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(54) **METHOD, CHIP, DEVICE AND SYSTEM FOR EFFECTING AND MONITORING NUCLEIC ACID ACCUMULATION**

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(57) **ABSTRACT**

A nucleic acid accumulation analyzing chip comprising an optical waveguide having a radiation input port and a radiation output port, the optical waveguide being formed with at least one optical microcavity along its optical path, at least one oligonucleotide being immobilized to the optical waveguide in the microcavity, such that when the at least one oligonucleotide is contacted with reaction reagents under conditions allowing a nucleic acid accumulation reaction to take place, accumulated nucleic acid is detectable by providing radiation at the radiation input port of the optical waveguide and monitoring radiation signal modulation at the radiation output port of the optical waveguide.

12 Claims, 4 Drawing Sheets