US009410200B2

(12) **United States Patent**
Balasubramanian et al.

(10) **Patent No.: US 9,410,200 B2**
(45) **Date of Patent: *Aug. 9, 2016**

(54) **LABELLED NUCLEOTIDES**

(71) Applicant: **Illumina Cambridge Limited**, Nr. Saffron Walden (GB)

(72) Inventors: **Shankar Balasubramanian**, Cambridge (GB); **Colin Barnes**, Nr. Saffron Walden (GB); **Xiaohai Liu**, Nr. Saffron Walden (GB); **John Milton**, Nr. Saffron Walden (GB)

(73) Assignee: **Illumina Cambridge Limited**, Nr. Saffron Walden (GB)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **14/857,671**

(22) Filed: **Sep. 17, 2015**

(65) **Prior Publication Data**

US 2016/0002719 A1 Jan. 7, 2016

Related U.S. Application Data

(60) Continuation of application No. 13/791,597, filed on Mar. 8, 2013, which is a continuation of application No. 13/432,989, filed on Mar. 28, 2012, now Pat. No. 8,394,586, which is a continuation of application No.

(Continued)

(30) **Foreign Application Priority Data**

Dec. 4, 2001 (GB) 0129012.1

(51) **Int. Cl.**

C12Q 1/68	(2006.01)
C12P 19/34	(2006.01)
C07H 19/10	(2006.01)
C07H 19/20	(2006.01)
C07H 21/00	(2006.01)

(52) **U.S. Cl.**

CPC ***C12Q 1/6869*** (2013.01); ***C07H 19/10*** (2013.01); ***C07H 19/20*** (2013.01); ***C07H 21/00*** (2013.01); ***C12P 19/34*** (2013.01); ***C12Q 1/6874*** (2013.01); ***C12Q 1/6876*** (2013.01); *C12Q 2525/186* (2013.01)

(58) **Field of Classification Search**

CPC C12Q 1/6869; C12Q 2525/186
USPC 435/6.1, 91.1, 91.2
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,711,955	A	12/1987	Ward et al.
4,772,691	A	9/1988	Herman

(Continued)

FOREIGN PATENT DOCUMENTS

DE	4 141 178	6/1993
EP	0251786	11/1994

(Continued)

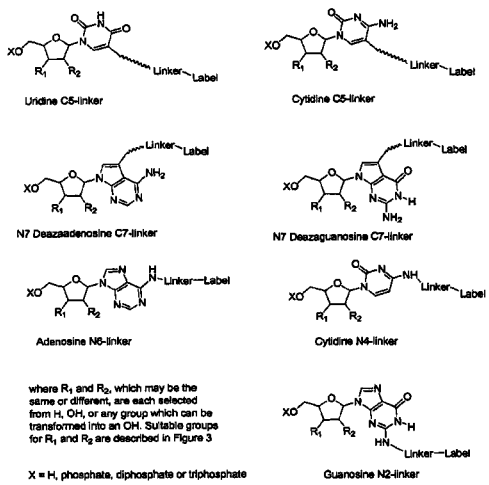
OTHER PUBLICATIONS

U.S. Appl. No. 90/008,152, filed Aug. 3, 2006, Hiatt et al., reexam requested by Gitten.

(Continued)

Primary Examiner — Jezia Riley
(74) *Attorney, Agent, or Firm* — Jones Day

(57) **ABSTRACT**

Nucleosides and nucleotides are disclosed that are linked to detectable labels via a cleavable linker group.

19 Claims, 6 Drawing Sheets