

## SEQUENCE LISTING

<110> TAIGA BIOTECHNOLOGIES, INC.

<120> NANOPARTICLE FORMULATIONS

<130> 106417-0285

<140> PCT/US2017/064206

<141> 2017-12-01

<150> 62/429,466

<151> 2016-12-02

<160> 44

<170> PatentIn version 3.5

<210> 1

<211> 476

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 1

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Arg | Lys | Lys | Arg | Arg | Gln | Arg | Arg | Arg | Pro | Leu | Asn | Val | Ser | Phe |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Asn | Arg | Asn | Tyr | Asp | Leu | Asp | Tyr | Asp | Ser | Val | Gln | Pro | Tyr | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Cys | Asp | Glu | Glu | Glu | Asn | Phe | Tyr | Gln | Gln | Gln | Gln | Gln | Ser | Glu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Gln | Pro | Pro | Ala | Pro | Ser | Glu | Asp | Ile | Trp | Lys | Lys | Phe | Glu | Leu |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Pro | Thr | Pro | Pro | Leu | Ser | Pro | Ser | Arg | Arg | Ser | Gly | Leu | Cys | Ser |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Ser | Tyr | Val | Ala | Val | Thr | Pro | Phe | Ser | Leu | Arg | Gly | Asp | Asn | Asp |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |

Gly Gly Gly Gly Ser Phe Ser Thr Ala Asp Gln Leu Glu Met Val Thr  
 100 105 110

Glu Leu Leu Gly Gly Asp Met Val Asn Gln Ser Phe Ile Cys Asp Pro  
 115 120 125

Asp Asp Glu Thr Phe Ile Lys Asn Ile Ile Ile Gln Asp Cys Met Trp  
 130 135 140

Ser Gly Phe Ser Ala Ala Ala Lys Leu Val Ser Glu Lys Leu Ala Ser  
 145 150 155 160

Tyr Gln Ala Ala Arg Lys Asp Ser Gly Ser Pro Asn Pro Ala Arg Gly  
 165 170 175

His Ser Val Cys Ser Thr Ser Ser Leu Tyr Leu Gln Asp Leu Ser Ala  
 180 185 190

Ala Ala Ser Glu Cys Ile Asp Pro Ser Val Val Phe Pro Tyr Pro Leu  
 195 200 205

Asn Asp Ser Ser Ser Pro Lys Ser Cys Ala Ser Gln Asp Ser Ser Ala  
 210 215 220

Phe Ser Pro Ser Ser Asp Ser Leu Leu Ser Ser Thr Glu Ser Ser Pro  
 225 230 235 240

Gln Gly Ser Pro Glu Pro Leu Val Leu His Glu Glu Thr Pro Pro Thr  
 245 250 255

Thr Ser Ser Asp Ser Glu Glu Glu Gln Glu Asp Glu Glu Glu Ile Asp  
 260 265 270

Val Val Ser Val Glu Lys Arg Gln Ala Pro Gly Lys Arg Ser Glu Ser  
 275 280 285

Gly Ser Pro Ser Ala Gly Gly His Ser Lys Pro Pro His Ser Pro Leu  
 290 295 300

Val Leu Lys Arg Cys His Val Ser Thr His Gln His Asn Tyr Ala Ala  
 305 310 315 320

Pro Pro Ser Thr Arg Lys Asp Tyr Pro Ala Ala Lys Arg Val Lys Leu  
 325 330 335

Asp Ser Val Arg Val Leu Arg Gln Ile Ser Asn Asn Arg Lys Cys Thr  
 340 345 350

Ser Pro Arg Ser Ser Asp Thr Glu Glu Asn Val Lys Arg Arg Thr His  
 355 360 365

Asn Val Leu Glu Arg Gln Arg Arg Asn Glu Leu Lys Arg Ser Phe Phe  
 370 375 380

Ala Leu Arg Asp Gln Ile Pro Glu Leu Glu Asn Asn Glu Lys Ala Pro  
 385 390 395 400

Lys Val Val Ile Leu Lys Lys Ala Thr Ala Tyr Ile Leu Ser Val Gln  
 405 410 415

Ala Glu Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Leu Arg Lys Arg  
 420 425 430

