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(54) **Rapid detection of replicating cells**

(57) The invention provides efficient, rapid, and sensitive enumeration of living cells by detecting microscopic colonies derived from *in situ* cell division using large area imaging. Microbial enumeration tests based on the invention address an important problem in clinical and industrial microbiology - the long time needed for detection using traditional methods - while retaining key advantages

of the traditional methods based on microbial culture. Embodiments of the invention include non-destructive aseptic methods for detecting cellular microcolonies without labeling reagents. These methods allow for the generation of pure cultures which can be used for microbial identification and determination of antimicrobial resistance.

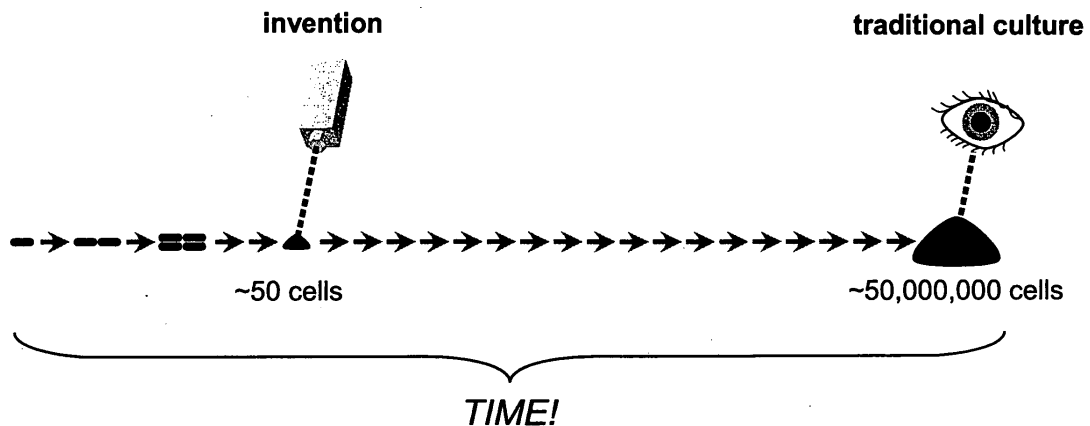


FIG. 2. The concept for rapid detection of microbial growth by detecting microcolonies.

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EUROPEAN SEARCH REPORT

Application Number
EP 10 01 3064

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	<p>VIDON D J -M ET AL: "A simple chemiluminescence-based method for rapid enumeration of Listeria spp. microcolonies", JOURNAL OF APPLIED MICROBIOLOGY, vol. 90, no. 6, June 2001 (2001-06), pages 988-993, XP002629218, ISSN: 1364-5072 * abstract * * page 989 *</p> <p style="text-align: center;">-----</p>	1-15	<p>INV. C12M1/34 C12Q1/00 C12Q1/04 G01N33/53 G01N33/569 G01N33/50 G01N15/14 G01N33/58 G01N33/543</p>
X	<p>NELIS H ET AL: "Enzymatic detection of coliforms and Escherichia coli within 4 hours", WATER AIR AND SOIL POLLUTION, vol. 123, no. 1-4, October 2000 (2000-10), pages 43-52, XP002629219, ISSN: 0049-6979 * abstract * * pages 46-48 *</p> <p style="text-align: center;">-----</p>	1-15	
X	<p>VAN POUCKE S O ET AL: "Rapid detection of fluorescent and chemiluminescent total coliforms and Escherichia coli on membrane filters", JOURNAL OF MICROBIOLOGICAL METHODS, vol. 42, no. 3, November 2000 (2000-11), pages 233-244, XP002629220, ISSN: 0167-7012 * abstract * * page 236 *</p> <p style="text-align: center;">-----</p> <p style="text-align: right;">-/--</p>	1-15	<p>TECHNICAL FIELDS SEARCHED (IPC)</p> <p>G01N</p>
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		22 March 2011	Lunter, Pim
CATEGORY OF CITED DOCUMENTS		<p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>	
<p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p>			

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EPO FORM 1503 03.82 (P04C01)



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Application Number
EP 10 01 3064

