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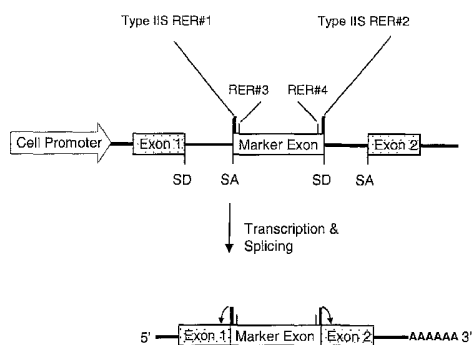
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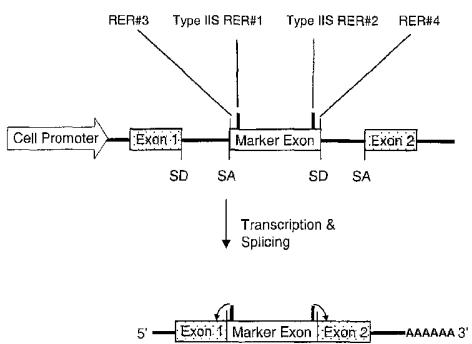
[Continued on next page]

(54) Title: METHODS FOR HIGH THROUGHPUT ELUCIDATION OF TRANSCRIPTIONAL PROFILES AND GENOME ANNOTATION



A

(57) Abstract: The invention relates to methods for the elucidation of a transcriptional profile of a cell and for methods to facilitate functional genome annotation. The method of this invention relies on random integration of an artificial exon or a nucleotide fragment that tags the RNA of the gene into which it integrates. In eukaryotic cells, it allows the simultaneous identification of exon-intron boundaries for genome annotation. The gene trapping based strategy for transcript tagging is followed by recovery of those tags fused to flanking cellular exon sequences. Polymerization of those tags allows for high-throughput sequencing and characterization of exon-intron boundaries. Moreover, determination of the frequencies of each particular tag is used to determine the relative transcriptional level of each tagged RNA variant.



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INTERNATIONAL SEARCH REPORT

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PCT/US04/11656

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(7) : C12N 15/10, 15/63; C12P 19/34; C12Q 1/68; C07H 21/04
 US CL : 435/455, 91.1, 6, 320.1; 536/23.4
 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)
 U.S. : 435/455, 91.1, 6, 320.1; 536/23.4

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
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C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A,E | US 6,897,020 B2 (Link et al.) 24 May 2005 (24.05.2005) | 1-75 |
| A | US 2003/0143578 A1 (Pruitt et al) 31 July 2003 (23.7.2003) | 1-75 |
| A | Velculescu VE et al. Serial analysis of gene expression, 20 October 1995 (20.10.1995) Science 270:484-487 | 1-75 |
| A | US 5,968,784 A (Spinella et al.) 19 October 1999 (19.10.1999) | 1-75 |
| A | US 5,763,175 A (Brenner) 9 June 1998 (19.06.1998) | 1-75 |
| A | US 5,677,153 A (Botstein et al.) 14 October 1997 (14.10.1997) | 1-75 |
| A | US 5,658,736 A (Wong) 19 August 1997 (19.08.1997) | 1-75 |

Further documents are listed in the continuation of Box C. See patent family annex.

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INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 3:

EAST, PubMed

search terms: type IIs, restriction enzyme, exon, cDNA, marker gene, splice donor, splice acceptor, gene trap