ABSTRACT

HIGH THROUGHPUT GENOME SEQUENCING ON DNA ARRAYS

The present invention is directed to methods and compositions for acquiring nucleotide sequence information of target sequences using adaptors interspersed in target polynucleotides. The sequence information can be new. e.g. sequencing unknown nucleic acids, re-sequencing, or genotyping. The invention preferably includes methods for inserting a plurality of adaptors at spaced locations within a target polynucleotide or a fragment of a polynucleotide. Such adaptors may serve as platforms for interrogating adjacent sequences using various sequencing chemistries, such as those that identify nucleotides by primer extension, probe ligation, and the like. Encompassed in the invention are methods and compositions for the insertion of known adaptor sequences into target sequences, such that there is an interruption of contiguous target sequence with the adaptors. By sequencing both 'upstream' and 'downstream' of the adaptors, identification of entire target sequences may be accomplished.

Figs. 1A-1G