Arg Glu Gln Leu Lys His Lys Leu Glu Gln Leu Arg Lys Gly Glu Leu  
 435 440 445

Asn Ser Lys Leu Glu Gly Lys Pro Ile Pro Asn Pro Leu Leu Gly Leu  
 450 455 460

Asp Ser Thr Arg Thr Gly His His His His His His  
 465 470 475

<210> 2  
 <211> 454

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 2

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Phe | Phe | Arg | Val | Val | Glu | Asn | Gln | Gln | Pro | Pro | Ala | Thr | Met |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Leu | Asn | Val | Ser | Phe | Thr | Asn | Arg | Asn | Tyr | Asp | Leu | Asp | Tyr | Asp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Val | Gln | Pro | Tyr | Phe | Tyr | Cys | Asp | Glu | Glu | Glu | Asn | Phe | Tyr | Gln |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Gln | Gln | Gln | Ser | Glu | Leu | Gln | Pro | Pro | Ala | Pro | Ser | Glu | Asp | Ile |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Lys | Lys | Phe | Glu | Leu | Leu | Pro | Thr | Pro | Pro | Leu | Ser | Pro | Ser | Arg |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Ser | Gly | Leu | Cys | Ser | Pro | Ser | Tyr | Val | Ala | Val | Thr | Pro | Phe | Ser |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Arg | Gly | Asp | Asn | Asp | Gly | Gly | Gly | Gly | Ser | Phe | Ser | Thr | Ala | Asp |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Leu | Glu | Met | Val | Thr | Glu | Leu | Leu | Gly | Gly | Asp | Met | Val | Asn | Gln |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Phe | Ile | Cys | Asp | Pro | Asp | Asp | Glu | Thr | Phe | Ile | Lys | Asn | Ile | Ile |
|     | 130 |     |     |     |     |     | 135 |     |     |     | 140 |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Gln | Asp | Cys | Met | Trp | Ser | Gly | Phe | Ser | Ala | Ala | Ala | Lys | Leu | Val |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Glu | Lys | Leu | Ala | Ser | Tyr | Gln | Ala | Ala | Arg | Lys | Asp | Ser | Gly | Ser |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Asn | Pro | Ala | Arg | Gly | His | Ser | Val | Cys | Ser | Thr | Ser | Ser | Leu | Tyr |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |

Leu Gln Asp Leu Ser Ala Ala Ala Ser Glu Cys Ile Asp Pro Ser Val  
 195 200 205

Val Phe Pro Tyr Pro Leu Asn Asp Ser Ser Ser Pro Lys Ser Cys Ala  
 210 215 220

Ser Gln Asp Ser Ser Ala Phe Ser Pro Ser Ser Asp Ser Leu Leu Ser  
 225 230 235 240

Ser Thr Glu Ser Ser Pro Gln Gly Ser Pro Glu Pro Leu Val Leu His  
 245 250 255

Glu Glu Thr Pro Pro Thr Thr Ser Ser Asp Ser Glu Glu Glu Gln Glu  
 260 265 270

Asp Glu Glu Glu Ile Asp Val Val Ser Val Glu Lys Arg Gln Ala Pro  
 275 280 285

Gly Lys Arg Ser Glu Ser Gly Ser Pro Ser Ala Gly Gly His Ser Lys  
 290 295 300

Pro Pro His Ser Pro Leu Val Leu Lys Arg Cys His Val Ser Thr His  
 305 310 315 320

Gln His Asn Tyr Ala Ala Pro Pro Ser Thr Arg Lys Asp Tyr Pro Ala  
 325 330 335

Ala Lys Arg Val Lys Leu Asp Ser Val Arg Val Leu Arg Gln Ile Ser  
 340 345 350

Asn Asn Arg Lys Cys Thr Ser Pro Arg Ser Ser Asp Thr Glu Glu Asn  
 355 360 365

Val Lys Arg Arg Thr His Asn Val Leu Glu Arg Gln Arg Arg Asn Glu  
 370 375 380

Leu Lys Arg Ser Phe Phe Ala Leu Arg Asp Gln Ile Pro Glu Leu Glu  
 385 390 395 400

