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(54) Title: NUCLEIC ACID ANALYSIS USING NON-TEMPLATED NUCLEOTIDE ADDITION

(57) Abstract: One embodiment of the invention is a method of producing an oligonucleotide extended by a single nucleotide base. An oligonucleotide and an extension terminating nucleotide are mixed with an enzyme having terminal transferase activity. The reaction produces an oligonucleotide extended by a single base. The extended oligonucleotide may be used as a size standard for single base extension reactions. Another embodiment of the invention is a method of producing a mixture of oligonucleotides extended by different single bases. An oligonucleotide, a first extension terminating nucleotide, and a second extension terminating nucleotide are mixed with an enzyme having terminal transferase activity. The first and second extension terminating nucleotides comprise different nucleotide bases and are labeled with different labels. The identity of the different extension terminating nucleotides (and hence the extended oligonucleotides) may be ascertained by reference to the specific label incorporated.