Rapid RFLP screening using DNA from complete hydatidiform moles

M.Litt, A.Buder and U.Surti¹

Departments of Biochemistry and Medical Genetics, Oregon Health Sciences University, Portland, OR 97201 and ¹Department of Pathology, Magee Women's Hospital, University of Pittsburgh, Pittsburgh, PA 15213, USA
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A rapid RFLP screening procedure was recently described that is applicable to any cloned probe whose chromosomal location is known (1). With this method, DNA from a group of unrelated individuals is pooled and compared to DNA from a hybrid cell line containing only one of the two homologues of the chromosome on which the probe is located. Fragments present in a lane containing the pooled DNA but absent in the lane containing the hybrid DNA indicate RFLPs. Although this method allows efficient screening for RFLPs, it has the disadvantage that the chromosomal localization of the probe to be screened must be known. By replacing the hybrid cell line with a complete hydatidiform mole (2,3), homozygous at all loci, we have overcome this limitation.

Example: We applied this method to the genomic clone λ Enk1 which contains the human proenkephalin gene (4). Homozygosity of hydatidiform moles was verified by blot hybridization using probes for three highly polymorphic VNTR loci. The figure shows a blot containing, in alternate lanes, restriction digests of DNAs from hydatidiform mole (m) and of pooled DNAs (p) from 9 unrelated individuals. With Stu I, the presence of a band in the pooled DNA but not in the mole DNA indicates an RFLP; the relative intensity of this band suggests that the frequency of the allele which it represents is close to 50%. By studying a panel of unrelated individuals as well as several families, the Stu I RFLP was verified and further characterized (ML and AB, submitted).

References:

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