SEQUENCE LISTING

<110> F. Hoffmann-La Roche AG

<120> Method for the identification of epitopes related to immunogenicity in biopharmaceuticals

<130> 23097

<160> 87

<170> PatentIn version 3.3

<210> 1
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<212> PRT
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<220>
<221> OKT3 light chain (kappa)
<222> (1)..(213)

<400> 1

Gln Ile Val Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly
1 5 10 15

Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
20 25 30

Asn Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Arg Trp Ile Tyr
35 40 45

Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Ala His Phe Arg Gly Ser
50 55 60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Gly Met Glu Ala Glu
65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn Pro Phe Thr
85 90 95

Phe Gly Ser Gly Thr Lys Leu Glu Ile Asn Arg Ala Asp Thr Ala Pro
100 105 110

Thr Val Ser Ile Phe Pro Pro Ser Ser Glu Gln Leu Thr Ser Gly Gly
115 120 125

Ala Ser Val Val Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile Asn
130 135 140

Val Lys Trp Lys Ile Asp Gly Ser Glu Arg Gln Asn Gly Val Leu Asn
145 150 155 160

Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser
165 170 175

Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr Thr

180 185 190

Cys Glu Ala Thr His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser Phe
195 200 205

Asn Arg Asn Glu Cys
210

<210> 2
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<213> Mus musculus

<220>
<221> OKT3 heavy chain (IgG2a)
<222> (1)..(449)

<400> 2

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Tyr
20 25 30

Thr Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45

Gly Tyr Ile Asn Pro Ser Arg Gly Tyr Thr Asn Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Lys Ala Thr Leu Thr Thr Asp Lys Ser Ser Ser Thr Ala Tyr
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Tyr Tyr Asp Asp His Tyr Cys Leu Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Thr Leu Thr Val Ser Ser Ala Lys Thr Thr Ala Pro Ser Val Tyr
115 120 125

Pro Leu Ala Pro Val Cys Gly Asp Thr Thr Gly Ser Ser Val Thr Leu
130 135 140

Gly Cys Leu Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Leu Thr Trp
145 150 155 160

Asn Ser Gly Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu
165 170 175

Gln Ser Asp Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Thr Ser Ser
180 185 190

Thr Trp Pro Ser Gln Ser Ile Thr Cys Asn Val Ala His Pro Ala Ser
195 200 205

Ser Thr Lys Val Asp Lys Lys Ile Glu Pro Arg Gly Pro Thr Ile Lys
210 215 220

Pro Cys Pro Pro Cys Lys Cys Pro Ala Pro Asn Leu Leu Gly Gly Pro
225 230 235 240

Ser Val Phe Ile Phe Pro Pro Lys Ile Lys Asp Val Leu Met Ile Ser
245 250 255

Leu Ser Pro Ile Val Thr Cys Val Val Val Asp Val Ser Glu Asp Asp
260 265 270

Pro Asp Val Gln Ile Ser Trp Phe Val Asn Asn Val Glu Val His Thr
275 280 285

Ala Gln Thr Gln Thr His Arg Glu Asp Tyr Asn Ser Thr Leu Arg Val
290 295 300

Val Ser Ala Leu Pro Ile Gln His Gln Asp Trp Met Ser Gly Lys Glu
305 310 315 320

Phe Lys Cys Lys Val Asn Asn Lys Asp Leu Pro Ala Pro Ile Glu Arg
325 330 335

Thr Ile Ser Lys Pro Lys Gly Ser Val Arg Ala Pro Gln Val Tyr Val
340 345 350

Leu Pro Pro Pro Glu Glu Glu Met Thr Lys Lys Gln Val Thr Leu Thr
355 360 365

Cys Met Val Thr Asp Phe Met Pro Glu Asp Ile Tyr Val Glu Trp Thr
370 375 380

Asn Asn Gly Lys Thr Glu Leu Asn Tyr Lys Asn Thr Glu Pro Val Leu
385 390 395 400

Asp Ser Asp Gly Ser Tyr Phe Met Tyr Ser Lys Leu Arg Val Glu Lys
405 410 415

Lys Asn Trp Val Glu Arg Asn Ser Tyr Ser Cys Ser Val Val His Glu
420 425 430

Gly Leu His Asn His His Thr Thr Lys Ser Phe Ser Arg Thr Pro Gly
435 440 445

Lys

<210> 3

<211> 15
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<400> 3

Ser Gly Thr Lys Leu Glu Ile Asn Arg Ala Asp Thr Ala Pro Thr
1 5 10 15

<210> 4
<211> 16
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #1
<222> (1)..(16)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*0401/*1302.