Asn Asn Glu Lys Ala Pro Lys Val Val Ile Leu Lys Lys Ala Thr Ala  
 405 410 415

Tyr Ile Leu Ser Val Gln Ala Glu Glu Gln Lys Leu Ile Ser Glu Glu  
 420 425 430

Asp Leu Leu Arg Lys Arg Arg Glu Gln Leu Lys His Lys Leu Glu Gln  
 435 440 445

Leu Arg Asn Ser Cys Ala  
 450

<210> 3

<211> 459

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

<400> 3

Met Asp Phe Phe Arg Val Val Glu Asn Gln Gln Pro Pro Ala Thr Met  
 1 5 10 15

Pro Leu Asn Val Ser Phe Thr Asn Arg Asn Tyr Asp Leu Asp Tyr Asp  
 20 25 30

Ser Val Gln Pro Tyr Phe Tyr Cys Asp Glu Glu Glu Asn Phe Tyr Gln  
 35 40 45

Gln Gln Gln Gln Ser Glu Leu Gln Pro Pro Ala Pro Ser Glu Asp Ile  
 50 55 60

Trp Lys Lys Phe Glu Leu Leu Pro Thr Pro Pro Leu Ser Pro Ser Arg  
 65 70 75 80

Arg Ser Gly Leu Cys Ser Pro Ser Tyr Val Ala Val Thr Pro Phe Ser  
85 90 95

Leu Arg Gly Asp Asn Asp Gly Gly Gly Gly Ser Phe Ser Thr Ala Asp  
100 105 110

Gln Leu Glu Met Val Thr Glu Leu Leu Gly Gly Asp Met Val Asn Gln  
115 120 125

Ser Phe Ile Cys Asp Pro Asp Asp Glu Thr Phe Ile Lys Asn Ile Ile  
130 135 140

Ile Gln Asp Cys Met Trp Ser Gly Phe Ser Ala Ala Ala Lys Leu Val  
145 150 155 160

Ser Glu Lys Leu Ala Ser Tyr Gln Ala Ala Arg Lys Asp Ser Gly Ser  
165 170 175

Pro Asn Pro Ala Arg Gly His Ser Val Cys Ser Thr Ser Ser Leu Tyr  
180 185 190

Leu Gln Asp Leu Ser Ala Ala Ala Ser Glu Cys Ile Asp Pro Ser Val  
195 200 205

Val Phe Pro Tyr Pro Leu Asn Asp Ser Ser Ser Pro Lys Ser Cys Ala  
210 215 220

Ser Gln Asp Ser Ser Ala Phe Ser Pro Ser Ser Asp Ser Leu Leu Ser  
225 230 235 240

Ser Thr Glu Ser Ser Pro Gln Gly Ser Pro Glu Pro Leu Val Leu His  
245 250 255

Glu Glu Thr Pro Pro Thr Thr Ser Ser Asp Ser Glu Glu Glu Gln Glu  
260 265 270

Asp Glu Glu Glu Ile Asp Val Val Ser Val Glu Lys Arg Gln Ala Pro  
275 280 285

Gly Lys Arg Ser Glu Ser Gly Ser Pro Ser Ala Gly Gly His Ser Lys  
 290 295 300

Pro Pro His Ser Pro Leu Val Leu Lys Arg Cys His Val Ser Thr His  
 305 310 315 320

Gln His Asn Tyr Ala Ala Pro Pro Ser Thr Arg Lys Asp Tyr Pro Ala  
 325 330 335

Ala Lys Arg Val Lys Leu Asp Ser Val Arg Val Leu Arg Gln Ile Ser  
 340 345 350

Asn Asn Arg Lys Cys Thr Ser Pro Arg Ser Ser Asp Thr Glu Glu Asn  
 355 360 365

Val Lys Arg Arg Thr His Asn Val Leu Glu Arg Gln Arg Arg Asn Glu  
 370 375 380

Leu Lys Arg Ser Phe Phe Ala Leu Arg Asp Gln Ile Pro Glu Leu Glu  
 385 390 395 400

