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LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI,
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(54) Title: METHODS, COMPOSITIONS, AND KITS FOR FORMING SELF-COMPLEMENTARY POLYNUCLEOTIDES

(57) Abstract: The present teachings generally relate to methods, kits, and compositions for detecting target polynucleotide sequences. The teachings also relate to ligation and amplification reactions that generate self-complementary polynucleotide products. In some embodiments, ligation reactions are performed with probes that result in the formation a self-complementary ligation product. Ligation of a hairpin linker to the self-complementary ligation product can form a loop ligation product. In some embodiments, the loop ligation product can be amplified with rolling circle amplification. Detection of a loop ligation product can serve to determine the identity of a target polynucleotide.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/45709

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(8): C12Q 1/68(2006.01);C07H 21/02 AND 21/04

USPC: 435/6;536/23.1 AND 24.3
 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. : 435/6;536/23.1 AND 24.3

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, P | US 7,033,753 B1 (KOOL E.T.) 25 April 2006, see the entire document. | 1-21 |
| A | US 6,498,023 B1 (ABARZUA P.) 24 December 2002, see the entire document. | 1-21 |
| A | US 6,027,889 A (BARANY et al) 22 February 2000, see the entire document. | 1-21 |
| A | US 5,876,924 A (ZHANG et al) 02 March 1999, see the entire document. | 1-21 |
| A | US5,494,810 A (BARANY et al) 27 February 1996, see the entire document. | 1-21 |
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| A | US 5,215,899 A (DATTAGUPTA N.) 01 June 19993, see the entire document. | 1-21 |

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| Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201 | Authorized officer Ethan Whisenant, Ph.D. Telephone No. (703) 308-0196 |

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PCT/US05/45709**C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | US 6,114,121 A (FUJIWARA et al) 05 September 2000, see the entire document. | 1-21 |
| A | US 2003/0175788 A1 (ALSMADI et al) 18 September 2003, see the entire document. | 1-21 |
| A | US 2004/0259116 A1 (BACKMAN et al) 23 December 2004, see the entire document. | 1-21 |
| A | WO 99/49079 A1 (LANDEGREN U.) 30 September 1999, see the entire document. | |

INTERNATIONAL SEARCH REPORT

International application No.

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Continuation of B. FIELDS SEARCHED Item 3:
USPATFULL, USPG-PUBS, EUROPATFULL all via EAST
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search terms Spier ZE?/au

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(polymorphism\$ or SNP\$ or allele\$); kinase, glycosylase, multiplex\$, PCR and Barany.in.