



(19)

Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11)

EP 1 032 651 B1

(12)

## EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention  
of the grant of the patent:  
**16.08.2006 Bulletin 2006/33**

(51) Int Cl.:  
**C12N 5/10 (2006.01)**      **A61K 35/12 (2006.01)**

(21) Application number: **98955534.7**

(86) International application number:  
**PCT/EP1998/006986**

(22) Date of filing: **22.10.1998**

(87) International publication number:  
**WO 1999/021968 (06.05.1999 Gazette 1999/18)**

**(54) INDUCIBLE CELLULAR IMMUNITY THROUGH ACTIVATION OF Th1 AND SUPPRESSION OF Th2 RESPONSES BY MACROPHAGES**

INDUZIERTE ZELLULÄRE IMMUNITÄT DURCH AKTIVIERUNG DER TH1 UND  
UNTERDRÜCKUNG DER TH2 ANTWORT DURCH MACROPHAGEN

IMMUNITE CELLULAIRE INDUCTIBLE PAR L'ACTIVATION DE REACTIONS DEPENDANTES DE  
TH1 ET LA SUPPRESSION DE REACTIONS DEPENDANTES DE TH2 AU MOYEN DE  
MACROPHAGES

(84) Designated Contracting States:  
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE**

- CONSTANT S. L. & BOTTOMLY K.: "Induction of Th1 and Th2 CD4+ T cell responses: the alternative approach" ANNU. REV. IMMUNOL., vol. 15, - 1997 pages 297-332, XP002060443

(30) Priority: **23.10.1997 EP 97203286**

- FITZGERALD T.J.: "The Th1/Th2-like switch in syphilitic infection: is it detrimental" INFECTION AND IMMUNITY, vol. 60, no. 9, - September 1992 pages 3475-3479, XP002060389

(43) Date of publication of application:  
**06.09.2000 Bulletin 2000/36**

- ROITT I. M.: "Encyclopedia of immunology" , ACADEMIC PRESS , 1992 XP002060392 see page 114 - page 115

(73) Proprietor: **Vlaams Interuniversitair Instituut voor Biotechnologie vzw.  
9052 Zwijnaarde (BE)**

- SCOTT P.: "IFN-gamma modulates the early development of Th1 and Th2 responses in a murine model of cutaneous leishmaniasis" J. IMMUNOL., vol. 147, no. 9, - 1 November 1991 pages 3149-3155, XP002060390

(72) Inventors:

- DESMEDT, Marjory  
B-9000 Gent (BE)

- FIERS, Walter  
B-9070 Destelbergen (BE)

- GROOTEN, Johan  
B-9920 Lovendegem (BE)

(56) References cited:

**WO-A-96/05288**

- TRANNOY E. ET AL.: "Monoclonal c-myc transformed macrophage cell lines" J. IMMUNOL., vol. 151, no. 6, - 15 September 1993 pages 3042-3056, XP002060444

**SOLDERA S. ET AL.,: "Selective down-regulation of the Th2 immune responses following treatment with antigen-coupled splenocytes" EUR. J. IMMUNOL., vol. 27, - April 1997 pages 848-854, XP002060388**

- DESMEDT M. ET AL.: "Macrophages induce cellular immunity by activating Th1 cell responses and suppressing Th2 cell responses" J. IMMUNOLOGY, vol. 160, no. 11, - 1 June 1998 pages 5300-5308, XP002092609

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).