PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7:		(11) International Po
A61K 39/39, 39/00, 39/29, 39/015, A61P 31/12, 31/04, 33/06, 35/00, 37/08	A3	(43) International Pu

(11) International Publication Number: WO 00/23105

(43) International Publication Date: 27 April 2000 (27.04.00)

(21) International Application Number: PCT/EP99/07764

(22) International Filing Date: 8 October 1999 (08.10.99)

(30) Priority Data:

 9822703.6
 16 October 1998 (16.10.98)
 GB

 9822709.3
 16 October 1998 (16.10.98)
 GB

 9822712.7
 16 October 1998 (16.10.98)
 GB

(71) Applicant (for all designated States except US): SMITHK-LINE BEECHAM BIOLOGICALS S.A. [BE/BE]; Rue de l'Institut 89, B-1330 Rixensart (BE).

(72) Inventor; and

(75) Inventor/Applicant (for US only): GARCON, Nathalie [FR/BE]; SmithKline Beecham Biologicals S.A., Rue de l'Institut 89, B-1330 Rixensart (BE).

(74) Agent: DALTON, Marcus, Jonathan, William; SmithKline Beecham, Corporate Intellectual Property, Two New Horizons Court, Brentford, Middlesex TW8 9EP (GB). (81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, 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, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published

With international search report.

(88) Date of publication of the international search report:

3 August 2000 (03.08.00)

(54) Title: ADJUVANT SYSTEMS AND VACCINES

(57) Abstract

The present invention provides vaccine and adjuvant formulation comprising an immunostimulant and a metal salt. The immunostimulant is adsorbed onto a particle of metal salt and the resulting particle is essentially devoid of antigen.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	\mathbf{SZ}	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav	TM	Turkmenistan
BF	Burkina Faso	GR	Greece		Republic of Macedonia	TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	$\mathbf{U}\mathbf{Z}$	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's	NZ	New Zealand		
CM	Cameroon		Republic of Korea	PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

inter onal Application No PCT/EP 99/07764

A. CLASSIF IPC 7		A61K39/29 A61P35/00	A61K39/015 A61P37/08	A61P31/12					
According to	International Patent Classification (IPC) or to both nat	ional classification a	and IPC						
	SEARCHED								
Minimum do IPC 7	cumentation searched (classification system followed A61K	by classification syr	mbols)						
Documentat	ion searched other than minimum documentation to the	e extent that such d	ocuments are included in t	he fields searched					
Electronic da	ata base consulted during the international search (na	me of data base an	d, where practical, search	terms used)					
BIOSI	S EPO-Internal PAJ WPI								
C. DOCUM	ENTS CONSIDERED TO BE RELEVANT								
Category °	Citation of document, with indication, where appropriate	riate, of the relevant	passages	Relevant to claim No.					
A	WO 97 00697 A (SMITHKLINE BIOLOGICALS) 9 January 19 the whole document		1-09)	1-28					
A	WO 96 26741 A (SMITHKLINE BIOLOGICALS) 6 September the whole document		-09-06)	1–28					
A	WO 98 15287 A (SMITHKLINE BIOLOGICALS) 16 April 199 the whole document		-16)	1-28					
A	EP 0 812 593 A (SMITHKLIN BIOLOGICALS) 17 December the whole document		-12-17)	1–28					
		-/-	-						
		·							
				<u> </u>					
X Furt	ther documents are listed in the continuation of box C.	X	Patent family member	rs are listed in annex.					
° Special ce	fter the international filing date conflict with the application but								
"A" docum	inciple or theory underlying the								
"E" earlier	vance; the claimed invention el or cannot be considered to when the document is taken alone								
which citatio	ent which may throw doubts on priority claim(s) or is cited to establish the publication date of another on or other special reason (as specified)	**	document of particular rele cannot be considered to it	vance; the claimed invention notice an inventive step when the					
other	"O" document referring to an oral disclosure, use, exhibition or other means document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.								
later t	ent published prior to the international filing date but than the priority date claimed	'&'	document member of the s	ame patent family					
Date of the	actual completion of the international search		Date of mailing of the inte	rnational search report					
2	22 May 2000		29/05/2000						
Name and	mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2		Authorized officer						
	NL. – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016		Moreau, J						

1

Inter mai Application No
PCT/EP 99/07764

	lon) DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
, A		1-28
,	BIOLOGICALS)	
	WO 99 48525 A (SMITHKLINE BEECHAM BIOLOGICALS) 30 September 1999 (1999-09-30) the whole document	
;		
İ		

1

Ir...mational application No.

