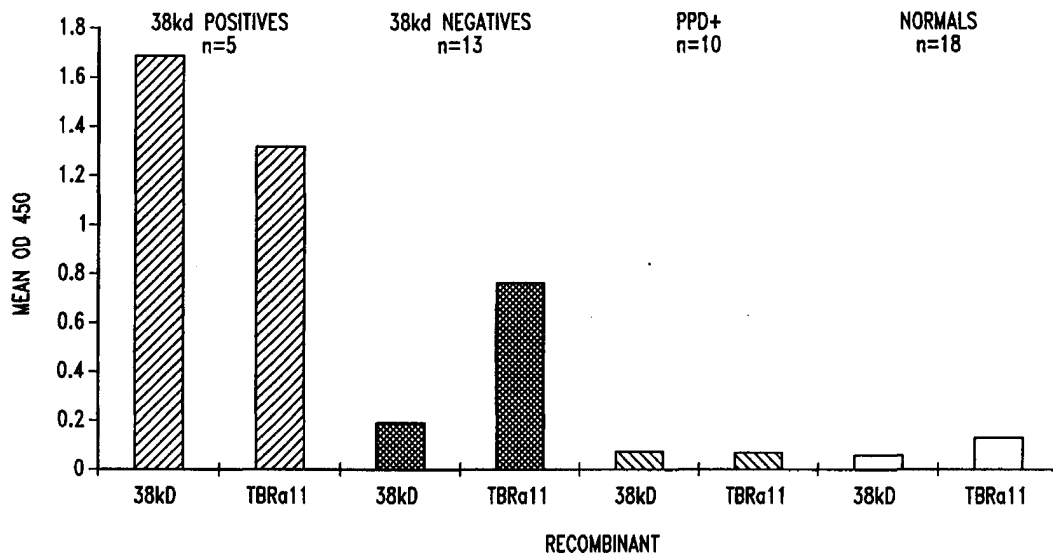




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification <sup>6</sup> : <b>C12N 15/31, C07K 14/35, 16/12, C12Q 1/68, C12N 15/62, G01N 33/53</b></p>	<p><b>A3</b></p>	<p>(11) International Publication Number: <b>WO 98/16645</b> (43) International Publication Date: 23 April 1998 (23.04.98)</p>
<p>(21) International Application Number: PCT/US97/18214 (22) International Filing Date: 7 October 1997 (07.10.97)</p> <p>(30) Priority Data: 08/729,622 11 October 1996 (11.10.96) US 08/818,111 13 March 1997 (13.03.97) US</p> <p>(71) Applicant: CORIXA CORPORATION [US/US]; 1124 Columbia Street, Seattle, WA 98104 (US).</p> <p>(72) Inventors: REED, Steven, G.; 2843 - 122nd Place N.E., Bellevue, WA 98005 (US). SKEIKY, Yasir, A., W.; 8327 - 25th Avenue N.W., Seattle, WA 98107 (US). DILLON, Davin, C.; 21607 N.E. 24th Street, Redmond, WA 98053 (US). CAMPOS-NETO, Antonio; 9308 Midship Court N.E., Bainbridge Island, WA 98021 (US). HOUGHTON, Raymond; 2636 - 242nd Place S.E., Bothell, WA 98021 (US). VEDVICK, Thomas, S.; 124 South 300th Place, Federal Way, WA 98003 (US). TWARDZIK, Daniel, R.; 10195 South Beach Drive, Bainbridge Island, WA 98110 (US). LODES, Michael, J.; 9223 - 36th Avenue S.W., Seattle, WA 98126 (US).</p>	<p>(74) Agents: MAKI, David, J. et al.; Seed and Berry LLP, 6300 Columbia Center, 701 Fifth Avenue, Seattle, WA 98104-7092 (US).</p> <p>(81) Designated States: AL, AM, AT, AU, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 6 August 1998 (06.08.98)</p>	

## (54) Title: COMPOUNDS AND METHODS FOR DIAGNOSIS OF TUBERCULOSIS



## (57) Abstract

Compounds and methods for diagnosing tuberculosis are disclosed. The compounds provided include polypeptides that contain at least one antigenic portion of one or more *M. tuberculosis* proteins, and DNA sequences encoding such polypeptides. Diagnostic kits containing such polypeptides or DNA sequences and a suitable detection reagent may be used for the detection of *M. tuberculosis* infection in patients and biological samples. Antibodies directed against such polypeptides are also provided.