Asn Asn Glu Lys Ala Pro Lys Val Val Ile Leu Lys Lys Ala Thr Ala  
 405 410 415

Tyr Ile Leu Ser Val Gln Ala Glu Glu Gln Lys Leu Ile Ser Glu Glu  
 420 425 430

Asp Leu Leu Arg Lys Arg Arg Glu Gln Leu Lys His Lys Leu Glu Gln  
 435 440 445

Leu Arg Lys Gly Glu Leu Asn Ser Lys Leu Glu  
 450 455

<210> 4

<211> 434

<212> PRT

<213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic polypeptide

&lt;400&gt; 4

Pro Leu Asn Val Ser Phe Thr Asn Arg Asn Tyr Asp Leu Asp Tyr Asp  
 1 5 10 15

Ser Val Gln Pro Tyr Phe Tyr Cys Asp Glu Glu Glu Asn Phe Tyr Gln  
 20 25 30

Gln Gln Gln Gln Ser Glu Leu Gln Pro Pro Ala Pro Ser Glu Asp Ile  
 35 40 45

Trp Lys Lys Phe Glu Leu Leu Pro Thr Pro Pro Leu Ser Pro Ser Arg  
 50 55 60

Arg Ser Gly Leu Cys Ser Pro Ser Tyr Val Ala Val Thr Pro Phe Ser  
 65 70 75 80

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

Gln Leu Glu Met Val Thr Glu Leu Leu Gly Gly Asp Met Val Asn Gln  
 100 105 110

Ser Phe Ile Cys Asp Pro Asp Asp Glu Thr Phe Ile Lys Asn Ile Ile  
 115 120 125

Ile Gln Asp Cys Met Trp Ser Gly Phe Ser Ala Ala Ala Lys Leu Val  
 130 135 140

Ser Glu Lys Leu Ala Ser Tyr Gln Ala Ala Arg Lys Asp Ser Gly Ser  
 145 150 155 160

Pro Asn Pro Ala Arg Gly His Ser Val Cys Ser Thr Ser Ser Leu Tyr  
 165 170 175

Leu Gln Asp Leu Ser Ala Ala Ala Ser Glu Cys Ile Asp Pro Ser Val  
 180 185 190

Val Phe Pro Tyr Pro Leu Asn Asp Ser Ser Ser Pro Lys Ser Cys Ala  
 195 200 205

Ser Gln Asp Ser Ser Ala Phe Ser Pro Ser Ser Asp Ser Leu Leu Ser  
 210 215 220

Ser Thr Glu Ser Ser Pro Gln Gly Ser Pro Glu Pro Leu Val Leu His  
 225 230 235 240

Glu Glu Thr Pro Pro Thr Thr Ser Ser Asp Ser Glu Glu Glu Gln Glu  
 245 250 255

Asp Glu Glu Glu Ile Asp Val Val Ser Val Glu Lys Arg Gln Ala Pro  
 260 265 270

Gly Lys Arg Ser Glu Ser Gly Ser Pro Ser Ala Gly Gly His Ser Lys  
 275 280 285

Pro Pro His Ser Pro Leu Val Leu Lys Arg Cys His Val Ser Thr His  
 290 295 300

Gln His Asn Tyr Ala Ala Pro Pro Ser Thr Arg Lys Asp Tyr Pro Ala  
 305 310 315 320

Ala Lys Arg Val Lys Leu Asp Ser Val Arg Val Leu Arg Gln Ile Ser  
 325 330 335

Asn Asn Arg Lys Cys Thr Ser Pro Arg Ser Ser Asp Thr Glu Glu Asn  
 340 345 350

Val Lys Arg Arg Thr His Asn Val Leu Glu Arg Gln Arg Arg Asn Glu  
 355 360 365

Leu Lys Arg Ser Phe Phe Ala Leu Arg Asp Gln Ile Pro Glu Leu Glu  
 370 375 380

Asn Asn Glu Lys Ala Pro Lys Val Val Ile Leu Lys Lys Ala Thr Ala  
 385 390 395 400