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	VAN POUCKE S O ET AL: "A 210-min solid phase cytometry test for the enumeration of Escherichia coli in drinking water", JOURNAL OF APPLIED MICROBIOLOGY, vol. 89, no. 3, September 2000 (2000-09), pages 390-396, XP002629221, ISSN: 1364-5072 * abstract * * page 391 *	1-15	TECHNICAL FIELDS SEARCHED (IPC)
X	----- YASUI TETSUJI ET AL: "Imaging of Lactobacillus brevis single cells and microcolonies without a microscope by an ultrasensitive chemiluminescent enzyme immunoassay with a photon-counting television camera", APPLIED AND ENVIRONMENTAL MICROBIOLOGY, vol. 63, no. 11, November 1997 (1997-11), pages 4528-4533, XP002629222, ISSN: 0099-2240 * abstract * * page 4529 *	1-15	
X	----- MIGNON-GODEFROY KARINE ET AL: "Solid phase cytometry for detection of rare events", CYTOMETRY, vol. 27, no. 4, 1997, pages 336-344, XP002629223, ISSN: 0196-4763 * abstract * * page 337 *	1-15	
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 22 March 2011	Examiner Lunter, Pim
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03 82 (P04C01)



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Application Number
EP 10 01 3064

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	KROLL R G ET AL: "A LASER-LIGHT PULSE COUNTING METHOD FOR AUTOMATIC AND SENSITIVE COUNTING OF BACTERIA STAINED WITH ACRIDINE ORANGE", JOURNAL OF APPLIED BACTERIOLOGY, vol. 66, no. 2, 1989, pages 161-168, XP008134528, ISSN: 0021-8847 * abstract * * pages 162-163 *	1-15	
X	VAN POUCKE S O ET AL: "Solid phase cytometry-based enzymatic detection of coliforms in drinking water within 4 h", WATER SUPPLY 1999 GB, vol. 17, no. 2, 1999, pages 67-72, XP008134533, ISSN: 0735-1917 * abstract * * page 68 *	1-15	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 22 March 2011	Examiner Lunter, Pim
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EPO FORM 1503 03.82 (P/04C01)

专利名称(译)	快速检测复制细胞		
公开(公告)号	EP2311934A3	公开(公告)日	2011-05-04
申请号	EP2010013064	申请日	2002-09-06
[标]申请(专利权)人(译)	基因组PROFILING SYST		
申请(专利权)人(译)	基因组分析系统		
当前申请(专利权)人(译)	RAPID MICRO BIOSYSTEMS , INC.		
[标]发明人	STRAUS DON		
发明人	STRAUS, DON		
IPC分类号	C12M1/34 C12Q1/00 C12Q1/04 G01N33/53 G01N33/569 G01N33/50 G01N15/14 G01N33/58 G01N33/543 C12Q1/06 C12Q1/18 C12Q1/68 C12Q1/70 G01N1/30 G01N21/76 G01N21/78 G01N33/48 G01N33/545 G01N33/554 G01N33/567		
CPC分类号	C12Q1/06 B82Y5/00 B82Y10/00 B82Y20/00 C12Q1/04 C12Q1/18 G01N15/1429 G01N15/1475 G01N21/6428 G01N33/5005 G01N33/5008 G01N33/56916 G01N33/56938 G01N33/56966 G01N33/56983 G01N33/58 G01N33/582 G01N2015/1486 G01N2015/1488 G01N2021/6439 G01N2021/6471 G01N2333/195 G01N2333/245 G01N2333/31 G01N2333/32 G01N2333/33		
优先权	60/317658 2001-09-06 US		
其他公开文献	EP2311934A2 EP2311934B1		
外部链接	Espacenet		

摘要(译)

本发明通过使用大面积成像检测源自原位细胞分裂的微观集落，提供有效，快速和灵敏的活细胞计数。基于本发明的微生物计数测试解决了临床和工业微生物学中的重要问题 - 使用传统方法检测所需的长时间 - 同时保留了基于微生物培养的传统方法的关键优势。本发明的实施方案包括用于检测细胞微菌落而无需标记试剂的非破坏性无菌方法。这些方法允许产生纯培养物，其可用于微生物鉴定和抗微生物剂抗性的测定。

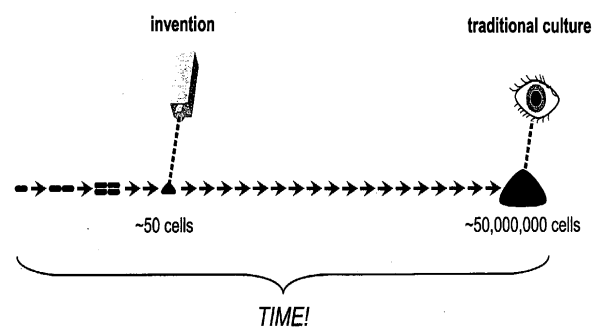


FIG. 2. The concept for rapid detection of microbial growth by detecting microcolonies.