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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 97/18214

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 6 C12N15/31 C07K14/35 C07K16/12 C12Q1/68 C12N15/62  
 G01N33/53

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 6 C12N C07K C12Q G01N

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)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 419 355 A (INNOGENETICS NV) 27 March 1991  see abstract see page 24, line 45 - page 26, line 19 see page 56 - page 72; claims ---	1,3,5-9, 13-18, 21-23, 26,27, 30-32, 35-41, 44,45, 48,49
A	WO 95 01441 A (STATENS SERUMSINSTITUT ;ANDERSEN PETER (DK); ANDERSEN AASE BENGAAR) 12 January 1995 see abstract see page 20, line 13 - page 25, line 16 see page 73; claim 30 --- -/--	50,51,54

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

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- \*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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Date of the actual completion of the international search  <p style="text-align: center; font-size: 1.2em;">5 March 1998</p>	Date of mailing of the international search report  <p style="text-align: center; font-size: 1.2em;">23.06.98</p>
Name and mailing address of the ISA 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	Authorized officer  <p style="text-align: center; font-size: 1.2em;">Macchia, G</p>

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/18214

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 95 01440 A (STATENS SERUMINSTITUT ;HASLOEV KAARE (DK); ANDERSEN AASE BENGAARD) 12 January 1995	
A	ANDERSEN P. ET AL.: "Identification of immunodominant antigens during infection with Mycobacterium tuberculosis" SCANDINAVIAN JOURNAL OF IMMUNOLOGY, vol. 36, 1992, pages 823-831, XP002057751	
A	ANDERSEN A B ET AL: "STRUCTURE AND MAPPING OF ANTIGENIC DOMAINS OF PROTEIN ANTIGEN B, A 38,000-MOLECULAR-WEIGHT PROTEIN OF MYCOBACTERIUM TUBERCULOSIS" INFECTION AND IMMUNITY, vol. 57, no. 8, August 1989, pages 2481-2488, XP002026677 cited in the application see the whole document	12,53
A	WO 96 23885 A (PASTEUR INSTITUT ;LAQUEYRERIE ANNE (FR); MARCHAL GILLES (FR); PESCE) 8 August 1996	
A	WO 92 21758 A (PASTEUR INSTITUT) 10 December 1992	
A	AUSUBEL ET AL: "ISOLATION OF PROTEINS FOR MICROSEQUENCE ANALYSIS" CURRENT PROTOCOLS IN MOLECULAR BIOLOGY, 1993, pages 10.19.01-10.19.12, XP002026411 cited in the application	
A	YOUNG D B ET AL: "SCREENING OF A RECOMBINANT MYCOBACTERIAL DNA LIBRARY WITH POLYCLONAL ANTISERUM AND MOLECULAR WEIGHT ANALYSIS OF EXPRESSED ANTIGENS" INFECTION AND IMMUNITY, vol. 55, no. 6, June 1987, pages 1421-1425, XP002026410	
A	WO 94 00493 A (KAPOOR ARCHANA ;MUNSHI ANIL (US)) 6 January 1994	
A	FR 2 265 402 A (MITSUI PHARMACEUTICALS) 24 October 1975	
A	FR 2 244 539 A (MITSUI PHARMACEUTICALS) 18 April 1975	
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INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 97/18214

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ROMAIN ET AL: "PREPARATION OF TUBERCULIN ANTIGEN L" ANNALES DE L'INSTITUT PASTEUR / MICROBIOLOGIE, vol. 136B, 1985, pages 235-248, XP002026409 ---	
P,X	WO 97 09429 A (CORIXA CORP) 13 March 1997  see abstract see page 173-181; claims ---	1,3,5-9, 12-18, 21-23, 26,27, 30-32, 35-41, 44,45, 48-51
P,X	WO 97 09428 A (CORIXA CORP) 13 March 1997 see abstract see page 158 - page 163; claims -----	1,3,5-8

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 97/ 18214

## 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.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
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 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:

see continuation-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.  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.:

1, 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially  
(subject 1. on next sheet)

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1, 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

A polypeptide comprising an antigenic portion of a soluble M. tuberculosis antigen or a variant, having an N-terminal aminoacid sequence as in Seq.ID:115 and/or encoded by a DNA molecule as in Seq.ID:96, complements of said sequence or sequences hybridizing to it. A DNA molecule comprising a sequence encoding said polypeptide. An expression vector comprising said DNA molecule, a host cell transformed with said expression vector. A method for detecting M. tuberculosis infection in a biological sample by detection of antibodies binding to said polypeptide or by detection of said polypeptide. A method for detecting M. tuberculosis infection in a biological sample by detection of said DNA sequence. Diagnostic kits thereof. An antibody binding to said polypeptide. A fusion protein comprising said polypeptide. Diagnostic kit comprising said fusion protein.

