolated from a partial EcoRI genomic library in Charon 30, was subcloned into Bluescript, and was designated pAC 365.

POLYMORPHISM: When hybridized to PstI-digested genomic DNA, pAC 365 detected polymorphisms at multiple loci. The multilocus polymorphic patterns do not change under varying washing conditions (i.e. from 150 mM down to 1.5 mM NaCl, at 65°C). The size of the alleles detected ranged from about 1.7 to 20 kb, with the majority of the fragments between 3 to 7 kb. Analysis of approximately 450 unrelated individuals identifies on the average 10 polymorphic fragments per individual.

POLYMORPHIC WITH: PstI, HinfI, HindIII, EcoRI, TaqI, MspI, RsaI, PvuII.

NOT POLYMORPHIC WITH: BstNI, HaeIII.

CHROMOSOMAL LOCALIZATION: In-situ hybridization studies have revealed major sites of homology to this probe on 16 chromosomes (chromosomes 1-12, 15, 16, 18 and 21).

MENDELIAN INHERITANCE: pAC 365 was hybridized to PstI-digested DNA from pedigrees of 3-generations. In 312 individuals examined, all the polymorphic fragments seen in the offspring are present in their parents.

OTHER COMMENTS: Polymorphisms at multiple loci were observed even under high stringency conditions. This unique property of pAC 365 is different from that of other known VNTR-containing probes that recognize single locus RFLP at high stringency (1, 2).

PROBE AVAILABILITY: Available in future.

REFERENCES:

1. Nakamura, Y. et al. (1987) Science 235: 1616-1622.
2. Jeffreys, A.J. et al. (1985) Nature 314: 67-73.

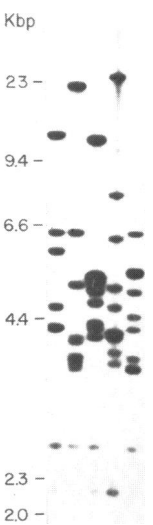

Fig. 1. PstI-digested genomic DNA from five unrelated individuals were electrophoresed, transferred onto nylon filter, and hybridized to pAC 365 at 65°C. The filter was washed at 65°C, 0.1xSSC (15 mM NaCl, 1.5 mM sodium citrate), pH 7.0.