<400> 4

Gly Ser Gly Thr Lys Leu Glu Ile Asn Arg Ala Asp Thr Ala Pro Thr
1 5 10 15

<210> 5
<211> 13
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #2
<222> (1)..(13)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*0401/*1302.

<400> 5

Val Lys Trp Lys Ile Asp Gly Ser Glu Arg Gln Asn Gly
1 5 10

<210> 6
<211> 14
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #2
<222> (1)..(14)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*0401/*1302.

<400> 6

Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg Gln Asn Gly
1 5 10

<210> 7
<211> 15
<212> PRT

<213> Mus musculus

<220>
<221> Epitope #2
<222> (1)..(15)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*0401/*1302.

<400> 7

Ile Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg Gln Asn Gly
1 5 10 15

<210> 8
<211> 16
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #2
<222> (1)..(16)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*0401/*1302.

<400> 8

Ile Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg Gln Asn Gly Val
1 5 10 15

<210> 9
<211> 17
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #3
<222> (1)..(17)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*0401/*1302.

<400> 9

Trp Pro Ser Gln Ser Ile Thr Cys Asn Val Ala His Pro Ala Ser Ser
1 5 10 15

Thr

<210> 10
<211> 15
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #4
<222> (1)..(15)
<223> OKT3 epitope associated to the genotype HLA-DRB1*0701/*1601

<400> 10

Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys
1 5 10 15

<210> 11

<211> 16
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #4
<222> (1)..(16)
<223> OKT3 epitope associated to the genotype HLA-DRB1*0701/*1601

<400> 11

Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp
1 5 10 15

<210> 12
<211> 17
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #4
<222> (1)..(17)
<223> OKT3 epitope associated to the genotype HLA-DRB1*0701/*1601

<400> 12

Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp
1 5 10 15

Glu

<210> 13
<211> 17
<212> PRT
<213> Mus musculus

<220>
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<222> (1)..(17)
<223> OKT3 epitope associated to the genotype HLA-DRB1*0701/*1601

<400> 13

Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys
1 5 10 15

Asp

<210> 14
<211> 18
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #4
<222> (1)..(18)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*0701/*1601

<400> 14

Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys
1 5 10 15

Asp Glu

<210> 15
<211> 18
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #4
<222> (1)..(18)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*0701/*1601

<400> 15

Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr
1 5 10 15

Lys Asp

<210> 16
<211> 19
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #4
<222> (1)..(19)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*0701/*1601

<400> 16

Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr
1 5 10 15

Lys Asp Glu

<210> 17
<211> 20
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #4
<222> (1)..(20)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*0701/*1601

<400> 17

Asp Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr
1 5 10 15

Leu Thr Lys Asp
20

<210> 18
<211> 21
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #4
<222> (1)..(21)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*0701/*1601

<400> 18

Asp Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr
1 5 10 15

Leu Thr Lys Asp Glu
20

<210> 19
<211> 22
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #4
<222> (1)..(22)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*0701/*1601

<400> 19

Thr Asp Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu
1 5 10 15

Thr Leu Thr Lys Asp Glu
20

<210> 20
<211> 15
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #1
<222> (1)..(15)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*1101/*1202.

<400> 20

Ser Gly Thr Lys Leu Glu Ile Asn Arg Ala Asp Thr Ala Pro Thr
1 5 10 15

<210> 21
<211> 16
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #1
<222> (1)..(16)

<223> OKT-3 epitope associated to the genotype HLA-DRB1*1101/*1202

<400> 21

Gly Ser Gly Thr Lys Leu Glu Ile Asn Arg Ala Asp Thr Ala Pro Thr
1 5 10 15

<210> 22
<211> 14
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #3
<222> (1)..(14)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*1101/*1202.

<400> 22

Trp Pro Ser Gln Ser Ile Thr Cys Asn Val Ala His Pro Ala
1 5 10

<210> 23
<211> 15
<212> PRT
<213> Mus musculus

<220>
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<222> (1)..(15)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*1101/*1202.

<400> 23

Trp Pro Ser Gln Ser Ile Thr Cys Asn Val Ala His Pro Ala Ser
1 5 10 15

<210> 24
<211> 17
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #3
<222> (1)..(17)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*1101/*1202.

<400> 24

Trp Pro Ser Gln Ser Ile Thr Cys Asn Val Ala His Pro Ala Ser Ser
1 5 10 15

Thr

<210> 25
<211> 18
<212> PRT
<213> Mus musculus

<220>

<221> Epitope #3
<222> (1)..(18)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*1101/*1202.

