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(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, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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Declarations under Rule 4.17:
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations*
— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*

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:
22 December 2005

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: ANTIMICROBIAL COMPOSITIONS AND METHODS

(57) Abstract: Antimicrobial compositions, especially those useful when applied topically, particularly to mucosal tissues (i.e., mucous membranes), including, in particular, an antimicrobial lipid component, such as a fatty acid ester, fatty ether, or alkoxide derivative thereof The compositions can also include an enhancer component, a surfactant, a hydrophobic component, and/or a hydrophilic component. Such compositions provide effective topical antimicrobial activity and are accordingly useful in the treatment and/or prevention of conditions that are caused, or aggravated by, microorganisms (including viruses).

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61K9/00 A61K31/231 A61K31/23 A61K31/25

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)
IPC 7 A61K

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 practical, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 067 997 A (KABARA ET AL) 10 January 1978 (1978-01-10) column 6, line 32 - line 47 examples claims 15,19 ----- -/--	1,17-20, 23-36, 40-95, 122-125, 129-134, 136-153, 162,164, 166,169

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in 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 document 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)

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"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	Date of mailing of the international search report
7 October 2005	24. 10. 05

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Boulois, D

INTERNATIONAL SEARCH REPORT

Int[illegible]al Application No
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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.
X	WO 92/21320 A (MINNESOTA MINING AND MANUFACTURING COMPANY) 10 December 1992 (1992-12-10) page 2, line 25 - line 31 examples -----	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	EP 0 530 861 A (KABARA, JON JOSEPH) 10 March 1993 (1993-03-10) page 2, line 1 - line 7 example 7 -----	1,17-20, 23-28, 31-36, 39,64, 82,95, 104,105, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	US 5 231 087 A (THORNFELDT ET AL) 27 July 1993 (1993-07-27) examples -----	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	WO 93/20812 A (HYDRO PHARMA SVERIGE AB) 28 October 1993 (1993-10-28) examples ----- -/--	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169

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Inte ... Application No
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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.
X	WO 95/31956 A (NOVAVAX, INC) 30 November 1995 (1995-11-30) page 16 - page 23 examples	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	WO 98/09520 A (MINNESOTA MINING AND MANUFACTURING COMPANY) 12 March 1998 (1998-03-12) claims; examples page 1, line 5 - line 8	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	WO 97/25032 A (APPLIED MICROBIOLOGY, INC) 17 July 1997 (1997-07-17) claims; examples	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	DE 43 19 546 A1 (BEIERSDORF AG, 20253 HAMBURG, DE) 15 December 1994 (1994-12-15) page 3, line 36 - line 43 examples	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169

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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.
X	FR 2 729 050 A (L'OREAL) 12 July 1996 (1996-07-12) claims; examples	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	GB 2 193 892 A (* COLGATE-PALMOLIVE COMPANY) 24 February 1988 (1988-02-24) examples	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	WO 94/18943 A (BEIERSDORF AG; SOLVAY FLUOR UND DERIVATE GMBH; DILLENBURG, HELMUT; JAK) 1 September 1994 (1994-09-01) examples	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	WO 82/03173 A (EKENSTAM BO THURESSON; GLANTZ PER OLOF; LARSSON KARE) 30 September 1982 (1982-09-30) examples	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169

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INTERNATIONAL SEARCH REPORT

Inte .... Application No
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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.
X	FLOURNOY D J ET AL: "THE ROLE OF LAURICIDIN AS AN ANTIMICROBIAL AGENT" DRUGS OF TODAY / MEDICAMENTOS DE ACTUALIDAD, J.R. PROUS SS.A. INTERNATIONAL PUBLISHERS, ES, vol. 21, no. 8, 1 August 1985 (1985-08-01), pages 373-377, XP000560127 ISSN: 0025-7656 the whole document -----	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	VEDEHRA D V ET AL: "COMPARISON OF ANTIBACTERIAL PROPERTIES OF LAURICIDIN AND BHA AGAINST ANTIBIOTIC RESISTANT AND SENSITIVE STRAINS OF STAPHYLOCOCCUS AUREUS AND PSEUDOMONAS AERUGINOSA" AOCS MONOGRAPH, vol. 13, no. 2, 1985, pages 77-78, XP000560207 the whole document -----	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	US 6 057 274 A (BATOR ET AL) 2 May 2000 (2000-05-02) claims -----	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	EP 0 156 563 A (MINNESOTA MINING AND MANUFACTURING COMPANY) 2 October 1985 (1985-10-02) examples -----	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169

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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.
X	EP 0 244 144 A (KABARA, JON JOSEPH) 4 November 1987 (1987-11-04) examples	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	WO 01/43549 A (3M INNOVATIVE PROPERTIES COMPANY; TAUTVYDAS, KESTUTIS; ANDREWS, JEFFRE) 21 June 2001 (2001-06-21) examples	1,17-20, 23-28, 31-36, 64,82, 95, 122-124, 129,131, 133,134, 136,137, 162,164, 166,169
X	WO 02/47637 A (HAARMANN & REIMER GMBH; WOLF, FLORIAN) 20 June 2002 (2002-06-20) page 3, line 21 - line 30 example 10	24-31, 40-95, 122-125, 129-134, 138-153
X	GB 2 053 195 A (BRISTOL-MYERS CO) 4 February 1981 (1981-02-04) table VIII	1,17-20, 23-28, 31-36, 39-46, 52,58, 64,82, 88-92, 122-124, 129,131, 133,134, 136,137, 166,170

