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(54) Title: AN *IN VITRO* METHOD FOR CONSTRUCTION OF A DNA LIBRARY

(57) Abstract

A method for *in vitro* construction of a library of recombined homologous polynucleotides from a number of different starting DNA templates and primers by induced template shifts during a polynucleotide synthesis is described, whereby: A. extended primers are synthesized by a) denaturing the DNA templates, b) annealing primers to the templates, c) extending the said primers by use of a polymerase, d) stop the synthesis, and e) separate the extended primers from the templates; B. a template shift is induced by a) isolating the extended primers from the templates and repeating steps A.b) to A.e) using the extended primers as both primers and templates, or b) repeating steps A.b) to A.e), C. this process is terminated after an appropriate number of cycles of process steps A. and B.a), A. and B.b), or combinations thereof. Optionally the polynucleotides are amplified in a a standard PCR reaction with specific primers to selectively amplify homologous polynucleotides of interest.