Tyr Ile Leu Ser Val Gln Ala Glu Glu Gln Lys Leu Ile Ser Glu Glu  
 405 410 415

Asp Leu Leu Arg Lys Arg Arg Glu Gln Leu Lys His Lys Leu Glu Gln  
 420 425 430

Leu Arg

<210> 5

<211> 67

<212> PRT

<213> Homo sapiens

<400> 5

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

Glu Asn Asn Glu Lys Ala Pro Lys Val Val Ile Leu Lys Lys Ala Thr  
 20 25 30

Ala Tyr Ile Leu Ser Val Gln Ala Glu Glu Gln Lys Leu Ile Ser Glu  
 35 40 45

Glu Asp Leu Leu Arg Lys Arg Arg Glu Gln Leu Lys His Lys Leu Glu  
 50 55 60

Gln Leu Arg  
 65

<210> 6

<211> 14

<212> PRT

<213> Unknown

<220>

<223> Description of Unknown: E-box DNA binding domain  
sequence

<400> 6

Lys Arg Arg Thr His Asn Val Leu Glu Arg Gln Arg Arg Asn  
1 5 10

<210> 7

<211> 10

<212> PRT

<213> Human immunodeficiency virus 1

<400> 7

Met Arg Lys Lys Arg Arg Gln Arg Arg Arg  
1 5 10

<210> 8

<211> 439

<212> PRT

<213> Chlorocebus sabaeus

<400> 8

Met Pro Leu Asn Val Ser Phe Thr Asn Arg Asn Tyr Asp Leu Asp Tyr  
1 5 10 15

Asp Ser Val Gln Pro Tyr Phe Tyr Cys Asp Glu Glu Glu Asn Phe Tyr  
20 25 30

Gln Gln Gln Gln Gln Ser Glu Leu Gln Pro Pro Ala Pro Ser Glu Asp  
35 40 45

Ile Trp Lys Lys Phe Glu Leu Leu Pro Thr Pro Pro Leu Ser Pro Ser  
50 55 60

Arg Arg Ser Gly Leu Cys Ser Pro Ser Tyr Val Ala Val Thr Pro Phe  
65 70 75 80

Ser Pro Arg Gly Asp Asn Asp Gly Gly Gly Gly Ser Phe Ser Thr Ala  
85 90 95

Asp Gln Leu Glu Met Val Thr Glu Leu Leu Gly Gly Asp Met Val Asn  
100 105 110

Gln Ser Phe Ile Cys Asp Pro Asp Asp Glu Thr Phe Ile Lys Asn Ile  
 115 120 125

Ile Ile Gln Asp Cys Met Trp Ser Gly Phe Ser Ala Ala Ala Lys Leu  
 130 135 140

Val Ser Glu Lys Leu Ala Ser Tyr Gln Ala Ala Arg Lys Asp Ser Gly  
 145 150 155 160

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

Tyr Leu Gln Asp Leu Ser Ala Ala Ala Ser Glu Cys Ile Asp Pro Ser  
 180 185 190

Val Val Phe Pro Tyr Pro Leu Asn Asp Ser Ser Ser Pro Lys Ser Cys  
 195 200 205

Ala Ser Pro Asp Ser Ser Ala Phe Ser Pro Ser Ser Asp Ser Leu Leu  
 210 215 220

Ser Ser Thr Glu Ser Ser Pro Gln Ala Ser Pro Glu Pro Leu Val Leu  
 225 230 235 240

His Glu Glu Thr Pro Pro Thr Thr Ser Ser Asp Ser Glu Glu Glu Gln  
 245 250 255

Glu Asp Glu Glu Glu Ile Asp Val Val Ser Val Glu Lys Arg Gln Ala  
 260 265 270

Pro Gly Lys Arg Ser Glu Ser Gly Ser Pro Ser Ala Gly Gly His Ser  
 275 280 285

Lys Pro Pro His Ser Pro Leu Val Leu Lys Arg Cys His Val Ser Thr  
 290 295 300

His Gln His Asn Tyr Ala Ala Pro Pro Ser Thr Arg Lys Asp Tyr Pro  
 305 310 315 320

Ala Ala Lys Arg Val Lys Leu Asp Ser Val Arg Val Leu Arg Gln Ile  
 325 330 335

Ser Asn Asn Arg Lys Cys Thr Ser Pro Arg Ser Ser Asp Thr Glu Glu  
 340 345 350

Asn Val Lys Arg Arg Thr His Asn Val Leu Glu Arg Gln Arg Arg Asn  
 355 360 365

Glu Leu Lys Arg Ser Phe Phe Ala Leu Arg Asp Gln Ile Pro Glu Leu  
 370 375 380

Glu Asn Asn Glu Lys Ala Pro Lys Val Val Ile Leu Lys Lys Ala Thr  
 385 390 395 400