<400> 25

Trp Pro Ser Gln Ser Ile Thr Cys Asn Val Ala His Pro Ala Ser Ser
1 5 10 15

Thr Lys

<210> 26
<211> 17
<212> PRT
<213> Mus musculus

<220>
<221> Epitope #2
<222> (1)..(17)
<223> OKT-3 epitope associated to the genotype HLA-DRB1*0301/*0401.

<400> 26

Ile Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg Gln Asn Gly Val
1 5 10 15

Leu

<210> 27
<211> 13
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #5
<222> (1)..(13)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0101/*0701

<400> 27

Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile Tyr Glu
1 5 10

<210> 28
<211> 16
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #5
<222> (1)..(16)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0101/*0701

<400> 28

Gln Leu Gln Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile Tyr Glu
1 5 10 15

<210> 29
<211> 17
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #5
<222> (1)..(17)
<223> Interferon-beta-1b epitopes associated to the genotype HLA-DRB1*0101/*0701

<400> 29

Lys Gln Leu Gln Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile Tyr
1 5 10 15

Glu

<210> 30
<211> 11
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(11)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 30

Asn Val Tyr His Gln Ile Asn His Leu Lys Thr
1 5 10

<210> 31
<211> 12
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(12)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 31

Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val
1 5 10

<210> 32
<211> 13
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(13)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 32

Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu
1 5 10

<210> 33
<211> 14
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(14)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 33

Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu
1 5 10

<210> 34
<211> 15
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(15)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 34

Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu Glu
1 5 10 15

<210> 35
<211> 16
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(16)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 35

Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu Glu Lys
1 5 10 15

<210> 36
<211> 12
<212> PRT
<213> Homo Sapiens

<220>
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<222> (1)..(12)

<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 36

Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr
1 5 10

<210> 37
<211> 13
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(13)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 37

Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val
1 5 10

<210> 38
<211> 14
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(14)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 38

Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu
1 5 10

<210> 39
<211> 15
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(15)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 39

Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu
1 5 10 15

<210> 40
<211> 16
<212> PRT
<213> Homo Sapiens

<220>

<221> Epitope #6
<222> (1)..(16)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 40

Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu Glu
1 5 10 15

<210> 41
<211> 17
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(17)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 41

Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu Glu
1 5 10 15

Lys

<210> 42
<211> 14
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(14)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 42

Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val
1 5 10

<210> 43
<211> 15
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(15)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 43

Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu
1 5 10 15

<210> 44

<211> 16
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(16)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 44

Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu
1 5 10 15

<210> 45
<211> 17
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(17)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 45

Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu
1 5 10 15

Glu

<210> 46
<211> 16
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(16)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 46

Leu Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu
1 5 10 15

<210> 47
<211> 17
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(17)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 47

Leu Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu
1 5 10 15

Glu

<210> 48
<211> 18
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(18)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 48

Leu Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu
1 5 10 15

Glu Glu

<210> 49
<211> 19
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(19)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 49

Leu Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu
1 5 10 15

Glu Glu Lys

<210> 50
<211> 18
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(18)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 50

Asn Leu Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val
1 5 10 15

Leu Glu

<210> 51
<211> 19
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(19)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 51

Asn Leu Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val
1 5 10 15

Leu Glu Glu

<210> 52
<211> 13
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #7
<222> (1)..(13)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 52

Ile Leu Arg Asn Phe Tyr Phe Ile Asn Arg Leu Thr Gly
1 5 10

<210> 53
<211> 15
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #7
<222> (1)..(15)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1101/*1404

<400> 53

Val Glu Ile Leu Arg Asn Phe Tyr Phe Ile Asn Arg Leu Thr Gly
1 5 10 15

<210> 54
<211> 11
<212> PRT
<213> Homo Sapiens

<220>

<221> Epitope #6
<222> (1)..(11)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 54

Asn Val Tyr His Gln Ile Asn His Leu Lys Thr
1 5 10

<210> 55
<211> 12
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(12)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 55

Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val
1 5 10

<210> 56
<211> 13
<212> PRT
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<220>
<221> Epitope #6
<222> (1)..(13)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 56

Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu
1 5 10

<210> 57
<211> 14
<212> PRT
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<220>
<221> Epitope #6
<222> (1)..(14)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 57

Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu
1 5 10

<210> 58
<211> 15
<212> PRT
<213> Homo Sapiens

<220>
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<222> (1)..(15)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 58

Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu Glu
1 5 10 15

<210> 59
<211> 12
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(12)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 59

Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr
1 5 10

<210> 60
<211> 13
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(13)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 60

Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val
1 5 10

<210> 61
<211> 14
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(14)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 61

Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu
1 5 10

<210> 62
<211> 15
<212> PRT

<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(15)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 62

Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu
1 5 10 15

<210> 63
<211> 13
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(13)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 63

Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr
1 5 10

<210> 64
<211> 14
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(14)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 64

Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val
1 5 10

<210> 65
<211> 15
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(15)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 65

Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu
1 5 10 15

<210> 66

<211> 16
<212> PRT
<213> Homo Sapiens

<220>
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<222> (1)..(16)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 66

Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu
1 5 10 15

<210> 67
<211> 14
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(14)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 67

Leu Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr
1 5 10

<210> 68
<211> 17
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(17)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 68

Leu Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val Leu
1 5 10 15

Glu

<210> 69
<211> 15
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(15)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 69

Asn Leu Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr
1 5 10 15

<210> 70
<211> 18
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #6
<222> (1)..(18)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 70

Asn Leu Leu Ala Asn Val Tyr His Gln Ile Asn His Leu Lys Thr Val
1 5 10 15

Leu Glu

<210> 71
<211> 11
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #7
<222> (1)..(11)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 71

Arg Asn Phe Tyr Phe Ile Asn Arg Leu Thr Gly
1 5 10

<210> 72
<211> 13
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #7
<222> (1)..(13)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 72

Ile Leu Arg Asn Phe Tyr Phe Ile Asn Arg Leu Thr Gly
1 5 10

<210> 73
<211> 14
<212> PRT
<213> Homo Sapiens

<220>

<221> Epitope #7
<222> (1)..(14)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 73

Ile Leu Arg Asn Phe Tyr Phe Ile Asn Arg Leu Thr Gly Tyr
1 5 10

<210> 74
<211> 14
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #7
<222> (1)..(14)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 74

Glu Ile Leu Arg Asn Phe Tyr Phe Ile Asn Arg Leu Thr Gly
1 5 10

<210> 75
<211> 15
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #7
<222> (1)..(15)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0801/*0801

<400> 75

Val Glu Ile Leu Arg Asn Phe Tyr Phe Ile Asn Arg Leu Thr Gly
1 5 10 15

<210> 76
<211> 15
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #5
<222> (1)..(15)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0101/*1401

<400> 76

Leu Gln Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile Tyr Glu
1 5 10 15

<210> 77
<211> 16
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #5
<222> (1)..(16)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0101/*1401

<400> 77

Gln Leu Gln Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile Tyr Glu
1 5 10 15

<210> 78
<211> 17
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #5
<222> (1)..(17)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0101/*1401

<400> 78

Lys Gln Leu Gln Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile Tyr
1 5 10 15

Glu

<210> 79
<211> 18
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #5
<222> (1)..(18)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0101/*1401

<400> 79

Ile Lys Gln Leu Gln Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile
1 5 10 15

Tyr Glu

<210> 80
<211> 19
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #5
<222> (1)..(19)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0101/*1401

<400> 80

Ile Lys Gln Leu Gln Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile
1 5 10 15

Tyr Glu Met

<210> 81
<211> 19
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #5
<222> (1)..(19)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0101/*1401

<400> 81

Glu Ile Lys Gln Leu Gln Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr
1 5 10 15

Ile Tyr Glu

<210> 82
<211> 22
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #5
<222> (1)..(22)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0101/*1401

<400> 82

Ile Pro Glu Glu Ile Lys Gln Leu Gln Gln Phe Gln Lys Glu Asp Ala
1 5 10 15

Ala Leu Thr Ile Tyr Glu
20

<210> 83
<211> 13
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #7
<222> (1)..(13)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0101/*1401

<400> 83

Ile Leu Arg Asn Phe Tyr Phe Ile Asn Arg Leu Thr Gly
1 5 10

<210> 84
<211> 15
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #7
<222> (1)..(15)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*0101/*1401

<400> 84

Val Glu Ile Leu Arg Asn Phe Tyr Phe Ile Asn Arg Leu Thr Gly
1 5 10 15

<210> 85
<211> 13
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #7
<222> (1)..(13)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1303/*1501

<400> 85

Ile Leu Arg Asn Phe Tyr Phe Ile Asn Arg Leu Thr Gly
1 5 10

<210> 86
<211> 14
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #7
<222> (1)..(14)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1303/*1501

<400> 86

Glu Ile Leu Arg Asn Phe Tyr Phe Ile Asn Arg Leu Thr Gly
1 5 10

<210> 87
<211> 15
<212> PRT
<213> Homo Sapiens

<220>
<221> Epitope #7
<222> (1)..(15)
<223> Interferon-beta-1b epitope associated to the genotype HLA-DRB1*1303/*1501

<400> 87

Val Glu Ile Leu Arg Asn Phe Tyr Phe Ile Asn Arg Leu Thr Gly

1 5 10 15