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(54) **Title:** A HIGH-THROUGHPUT ASSESSMENT METHOD FOR CONTACT HYPERSENSITIVITY

(57) **Abstract:** The present invention provides methods for high-throughput assessment of in vivo skin sensitizing activity of chemical compounds through detection of secretion levels of cytokine markers implicated in skin sensitization in combination with a multivariate analysis, using support vector machine (SVM) for feature selection. The invention includes a computational algorithm that will provide unbiased analysis on the skin cell secretome data and predict the level of skin sensitization. The invention allows accurate assessment of the level sensitizing potency of any chemicals in a high-throughput manner, which can eliminate the needs for animal experiments, potentially saving money and time.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 11/61427

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(8) - G01N 33/53 (2012.01) USPC - 435/7.1, 435/7.21 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC(8) - G01N 33/53 (2012.01) USPC - 435/7.1, 435/7.21 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched IPC(8) - G01N 33/53 (2012.01) USPC - 435/7.1, 435/7.21 (keyword delimited) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWEST (USPT,PGPB,EPAB,JPAB); Google, Google Patent. Search terms used: benzene, benzenesulfonic, diamiebenzene, diamiebenzenesulfonic, inlet, interconnected, microfluidic, microreactor, mixing, modules, outlet, precipitate, quenching, sequential, sulfonation, sulphonation, tortuous		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2009/0305276 A1 (McKim) 10 December 2009 (10.12.2009), entire document especially, para [0001], [0015], [0035], [0035]-[0040], [0044], [0051], [0052], [0057]-[0068]	1, 7, 9-13 ----- 2-6, 8, 14-28
Y	WO 2009/089512 A2 (Yarmush et al.) 16 July 2009 (16.07.2009), para [0056], [0067], [0054]	2, 8, 16-18
Y	US 2008/0057028 A1 (Alitalo et al.) 06 March 2008 (06.03.2008), para [0324]-[0328]	3, 4, 14, 15
Y	WO 2010/115984 A1 (Barbaras et al.) 14 October 2010 (14.10.2010), pg 23, ln 3-26; pg 4, ln 13-19	5
Y	US 2006/0051358 A1 (Banchereau et al.) 09 March 2006 (09.03.2006), para [0129], [0130]	6
Y	US 7,792,770 B1 (Phoha et al.) 07 September 2010 (07.09.2010), entire document especially, col 6, ln 10-25; col 6, ln 55-60; col 5, ln 8-12; col 6, ln 15-16; col 9, ln 32-34; col 5, ln 10-14; col 8, ln 25-27; col 6, ln 29-39; col 10, ln 36-44; claim 4	19-28
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
* 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 but 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 20 March 2012 (20.03.2012)		Date of mailing of the international search report <b>06 APR 2012</b>
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: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

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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 6,190,691 B1 (Mak) 20 February 2001 (20.02.2001), entire document	1-28
A	Basketter et al., "Skin Sensitisation and Epidermal Disposition: The Relevance of Epidermal Disposition for Sensitisation Hazard Identification and Risk Assessment." ATLA 35, 137-154, 2007 (2007), entire document	1-28