SEQUENCE LISTING

<110> ISA Pharmaceuticals B.V.

<120> Formulation of a peptide vaccine

<130> P6060608PCT

<150> EP16175215.9
<151> 2016-06-20

<160> 232

<170> PatentIn version 3.3

<210> 1
<211> 25
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 1

Asp Lys Cys Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg His Tyr
1 5 10 15

Cys Tyr Ser Leu Tyr Gly Thr Thr Leu
20 25

<210> 2
<211> 35
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 2

Leu Tyr Cys Tyr Glu Gln Leu Asn Asp Ser Ser Glu Glu Glu Asp Glu
1 5 10 15

Ile Asp Gly Pro Ala Gly Gln Ala Glu Pro Asp Arg Ala His Tyr Asn
20 25 30

Ile Val Thr
35

<210> 3
<211> 35
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 3

Met His Gly Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln
1 5 10 15

Pro Glu Thr Thr Asp Leu Tyr Cys Tyr Glu Gln Leu Asn Asp Ser Ser
20 25 30

Glu Glu Glu
35

<210> 4
<211> 32
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 4

Arg Cys Ile Asn Cys Gln Lys Pro Leu Cys Pro Glu Glu Lys Gln Arg
1 5 10 15

His Leu Asp Lys Lys Gln Arg Phe His Asn Ile Arg Gly Arg Trp Thr
20 25 30

<210> 5
<211> 35
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 5

Thr Leu Arg Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr Leu
1 5 10 15

Glu Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys Ser
20 25 30

Gln Lys Pro
35

<210> 6
<211> 35
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 6

Gly Gln Ala Glu Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys
1 5 10 15

Cys Lys Cys Asp Ser Thr Leu Arg Leu Cys Val Gln Ser Thr His Val
20 25 30

Asp Ile Arg
35

<210> 7
<211> 32
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 7

Asp Lys Lys Gln Arg Phe His Asn Ile Arg Gly Arg Trp Thr Gly Arg
1 5 10 15

Cys Met Ser Cys Cys Arg Ser Ser Arg Thr Arg Arg Glu Thr Gln Leu
20 25 30

<210> 8
<211> 25
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 8

His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn
1 5 10 15

Lys Pro Leu Cys Asp Leu Leu Ile Arg
20 25

<210> 9
<211> 25
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 9

Lys Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Phe Arg Asp
1 5 10 15

Leu Cys Ile Val Tyr Arg Asp Gly Asn
20 25

<210> 10
<211> 32
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 10

Leu Pro Gln Leu Cys Thr Glu Leu Gln Thr Thr Ile His Asp Ile Ile
1 5 10 15

Leu Glu Cys Val Tyr Cys Lys Gln Gln Leu Leu Arg Arg Glu Val Tyr
20 25 30

<210> 11
<211> 32
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 11

Met His Gln Lys Arg Thr Ala Met Phe Gln Asp Pro Gln Glu Arg Pro
1 5 10 15

Arg Lys Leu Pro Gln Leu Cys Thr Glu Leu Gln Thr Thr Ile His Asp
20 25 30

<210> 12
<211> 26
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 12

Arg Asp Leu Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Cys
1 5 10 15

Asp Lys Cys Leu Lys Phe Tyr Ser Lys Ile
20 25

<210> 13
<211> 32
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 13

Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn Lys Pro Leu Cys Asp Leu
1 5 10 15