Ala Tyr Ile Leu Ser Val Gln Ala Glu Glu Gln Lys Leu Ile Ser Glu  
 405 410 415

Lys Asp Leu Leu Arg Lys Arg Arg Glu Gln Leu Lys His Lys Leu Glu  
 420 425 430

Gln Leu Arg Asn Ser Cys Ala  
 435

<210> 9

<211> 434

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 polypeptide

<400> 9

Pro Leu Asn Val Ser Phe Thr Asn Arg Asn Tyr Asp Leu Asp Tyr Asp  
 1 5 10 15

Ser Val Gln Pro Tyr Phe Tyr Cys Asp Glu Glu Glu Asn Phe Tyr Gln  
 20 25 30

Gln Gln Gln Gln Ser Glu Leu Gln Pro Pro Ala Pro Ser Glu Asp Ile  
 35 40 45

Trp Lys Lys Phe Glu Leu Leu Pro Thr Pro Pro Leu Ser Pro Ser Arg  
 50 55 60

Arg Ser Gly Leu Cys Ser Pro Ser Tyr Val Ala Val Thr Pro Phe Ser  
 65 70 75 80

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

Gln Leu Glu Met Val Thr Glu Leu Leu Gly Gly Asp Met Val Asn Gln  
 100 105 110

Ser Phe Ile Cys Asp Pro Asp Asp Glu Thr Phe Ile Lys Asn Ile Ile  
 115 120 125

Ile Gln Asp Cys Met Trp Ser Gly Phe Ser Ala Ala Ala Lys Leu Val  
 130 135 140

Ser Glu Lys Leu Ala Ser Tyr Gln Ala Ala Arg Lys Asp Ser Gly Ser  
 145 150 155 160

Pro Asn Pro Ala Arg Gly His Ser Val Cys Ser Thr Ser Ser Leu Tyr  
 165 170 175

Leu Gln Asp Leu Ser Ala Ala Ala Ser Glu Cys Ile Asp Pro Ser Val  
 180 185 190

Val Phe Pro Tyr Pro Leu Asn Asp Ser Ser Ser Pro Lys Ser Cys Ala  
 195 200 205

Ser Gln Asp Ser Ser Ala Phe Ser Pro Ser Ser Asp Ser Leu Leu Ser  
 210 215 220

Ser Thr Glu Ser Ser Pro Gln Ala Ser Pro Glu Pro Leu Val Leu His  
 225 230 235 240

Glu Glu Thr Pro Pro Thr Thr Ser Ser Asp Ser Glu Glu Glu Gln Glu  
 245 250 255

Asp Glu Glu Glu Ile Asp Val Val Ser Val Glu Lys Arg Gln Ala Pro  
 260 265 270

Gly Lys Arg Ser Glu Ser Gly Ser Pro Ser Ala Gly Gly His Ser Lys  
 275 280 285

Pro Pro His Ser Pro Leu Val Leu Lys Arg Cys His Val Ser Thr His  
 290 295 300

Gln His Asn Tyr Ala Ala Pro Pro Ser Thr Arg Lys Asp Tyr Pro Ala  
 305 310 315 320

Ala Lys Arg Val Lys Leu Asp Ser Val Arg Val Leu Arg Gln Ile Ser  
 325 330 335

Asn Asn Arg Lys Cys Thr Ser Pro Arg Ser Ser Asp Thr Glu Glu Asn  
 340 345 350

Val Lys Arg Arg Thr His Asn Val Leu Glu Arg Gln Arg Arg Asn Glu  
 355 360 365

Leu Lys Arg Ser Phe Phe Ala Leu Arg Asp Gln Ile Pro Glu Leu Glu  
 370 375 380

Asn Asn Glu Lys Ala Pro Lys Val Val Ile Leu Lys Lys Ala Thr Ala  
 385 390 395 400

Tyr Ile Leu Ser Val Gln Ala Glu Glu Gln Lys Leu Ile Ser Glu Lys  
 405 410 415

Asp Leu Leu Arg Lys Arg Arg Glu Gln Leu Lys His Lys Leu Glu Gln  
 420 425 430

Leu Arg

<210> 10

<211> 476

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 10

Met Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Leu Asn Val Ser Phe  
 1 5 10 15

Thr Asn Arg Asn Tyr Asp Leu Asp Tyr Asp Ser Val Gln Pro Tyr Phe  
 20 25 30

Tyr Cys Asp Glu Glu Glu Asn Phe Tyr Gln Gln Gln Gln Gln Ser Glu  
 35 40 45

Leu Gln Pro Pro Ala Pro Ser Glu Asp Ile Trp Lys Lys Phe Glu Leu  
 50 55 60

Leu Pro Thr Pro Pro Leu Ser Pro Ser Arg Arg Ser Gly Leu Cys Ser  
 65 70 75 80

Pro Ser Tyr Val Ala Val Thr Pro Phe Ser Leu Arg Gly Asp Asn Asp  
 85 90 95

Gly Gly Gly Gly Ser Phe Ser Thr Ala Asp Gln Leu Glu Met Val Thr  
 100 105 110

Glu Leu Leu Gly Gly Asp Met Val Asn Gln Ser Phe Ile Cys Asp Pro  
 115 120 125

Asp Asp Glu Thr Phe Ile Lys Asn Ile Ile Ile Gln Asp Cys Met Trp  
 130 135 140

Ser Gly Phe Ser Ala Ala Ala Lys Leu Val Ser Glu Lys Leu Ala Ser  
 145 150 155 160

