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JOURNAL ARTICLE

Use of a rat cDNA probe specific for the Y chromosome to detect male-derived cells

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A cDNA probe that exhibits specificity for the rat Y chromosome was generated by using a set of primers specific to the murine Sry gene, the sex-determining region of the Y chromosome. A 459-base pair (bp) DNA fragment was obtained by polymerase chain reaction (PCR) amplification from male, but not female, rat genomic DNA (EMBL Nucleotide Sequence Database accession number X89730). This DNA fragment was purified, cloned using a vector, and digested with EcoR1 to yield a 270-bp DNA fragment. This 270-bp cDNA fragment, when used as a probe in Southern blot analysis of rat DNA, was observed to bind to three separate bands of approximately 2.3, 5.0, and 7.0 kb in size. The binding was demonstrated with male, but not female, genomic DNA. Another set of primers was generated to sequences within the 270-bp fragment that produced a PCR product of 104 bp. This DNA fragment, when used as a probe in Southern blot analysis, enabled PCR detection of at least 0.1% male cells in a mixed population of female cells. These cDNA probes should prove useful in studies designed to track cell populations (e.g., tumor metastasis and hemopoietic cells after bone marrow transplantation) in syngeneic male/female pairs. In addition, a cDNA probe that is specific for the rat Sry gene might be valuable in studies of fetal male sexual development or the study of spermiogenesis.

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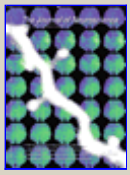

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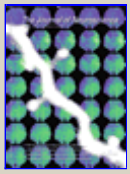

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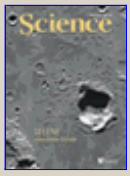

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