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[Continued on next page]

(54) Title: SYSTEM AND METHODS FOR DETECTING GENETIC VARIATION

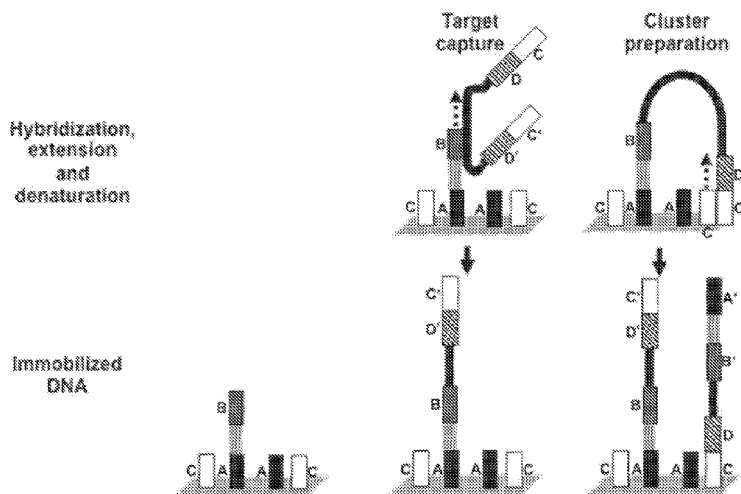


Figure 1

(57) Abstract: The invention provides methods, apparatuses, and compositions for high-throughput amplification sequencing of specific target sequences in one or more samples. In some aspects, barcode-tagged polynucleotides are sequenced simultaneously and sample sources are identified on the basis of barcode sequences. In some aspects, sequencing data are used to determine one or more genotypes at one or more loci comprising a causal genetic variant. In some aspects, systems and methods of detecting genetic variation are provided.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - C40B 40/06 (2013.01)

USPC - 506/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - C12Q 1/68; C40B 20/00, 40/00, 06 (2013.01)

USPC - 435/91.2; 506/2, 16

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
GPC - C12Q 1/6832, 6834, 6837, 6853, 6855, 6869, 6874 (2013.01)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Orbit, Google Patents, Google Scholar

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---	US 2012/0157322 A1 (MYLLYKANGAS et al) 12 June 2012 (12.06.2012) entire document	1-35, 38-41, 44-62, 64-79
Y		36, 37, 42, 43, 63
Y	US 2010/0015626 A1 (OLIPHANT et al) 21 January 2010 (21.01.2010) entire document	6, 7, 24, 25
Y	US 2002/0076735 A1 (WILLIAMS et al) 20 June 2002 (20.06.2002) entire document	63
A	US 7,985,565 B2 (MAYER et al) 26 July 2011 (26.07.2011) entire document	1-79

 Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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