SG 9701328-8

RTMPCS
claims

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 :
C12N 15/10, C12Q 1/68

A1

(11) International Publication Number: WO 96/12014

(43) International Publication Date: 25 April 1996 (25.04.96)

(21) International Application Number: PCT/US95/12791

(22) International Filing Date: 12 October 1995 (12.10.95)

(30) Priority Data:
08/322,348 13 October 1994 (13.10.94) US
08/358,810 19 December 1994 (19.12.94) US

(71) Applicant: LYNX THERAPEUTICS, INC. [US/US]; 3832 Bay Center Place, Hayward, CA 94545 (US).

(72) Inventor: BRENNER, Sydney; University of Cambridge, School of Clinical Medicine, Level 5, Addenbrooke's Hospital, Hills Road, Cambridge CB 2QQ (GB).

(74) Agent: MACEVICZ, Stephen, C.; Lynx Therapeutics, Inc., 3832 Bay Center Place, Hayward, CA 94545 (US).

(81) Designated States: AU, CA, CZ, FI, HU, JP, KR, NO, SG, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: MOLECULAR TAGGING SYSTEM

(57) Abstract

The invention provides a method of tracking, identifying, and/or sorting classes or subpopulations of molecules by the use of oligonucleotide tags. Oligonucleotide tags of the invention each consist of a plurality of subunits 3 to 6 nucleotides in length selected from a minimally cross-hydridizing set. A subunit of a minimally cross-hybridizing set forms a duplex or triplex having two or more mismatches with the complement of any other subunit of the same set. The number of oligonucleotide tags available in a particular embodiment depends on the number of subunits per tag and on the length of the subunit. An important aspect of the invention is the use of the oligonucleotide tags for sorting polynucleotides by specifically hybridizing tags attached to the polynucleotides to their complements on solid phase supports. This embodiment provides a readily automated system for manipulating and sorting polynucleotides, particularly useful in large-scale parallel operations, such as large-scale DNA sequencing, mRNA fingerprinting, and the like, wherein many target polynucleotides or many segments of a single target polynucleotide are sequenced simultaneously.