PCT/EP 99/07764

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 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: Remark: Although claim 27 is 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.
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 II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)
This International Searching Authority found multiple inventions in this international application, as follows:
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. 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.:
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. No protest accompanied the payment of additional search fees.

information on patent family members

Inter onal Application No
PCT/EP 99/07764

Patent document cited in search report		Publication date	I	Patent family member(s)	Publication date	
WO 970		A	09-01-1997	AU	695720 B	20-08-1998
NO 3/0	0097	П	03~01 1337	AU	6222196 A	30-12-1996
				AU	696338 B	10-09-1998
				AU	6359196 A	22-01-1997
				BG	102146 A	30-10-1998
				BR	9608612 A	04-05-1999
				BR	9609414 A	18-05-1999
				CA	2221511 A	19-12-1996
				CA	2222455 A	09-01-1997
				CN	1215337 A	28-04-1999
				CZ	9703902 A	13-05-1998
			•	CZ	9704189 A	17-06-1998
				WO	9640242 A	19-12-1996
				EP	0831901 A	01-04-1998
				EP	0833662 A	08-04-1998
				HU	9802199 A	28-01-1999
				HÜ	9900061 A	28-04-1999
				JP	11507026 T	22-06-1999
				ĴΡ	11507935 T	13-07-1999
				NO	975555 A	09-01-1998
				NO	976035 A	16-02-1998
				NZ	311000 A	29-04-1999
				NZ	312132 A	29-04-1999 29-04-1999
				PL	323863 A	27-04-1999 27-04-1998
				PL	324242 A	11-05-1998
				SK	176197 A	08-07-1998
WO 962	6741	Α	06-09-1996	AP	766 A	17-09-1999
				AU	695921 B	27-08-1998
				AU	4878096 A	18-09-1996
				BG	101851 A	30-04-1998
				BR	9607458 A	30-06-1998
				CA	2212552 A	06-09-1996
				CN	1176604 A	18-03-1998
				CZ	9702674 A	18-02-1998
				EP	0810877 A	10-12-1997
				FI	973457 A	22-08-1997
				HU	9801242 A	28-08-1998
				JP	11501018 T	26-01-1999
				NO	973873 A	22-08-1997
				NZ	302674 A	28-01-1999
				PL	321966 A	05-01-1998
				SK	115097 A	04-02-1998
				US	5972346 A	26-10-1999
				ZA	9601460 A	29-08-1996
					7001400 M	
WO 981	5287	Α	16-04-1998	AU	714930 B	13-01-2000
				AU	4781297 A	05-05-1998
				CN	1238696 A	15-12-1999
				CZ	9901167 A	11-08-1999
				EP	0939650 A	08-09-1999
				NO	991524 A	29-03-1999
				PL	332633 A	27-09-1999
EP 812	 593	Α	17-12-1997	AP	515 A	09-08-199 <i>6</i>
LI 012	.333	Λ	1/-17-133/			
				AT AU	157882 T 685443 B	15-09-1997
				ΔH	005443 K	22-01-1998
				AU	6426494 A	11-10-1994

adormation on patent family members

Interr nai Application No
PCT/EP 99/07764

Patent document cited in search report		Publication date		atent family member(s)	Publication date
EP 812593	Α		AU	705739 B	03-06-1999
			AU	7541696 A	13-02-1997
			BR	9405957 A	12-12-1995
			CA	2157376 A	29-09-1994
			CN	1119829 A	03-04-1996
			CZ	9502467 A	13-03-1996
			DE	69405551 D	16-10-1997
			DE	69405551 T	26-03-1998
			DK	689454 T	08-12-1997
			WO	9421292 A	29-09-1994
			EP	0689454 A	03-01-1996
			. ES	2109685 T	16-01-1998
			FI	954514 A	22-09-1995
			GR	3025483 T	27-02-1998
			HU	72916 A	28-06-1996
			IL	109056 A	15-06-1998
			JP	8508722 T	17-09-1996
			NO	953759 A	22-09-1995
			NZ	263538 A	28-10-1996
			PL	310598 A	27-12-1995
•			SG	48309 A	17-04-1998
			SK	117395 A	06-11-1996
			US	5776468 A	07-07-1998
			ZA	9401957 A	31-01-1995
WO 9948525	Α	30-09-1999	AU	3417299 A	18-10-1999