Tyr Gln Ala Ala Arg Lys Asp Ser Gly Ser Pro Asn Pro Ala Arg Gly  
 165 170 175

His Ser Val Cys Ser Thr Ser Ser Leu Tyr Leu Gln Asp Leu Ser Ala  
 180 185 190

Ala Ala Ser Glu Cys Ile Asp Pro Ser Val Val Phe Pro Tyr Pro Leu  
 195 200 205

Asn Asp Ser Ser Ser Pro Lys Ser Cys Ala Ser Gln Asp Ser Ser Ala  
 210 215 220

Phe Ser Pro Ser Ser Asp Ser Leu Leu Ser Ser Thr Glu Ser Ser Pro  
 225 230 235 240

Gln Ala Ser Pro Glu Pro Leu Val Leu His Glu Glu Thr Pro Pro Thr  
 245 250 255

Thr Ser Ser Asp Ser Glu Glu Glu Gln Glu Asp Glu Glu Glu Ile Asp  
 260 265 270

Val Val Ser Val Glu Lys Arg Gln Ala Pro Gly Lys Arg Ser Glu Ser  
 275 280 285

Gly Ser Pro Ser Ala Gly Gly His Ser Lys Pro Pro His Ser Pro Leu  
 290 295 300

Val Leu Lys Arg Cys His Val Ser Thr His Gln His Asn Tyr Ala Ala  
 305 310 315 320

Pro Pro Ser Thr Arg Lys Asp Tyr Pro Ala Ala Lys Arg Val Lys Leu  
 325 330 335

Asp Ser Val Arg Val Leu Arg Gln Ile Ser Asn Asn Arg Lys Cys Thr  
                   340                  345                  350

Ser Pro Arg Ser Ser Asp Thr Glu Glu Asn Val Lys Arg Arg Thr His  
                   355                  360                  365

Asn Val Leu Glu Arg Gln Arg Arg Asn Glu Leu Lys Arg Ser Phe Phe  
                   370                  375                  380

Ala Leu Arg Asp Gln Ile Pro Glu Leu Glu Asn Asn Glu Lys Ala Pro  
                   385                  390                  395                  400

Lys Val Val Ile Leu Lys Lys Ala Thr Ala Tyr Ile Leu Ser Val Gln  
                   405                  410                  415

Ala Glu Glu Gln Lys Leu Ile Ser Glu Lys Asp Leu Leu Arg Lys Arg  
                   420                  425                  430

Arg Glu Gln Leu Lys His Lys Leu Glu Gln Leu Arg Lys Gly Glu Leu  
                   435                  440                  445

Asn Ser Lys Leu Glu Gly Lys Pro Ile Pro Asn Pro Leu Leu Gly Leu  
                   450                  455                  460

Asp Ser Thr Arg Thr Gly His His His His His His  
                   465                  470                  475

<210> 11

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
                   peptide

<400> 11

Lys Gly Glu Leu Asn Ser Lys Leu Glu

1                  5

<210> 12

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 12

Met Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Leu Asn Val Ser Phe  
1 5 10 15

Thr Asn Arg Asn Tyr Asp  
20

<210> 13

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 13

Tyr Asp Leu Asp  
1

<210> 14

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 14

Leu Asp Tyr Asp  
1

<210> 15

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 15

Tyr Asp Ser Val Gln Pro Tyr Phe Tyr Cys Asp  
1 5 10

<210> 16

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 16

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

Gln Pro Pro Ala Pro Ser Glu Asp  
20

<210> 17

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 17

Glu Asp Ile Trp Lys Lys Phe Glu Leu Leu Pro Thr Pro Pro Leu Ser  
1 5 10 15

Pro Ser Arg Arg Ser Gly Leu Cys Ser Pro Ser Tyr Val Ala Val Thr  
20 25 30

Pro Phe Ser Leu Arg Gly Asp  
35

<210> 18

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 18

Gly Asp Asn Asp

1

<210> 19

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 19

Asn Asp Gly Gly Gly Gly Ser Phe Ser Thr Ala Asp

1

5

10

<210> 20

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 20

Ala Asp Gln Leu Glu Met Val Thr Glu Leu Leu Gly Gly Asp

1

5

10

<210> 21

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 21

Gly Asp Met Val Asn Gln Ser Phe Ile Cys Asp  
1 5 10

<210> 22

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 22

Cys Asp Pro Asp  
1

<210> 23

<211> 3

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 23

Pro Asp Asp  
1

<210> 24

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 24

Asp Asp Glu Thr Phe Ile Lys Asn Ile Ile Ile Gln Asp  
1 5 10

<210> 25  
 <211> 28  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 25  
 Gln Asp Cys Met Trp Ser Gly Phe Ser Ala Ala Ala Lys Leu Val Ser  
 1 5 10 15

