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Source and Description of Probe. The UPKIB probe is a .5-kb PCR product encoding a 27-kDa bovine Uroplakin IB protein associated with the urothelial asymmetric unit membrane (Yu et al., 1994). The insert was radiolabeled with [α-32P]dCTP to a specific activity of > 10^9 dpm/μg.

Hybridization Conditions. Nylon membranes were hybridized at 42°C in 5x standard sodium citrate (SSC), 50% formamide and washed to a final stringency of 1x SSC at 65°C.

Polymorphisms. Polymorphic fragments were observed with PstI (4.5 and 4.0 kb), HindIII (3.5 and 3.0 kb), and TaqI (9.6, 6.8, and 5.3 kb; Figure 1). BamHI, BglIII, EcoRI, and MspI were invariant when tested on 18 to 25 unrelated cattle from a five-breed diallel cross.

Inheritance. Autosomal codominant inheritance was confirmed in two-generation full-sib families that included 9 (PstI), 11 (HindIII), or 10 (TaqI) offspring. Segregation of the UPKIB alleles is illustrated (Figure 1).

Allele Frequencies. Frequencies of allelic bands were determined in unrelated crossbred cattle. PstI frequencies were .46 (4.5 kb) and .54 (4.0 kb), with an observed heterozygosity of .50 (24 animals). HindIII frequencies were .67 (3.5 kb) and .33 (3.0 kb), with an observed heterozygosity of .44 (18 animals). TaqI frequencies were .05 (9.6 kb), .09 (6.8 kb), and .86 (5.3 kb), with an observed heterozygosity of .25 (18 animals).

Chromosomal Location. UPKIB has been mapped to bovine syntenic group U10 (bovine chromosome 1) by somatic cell hybrid analysis (Ryan et al., 1993).

Probe Availability. Contact T.-T. Sun at the above address.

Literature Cited

Key Words: Cattle, Uroplakin, Bladder, Epithelium, RFLP


![Figure 1. UPKIB PstI (A), HindIII (B), and TaqI (C) RFLP in representative cattle pedigrees. S = sire, D = dam.](image-url)