Leu Ile Arg Cys Ile Asn Cys Gln Lys Pro Leu Cys Pro Glu Glu Lys
20 25 30

<210> 14
<211> 365
<212> PRT
<213> Human papillomavirus type 16

<400> 14

Met Glu Thr Leu Cys Gln Arg Leu Asn Val Cys Gln Asp Lys Ile Leu
1 5 10 15

Thr His Tyr Glu Asn Asp Ser Thr Asp Leu Arg Asp His Ile Asp Tyr
20 25 30

Trp Lys His Met Arg Leu Glu Cys Ala Ile Tyr Tyr Lys Ala Arg Glu
35 40 45

Met Gly Phe Lys His Ile Asn His Gln Val Val Pro Thr Leu Ala Val
50 55 60

Ser Lys Asn Lys Ala Leu Gln Ala Ile Glu Leu Gln Leu Thr Leu Glu
65 70 75 80

Thr Ile Tyr Asn Ser Gln Tyr Ser Asn Glu Lys Trp Thr Leu Gln Asp
85 90 95

Val Ser Leu Glu Val Tyr Leu Thr Ala Pro Thr Gly Cys Ile Lys Lys
100 105 110

His Gly Tyr Thr Val Glu Val Gln Phe Asp Gly Asp Ile Cys Asn Thr
115 120 125

Met His Tyr Thr Asn Trp Thr His Ile Tyr Ile Cys Glu Glu Ala Ser
130 135 140

Val Thr Val Val Glu Gly Gln Val Asp Tyr Tyr Gly Leu Tyr Tyr Val
145 150 155 160

His Glu Gly Ile Arg Thr Tyr Phe Val Gln Phe Lys Asp Asp Ala Glu
165 170 175

Lys Tyr Ser Lys Asn Lys Val Trp Glu Val His Ala Gly Gly Gln Val
180 185 190

Ile Leu Cys Pro Thr Ser Val Phe Ser Ser Asn Glu Val Ser Ser Pro
195 200 205

Glu Ile Ile Arg Gln His Leu Ala Asn His Pro Ala Ala Thr His Thr
210 215 220

Lys Ala Val Ala Leu Gly Thr Glu Glu Thr Gln Thr Thr Ile Gln Arg
225 230 235 240

Pro Arg Ser Glu Pro Asp Thr Gly Asn Pro Cys His Thr Thr Lys Leu
245 250 255

Leu His Arg Asp Ser Val Asp Ser Ala Pro Ile Leu Thr Ala Phe Asn
260 265 270

Ser Ser His Lys Gly Arg Ile Asn Cys Asn Ser Asn Thr Thr Pro Ile
275 280 285

Val His Leu Lys Gly Asp Ala Asn Thr Leu Lys Cys Leu Arg Tyr Arg
290 295 300

Phe Lys Lys His Cys Thr Leu Tyr Thr Ala Val Ser Ser Thr Trp His
305 310 315 320

Trp Thr Gly His Asn Val Lys His Lys Ser Ala Ile Val Thr Leu Thr
325 330 335

Tyr Asp Ser Glu Trp Gln Arg Asp Gln Phe Leu Ser Gln Val Lys Ile
340 345 350

Pro Lys Thr Ile Thr Val Ser Thr Gly Phe Met Ser Ile
355 360 365

<210> 15
<211> 158
<212> PRT
<213> Human papillomavirus type 16

<400> 15

Met His Gln Lys Arg Thr Ala Met Phe Gln Asp Pro Gln Glu Arg Pro
1 5 10 15

Arg Lys Leu Pro Gln Leu Cys Thr Glu Leu Gln Thr Thr Ile His Asp
20 25 30

Ile Ile Leu Glu Cys Val Tyr Cys Lys Gln Gln Leu Leu Arg Arg Glu
35 40 45

Val Tyr Asp Phe Ala Phe Arg Asp Leu Cys Ile Val Tyr Arg Asp Gly
50 55 60

Asn Pro Tyr Ala Val Cys Asp Lys Cys Leu Lys Phe Tyr Ser Lys Ile
65 70 75 80

Ser Glu Tyr Arg His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu
85 90 95

Gln Gln Tyr Asn Lys Pro Leu Cys Asp Leu Leu Ile Arg Cys Ile Asn
100 105 110

Cys Gln Lys Pro Leu Cys Pro Glu Glu Lys Gln Arg His Leu Asp Lys
115 120 125

Lys Gln Arg Phe His Asn Ile Arg Gly Arg Trp Thr Gly Arg Cys Met
130 135 140

Ser Cys Cys Arg Ser Ser Arg Thr Arg Arg Glu Thr Gln Leu
145 150 155

<210> 16
<211> 98
<212> PRT
<213> Human papillomavirus type 16

<400> 16

Met His Gly Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln
1 5 10 15

Pro Glu Thr Thr Asp Leu Tyr Cys Tyr Glu Gln Leu Asn Asp Ser Ser
20 25 30

Glu Glu Glu Asp Glu Ile Asp Gly Pro Ala Gly Gln Ala Glu Pro Asp
35 40 45

Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys Asp Ser Thr
50 55 60

Leu Arg Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr Leu Glu
65 70 75 80

Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys Ser Gln
85 90 95

Lys Pro

<210> 17
<211> 365
<212> PRT
<213> Human papillomavirus type 18

<400> 17

Met Gln Thr Pro Lys Glu Thr Leu Ser Glu Arg Leu Ser Cys Val Gln
1 5 10 15

Asp Lys Ile Ile Asp His Tyr Glu Asn Asp Ser Lys Asp Ile Asp Ser
20 25 30

Gln Ile Gln Tyr Trp Gln Leu Ile Arg Trp Glu Asn Ala Ile Phe Phe
35 40 45

Ala Ala Arg Glu His Gly Ile Gln Thr Leu Asn His Gln Val Val Pro
50 55 60

Ala Tyr Asn Ile Ser Lys Ser Lys Ala His Lys Ala Ile Glu Leu Gln
65 70 75 80

Met Ala Leu Gln Gly Leu Ala Gln Ser Ala Tyr Lys Thr Glu Asp Trp
85 90 95

Thr Leu Gln Asp Thr Cys Glu Glu Leu Trp Asn Thr Glu Pro Thr His
100 105 110

Cys Phe Lys Lys Gly Gly Gln Thr Val Gln Val Tyr Phe Asp Gly Asn
115 120 125

Lys Asp Asn Cys Met Thr Tyr Val Ala Trp Asp Ser Val Tyr Tyr Met
130 135 140

Thr Asp Ala Gly Thr Trp Asp Lys Thr Ala Thr Cys Val Ser His Arg
145 150 155 160

Gly Leu Tyr Tyr Val Lys Glu Gly Tyr Asn Thr Phe Tyr Ile Glu Phe
165 170 175

Lys Ser Glu Cys Glu Lys Tyr Gly Asn Thr Gly Thr Trp Glu Val His
180 185 190

Phe Gly Asn Asn Val Ile Asp Cys Asn Asp Ser Met Cys Ser Thr Ser
195 200 205

Asp Asp Thr Val Ser Ala Thr Gln Leu Val Lys Gln Leu Gln His Thr
210 215 220

Pro Ser Pro Tyr Ser Ser Thr Val Ser Val Gly Thr Ala Lys Thr Tyr
225 230 235 240

Gly Gln Thr Ser Ala Ala Thr Arg Pro Gly His Cys Gly Leu Ala Glu
245 250 255

Lys Gln His Cys Gly Pro Val Asn Pro Leu Leu Gly Ala Ala Thr Pro
260 265 270

Thr Gly Asn Asn Lys Arg Arg Lys Leu Cys Ser Gly Asn Thr Thr Pro
275 280 285

Ile Ile His Leu Lys Gly Asp Arg Asn Ser Leu Lys Cys Leu Arg Tyr
290 295 300

Arg Leu Arg Lys His Ser Asp His Tyr Arg Asp Ile Ser Ser Thr Trp
305 310 315 320

His Trp Thr Gly Ala Gly Asn Glu Lys Thr Gly Ile Leu Thr Val Thr
325 330 335

Tyr His Ser Glu Thr Gln Arg Thr Lys Phe Leu Asn Thr Val Ala Ile
340 345 350

Pro Asp Ser Val Gln Ile Leu Val Gly Tyr Met Thr Met
355 360 365

<210> 18
<211> 158
<212> PRT
<213> Human papillomavirus type 18

<400> 18

Met Ala Arg Phe Glu Asp Pro Thr Arg Arg Pro Tyr Lys Leu Pro Asp
1 5 10 15

Leu Cys Thr Glu Leu Asn Thr Ser Leu Gln Asp Ile Glu Ile Thr Cys
20 25 30

Val Tyr Cys Lys Thr Val Leu Glu Leu Thr Glu Val Phe Glu Phe Ala
35 40 45

Phe Lys Asp Leu Phe Val Val Tyr Arg Asp Ser Ile Pro His Ala Ala
50 55 60

Cys His Lys Cys Ile Asp Phe Tyr Ser Arg Ile Arg Glu Leu Arg His
65 70 75 80

Tyr Ser Asp Ser Val Tyr Gly Asp Thr Leu Glu Lys Leu Thr Asn Thr
85 90 95

Gly Leu Tyr Asn Leu Leu Ile Arg Cys Leu Arg Cys Gln Lys Pro Leu
100 105 110

Asn Pro Ala Glu Lys Leu Arg His Leu Asn Glu Lys Arg Arg Phe His
115 120 125