2. Claims: 1, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:116.

3. Claims: 1, 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:(1)17 and 25.

4. Claims: 1, 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:118 and 24.

5. Claims: 1, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:119.

6. Claims: 1, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:120.

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## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

7. Claims: 1, 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:121 and 52.

8. Claims: 1, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:122.

9. Claims: 1, 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:123 and 94.

10. Claims: 1, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:131.

11. Claims: 2, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:124.

12. Claims: 2, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:132.

13. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:1.

14. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:2.

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

15. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:4 and 17.

16. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:5.

17. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:6.

18. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:7.

19. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:8.

20. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:9.

21. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:10 and 13.

22. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:14.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

23. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:15.

24. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:16.

25. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:18.

26. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:19.

27. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:20.

28. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:21.

29. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:22.

30. Claims: 3, 5-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:23.

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

31. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:26.

32. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:27.

33. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:28.

34. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:29.

35. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:30.

36. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:31.

37. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:32.

38. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:33.

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## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

39. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:34.

40. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:35.

41. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:36.

42. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:37.

43. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:38.

44. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:39.

45. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:40.

46. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:41.

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

47. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:42.

48. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:43, 44 and 178.

49. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:45.

50. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:46.

51. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:47.

52. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:48.

53. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:49.

54. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:50.

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

55. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:51.

56. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:133.

57. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:134.

58. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:158.

59. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:159.

60. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:160.

61. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:161.

62. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:162.

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

63. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:163.

64. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:164 and 165.

65. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:166 and 167.

66. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:168 and 169.

67. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:170 and 171.

68. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:172 and 173.

69. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:174 and 175.

70. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45,  
48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:176 and 177.

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## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

71. Claims: 4-9, 12-18, 21-23, 26, 27, 30-32, 35-41, 44, 45, 48-51, 53, 54 all partially.

Same as invention 1 but for Seq.ID:196.

72. Claims: 10, 12-16, 28, 30, 31, 33, 35-39, 52, 54 all partially.

A method for detecting M. tuberculosis infection in a biological sample by detection of antibodies binding to a polypeptide having an N-terminal sequence as in Seq.ID:129, or by detection of a protein or polypeptide that binds to an agent binding to a polypeptide having an N-terminal sequence as in Seq.ID:129. Diagnostic kits thereof. A fusion protein comprising said polypeptide. Diagnostic kit comprising said fusion protein.

73. Claims: 10, 12-16, 28, 30, 31, 33, 35-39, 52, 54 all partially.

Same as invention 72 but for Seq.ID:130.

74. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46, 47 all partially.

A method for detecting M. tuberculosis infection in a biological sample by detection of antibodies binding to a polypeptide encoded by a DNA sequence consisting of Seq.ID:3, complements or hybridizing sequences. A method for detecting M. tuberculosis infection in a biological sample by detection of said DNA sequence. A method for detecting M. tuberculosis infection in a biological sample by detection of a protein or polypeptide that binds to an agent binding to a polypeptide encoded by Seq.ID:3, complements or hybridizing sequences. Diagnostic kits thereof.

75. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46, 47 all partially.

Same as invention 74 but for Seq.ID:11.

76. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46, 47 all partially.

Same as invention 74 but for Seq.ID:12.



FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

77. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46,  
47 all partially.

Same as invention 74 but for Seq.ID:135.

78. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46,  
47 all partially.

Same as invention 74 but for Seq.ID:136.

79. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46,  
47 all partially.

Same as invention 74 but for Seq.ID:151.

80. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46,  
47 all partially.

Same as invention 74 but for Seq.ID:152.

81. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46,  
47 all partially.

Same as invention 74 but for Seq.ID:153.

82. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46,  
47 all partially.

Same as invention 74 but for Seq.ID:154 and 155.

83. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46,  
47 all partially.

Same as invention 74 but for Seq.ID:184.

84. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46,  
47 all partially.

Same as invention 74 but for Seq.ID:185.

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

85. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46,  
47 all partially.

Same as invention 74 but for Seq.ID:186.

86. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46,  
47 all partially.

Same as invention 74 but for Seq.ID:187.

87. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46,  
47 all partially.

Same as invention 74 but for Seq.ID:188.

88. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46,  
47 all partially.

Same as invention 74 but for Seq.ID:194 and 195.

89. Claims: 11-16, 19-21, 24-26, 29-31, 34-39, 42, 43, 46,  
47 all partially.

Same as invention 74 but for Seq.ID:198.

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