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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.
X	EP 0 608 433 A (SHISEIDO COMPANY LIMITED; SHISEIDO COMPANY, LTD) 3 August 1994 (1994-08-03) examples 6,7,14-8	1,17-20, 23-28, 31-36, 39-46, 52,58, 64,82, 88-92, 122-124, 129,131, 133,134, 136,137, 166,170
X	WO 00/04118 A (COLGATE-PALMOLIVE) 27 January 2000 (2000-01-27) table 1	1,17-20, 23-28, 31-36, 39-46, 52,58, 64,82, 88-92, 122-124, 129,131, 133,134, 136,137, 166,170
X	WO 98/14189 A (SMITHKLINE BEECHAM CORPORATION; SMITHKLINE BEECHAM PLC; HENKEL, TIMOTH) 9 April 1998 (1998-04-09) example 1	1,17-20, 23-28, 31-36, 39-46, 52,58, 64,82, 88-92, 122-124, 129,131, 133,134, 136,137, 166,170

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ational application No.
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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. [X] Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 24-28, 31-36, 39,64-69, 82-87, 95-100, 103-105, 112-116, 122-124, 129-137, 166,169 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

2. [ ] Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. [ ] Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. [ ] As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. [ ] As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. [X] As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

1-8 (partially), 9 (entirely), 10-20, 23-36,39-100, 103-107, 112-116 122-125, 129-134 , 135-170 (all partially) as far as regarding subject 1 5 and 7 of the non unity

4. [ ] No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

[ ] The additional search fees were accompanied by the applicant's protest.

[X] No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-8 (partially), 9 (entirely), 10-20, 23-28,31-36, 39-69, 82-92, 95-100, 103-107, 112-116, 122-125, 129-134 , 135-137, 162-170 (partially)

an antimicrobial composition comprising an effective amount of an antimicrobial lipid component comprising a (C7- C12) or an alkoxylated derivative thereof, and its use for decolonizing at least a portion of the nasal cavities, anterior nares, and/or nasopharinx of a subject of microorganisms, its use for treating a subject for a common cold and/or respiratory affliction caused by microbial infection, and its use for treating chronic sinusitis in a subject:

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2. claims: 24-31, 40-95, 108-111, 122-125 , 129-134 (all partially)

Use of an antimicrobial composition comprising an effective amount of an antimicrobial lipid component comprising a (C7-C12) or an alkoxylated derivative thereof for treating a middle ear infection in a subject

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3. claims: 24-31, 40-95, 117-121, 122-125, 129-134 (all partially)

Use of an antimicrobial composition comprising an effective amount of an antimicrobial lipid component comprising a (C7-C12) or an alkoxylated derivative thereof for treating impetigo on the skin of a subject

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4. claims: 24-31, 40-95, 122-125, 126-128, 129-134 (all partially)

Use of an antimicrobial composition comprising an effective amount of an antimicrobial lipid component comprising a (C7-C12) or an alkoxylated derivative thereof for treating a burn

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5. claims: 24-31, 40-95, 122-125, 129-134, 138-153 (all partially)

Use of an antimicrobial composition comprising an effective amount of an antimicrobial lipid component comprising a (C7-C12) or an alkoxylated derivative thereof for decolonizing at least a portion of the throat/oesophagus of a subject of microorganisms

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6. claims: 24-31, 40-95, 122-125, 129-134, 154-161 (all partially)

Use of an antimicrobial composition comprising an effective amount of an antimicrobial lipid component comprising a (C7-C12) or an alkoxylated derivative thereof for decolonizing at least a portion of the oral cavity of a subject of microorganisms

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7. claims: 1-8, 10-20, 23-28,31-36 39-69, 82-92, 95-100, 103-142, 145-150, 153-158, 161-170 (all partially)

An antimicrobial composition comprising a (C8-C22) unsaturated fatty acid ester of a polyhydric alcohol, an alkoxylated derivative thereof wherein the alkoxylated derivative has less than 5 moles of alkoxide per mole of polyhydric alcohol, and its use:
claims 1-8, 10-20, 23-28,31-36 39-69, 82-92, 95-100, 103-142, 145-150, 153-158, 161-170 (all partially)

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8. claims: 1-8, 10-170 (all partially)

An antimicrobial composition comprising: an effective amount of an antimicrobial lipid component comprising a (C7-C12) saturated fatty ether of a polyhydric alcohol, an alkoxylated derivative thereof,wherein the alkoxylated derivative has less than 5 moles of alkoxide per mole of polyhydric alcohol and its use

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9. claims: 1-8, 10-170 (al partially)

An antimicrobial composition comprising: an effective amount of an antimicrobial lipid component comprising a (C8-C22) unsaturated fatty ether of a polyhydric alcohol, an alkoxylated derivative thereof,wherein the alkoxylated derivative has less than 5 moles of alkoxide per mole of polyhydric alcohol and its use

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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