Asn Ile Ala Gly His Tyr Arg Gly Gln Cys His Ser Cys Cys Asn Arg
130 135 140

Ala Arg Gln Glu Arg Leu Gln Arg Arg Arg Glu Thr Gln Val
145 150 155

<210> 19
<211> 105
<212> PRT
<213> Human papillomavirus type 18

<400> 19

Met His Gly Pro Lys Ala Thr Leu Gln Asp Ile Val Leu His Leu Glu
1 5 10 15

Pro Gln Asn Glu Ile Pro Val Asp Leu Leu Cys His Glu Gln Leu Ser
20 25 30

Asp Ser Glu Glu Glu Asn Asp Glu Ile Asp Gly Val Asn His Gln His
35 40 45

Leu Pro Ala Arg Arg Ala Glu Pro Gln Arg His Thr Met Leu Cys Met
50 55 60

Cys Cys Lys Cys Glu Ala Arg Ile Lys Leu Val Val Glu Ser Ser Ala
65 70 75 80

Asp Asp Leu Arg Ala Phe Gln Gln Leu Phe Leu Asn Thr Leu Ser Phe
85 90 95

Val Cys Pro Trp Cys Ala Ser Gln Gln
100 105

<210> 20
<211> 30
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 20

Arg Pro Arg Lys Leu Pro Gln Leu Cys Thr Glu Leu Gln Thr Thr Ile
1 5 10 15

His Asp Ile Ile Leu Glu Cys Val Tyr Cys Lys Gln Gln Leu
20 25 30

<210> 21
<211> 22
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 21

Arg Arg Glu Val Tyr Asp Phe Ala Phe Arg Asp Leu Cys Ile Val Tyr
1 5 10 15

Arg Asp Gly Asn Pro Tyr
20

<210> 22
<211> 29
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 22

Ile Ser Glu Tyr Arg His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu
1 5 10 15

Glu Gln Gln Tyr Asn Lys Pro Leu Cys Asp Leu Leu Ile
20 25

<210> 23
<211> 32
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 23

Ile Arg Cys Ile Asn Cys Gln Lys Pro Leu Cys Pro Glu Glu Lys Gln
1 5 10 15

Arg His Leu Asp Lys Lys Gln Arg Phe His Asn Ile Arg Gly Arg Trp
20 25 30

<210> 24
<211> 23
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 24

Gly Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln Pro Glu
1 5 10 15

Thr Thr Asp Leu Tyr Cys Tyr
20

<210> 25
<211> 17
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 25

Gln Ala Glu Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys
1 5 10 15

Lys

<210> 26
<211> 19
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 26

Leu Glu Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys
1 5 10 15

Ser Gln Lys

<210> 27
<211> 8
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 27

Arg Pro Arg Lys Leu Pro Gln Leu
1 5

<210> 28
<211> 9
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 28

Lys Leu Pro Gln Leu Cys Thr Glu Leu
1 5

<210> 29
<211> 8
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 29

Leu Pro Gln Leu Cys Thr Glu Leu
1 5

<210> 30
<211> 10
<212> PRT
<213> Artificial

<220>
<223> peptide

<400> 30

Gln Leu Cys Thr Glu Leu Gln Thr Thr Ile
1 5 10

<210> 31
<211> 10
<212> PRT
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