Self-complementary primer linkers ("splinkers") specifically join to restricted DNA. These oligonucleotides consist of an inverted repeat sequence which forms a double stranded hairpin structure containing a known restriction site (RS). This built-in restriction site enables their specific release from the restricted DNA fragment. The schematic diagram shows a number of uses for splinker-primed DNA fragments. They can be used as strand specific sequence primers for dideoxy sequencing of either cloned or genomic DNA (1; e.g., AMV reverse transcriptase determined sequence of φX174 (1)). This approach also lends itself to simultaneous strand sequencing by adding unique splinkers to opposite ends. Their specific release yields both sequences. Splinker primed fragments can also be completely filled in and then utilized as strand specific probes (2) (coding vs. coding complement) for both Southern and Northern analyses (2) in order to detect unique transcripts. Furthermore, the addition of splinkers to one strand of a DNA fragment automatically imparts a mobility shift, permitting their use in strand separation (3). Recently, hairpin DNA fragments have been used as linkers and adapters (4; 3). Thus splinkers have a multitude of uses as molecular biological tools.

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References