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(54) Title: GENETIC ANALYSIS BY SEQUENCE-SPECIFIC SORTING

(57) Abstract: The invention provides methods for sorting polynucleotides from a population based on predetermined sequence characteristics. In one aspect, the method of the invention is carried out by extending a primer annealed polynucleotides having predetermined sequence characteristics to incorporate a predetermined terminator having a capture moiety, capturing polynucleotides having extended primers by a capture agent that specifically binds to the capture moiety, and melting the captured polynucleotides from the extended primers to form a subpopulation of polynucleotides having the predetermined sequence characteristics. In another aspect, the method of the invention is carried out on a population of tagged polynucleotides so that after a subpopulation is selected, the members of the subpopulation may be simultaneously analyzed using the unique tags on the polynucleotides to convey analytical information to a hybridization array for a readout.

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