

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 October 2005 (27.10.2005)

PCT

(10) International Publication Number
WO 2005/100603 A3

- (51) International Patent Classification⁷: C12Q 1/68, (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US (patent), UZ, VC, VN, YU, ZA, ZM, ZW.
- (21) International Application Number: PCT/US2005/010911
- (22) International Filing Date: 31 March 2005 (31.03.2005)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
10/816,457 31 March 2004 (31.03.2004) US
- (63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application:
US 10/816,457 (CIP)
Filed on 31 March 2004 (31.03.2004)
- (71) Applicant (for all designated States except US): **DERMTECH INTERNATIONAL** [US/US]; 15222-B Avenue of Science, San Diego, CA 92128 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **BENSON, Nicholas, R.** [US/US]; 9571 Oviedo Street, San Diego, CA 92129 (US).
- (74) Agent: **HAILE, lisa, A.**; DLA Piper Rudnick Gray Cary US LLP, 4365 Executive Drive, Suite 1100, San Diego, CA 92121-2133 (US).
- Published:**
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 12 January 2006
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: TAPE STRIPPING METHODS FOR ANALYSIS OF SKIN DISEASE AND PATHOLOGICAL SKIN STATE

(57) Abstract: The present invention provides non-invasive methods for detecting, monitoring, and diagnosing skin disease and pathological skin states such as irritated skin and psoriasis. The methods include using tape stripping to analyze expression in epidermal samples, of one or more skin markers. In illustrative examples, the tape stripping is performed using pliable tape that has a rubber adhesive. Furthermore, the present invention provides methods for predicting and monitoring response to therapy for a skin disease, such as psoriasis or dermatitis. Finally, the methods can include the use of a microarray.



WO 2005/100603 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/10911

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12Q 1/68; C07H 21/02, 21/04

US CL : 435/6; 536/23.1, 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, 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)

Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO03/001985 A2 (DERMTECH INTERNATIONAL) 09 January 2003, see the entire document.	1-6, 75-82 and 85-93
---		-----
Y		8-17, 20-35, 37-40, 42-50, 52-58, 61-63, 82-84 and 94-108
Y	US2002/0037538 (TREPICCHIO et al) 28 March 2002, see the entire document.	8-17, 20-35, 37-40, 42-520, 52-58, 61-63, 82-84 and 94-108
Y	US 2003/0044406 A1 (DINGIVAN C.) 06 March 2003, see the entire document.	96-97 and 99
Y	US2003/0049256 A1 (TOBINICK E.L.) 13 March 2003, see the entire document.	96-7 and 99
Y	GRANSTEIN R.D. , New Treatments for Psoriasis. New England Journal of Medicine. 26 July 2001, Vol. 345, pages 284-287, see the entire document	96-97 and 99
Y	US 6,410,019 B1 (De SIMONE ET AL) 25 June 2002, see the entire document	16-17 and 83

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"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

Date of the actual completion of the international search

30 August 2005 (30.08.2005)

Date of mailing of the international search report

18 NOV 2005

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. (703) 305-3230

Authorized officer

Ethan Whisenant, Ph.D.

Telephone No. (703) 305-0196

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US05/10911

Continuation of B. FIELDS SEARCHED Item 3:

Databases Searched: USPATFULL, USPG-PUBS, and EUROPATFULL ; Medline, CAlus, Biosis

Search terms:

skin, tape, gene expression, (Nucleic or DNA or RNA), (array\$ or microarray\$), psoriasis, treatment, diagnosis