Glu Lys Leu Ala Ser Tyr Gln Ala Ala Arg Lys Asp  
 20 25

<210> 26  
 <211> 24  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 26  
 Lys Asp Ser Gly Ser Pro Asn Pro Ala Arg Gly His Ser Val Cys Ser  
 1 5 10 15

Thr Ser Ser Leu Tyr Leu Gln Asp  
 20

<210> 27  
 <211> 12  
 <212> PRT  
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<220>  
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<400> 27  
 Gln Asp Leu Ser Ala Ala Ala Ser Glu Cys Ile Asp  
 1 5 10

<210> 28  
 <211> 13  
 <212> PRT  
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<220>  
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<400> 28  
 Ile Asp Pro Ser Val Val Phe Pro Tyr Pro Leu Asn Asp  
 1 5 10

<210> 29  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 29  
 Asn Asp Ser Ser Ser Pro Lys Ser Cys Ala Ser Gln Asp  
 1 5 10

<210> 30  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 30  
 Gln Asp Ser Ser Ala Phe Ser Pro Ser Ser Asp  
 1 5 10

<210> 31  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic polypeptide

<400> 31

Ser Asp Ser Leu Leu Ser Ser Thr Glu Ser Ser Pro Gln Gly Ser Pro  
1 5 10 15

Glu Pro Leu Val Leu His Glu Glu Thr Pro Pro Thr Thr Ser Ser Asp  
20 25 30

<210> 32

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 32

Ser Asp Ser Glu Glu Glu Gln Glu Asp  
1 5

<210> 33

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 33

Glu Asp Glu Glu Glu Ile Asp  
1 5

<210> 34

<211> 57

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
polypeptide

<400> 34

Ile Asp Val Val Ser Val Glu Lys Arg Gln Ala Pro Gly Lys Arg Ser  
1 5 10 15

Glu Ser Gly Ser Pro Ser Ala Gly Gly His Ser Lys Pro Pro His Ser  
                   20                                  25                                  30

Pro Leu Val Leu Lys Arg Cys His Val Ser Thr His Gln His Asn Tyr  
                   35                                  40                                  45

Ala Ala Pro Pro Ser Thr Arg Lys Asp  
           50                                  55

<210> 35

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
           peptide

<400> 35

Lys Asp Tyr Pro Ala Ala Lys Arg Val Lys Leu Asp  
   1                                  5                                  10

<210> 36

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
           peptide

<400> 36

Leu Asp Ser Val Arg Val Leu Arg Gln Ile Ser Asn Asn Arg Lys Cys  
   1                                  5                                  10                                  15

Thr Ser Pro Arg Ser Ser Asp  
                   20

<210> 37

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 37

Ser Asp Thr Glu Glu Asn Val Lys Arg Arg Thr His Asn Val Leu Glu  
1 5 10 15

Arg Gln Arg Arg Asn Glu Leu Lys Arg Ser Phe Phe Ala Leu Arg Asp  
20 25 30

<210> 38

<211> 41

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 38

Arg Asp Gln Ile Pro Glu Leu Glu Asn Asn Glu Lys Ala Pro Lys Val  
1 5 10 15

Val Ile Leu Lys Lys Ala Thr Ala Tyr Ile Leu Ser Val Gln Ala Glu  
20 25 30

Glu Gln Lys Leu Ile Ser Glu Glu Asp  
35 40

<210> 39

<211> 40

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 39

Glu Asp Leu Leu Arg Lys Arg Arg Glu Gln Leu Lys His Lys Leu Glu  
1 5 10 15

Gln Leu Arg Lys Gly Glu Leu Asn Ser Lys Leu Glu Gly Lys Pro Ile  
                   20                                  25                                  30

Pro Asn Pro Leu Leu Gly Leu Asp  
                   35                                  40

<210> 40  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
           peptide

<400> 40  
 Leu Asp Ser Thr Arg Thr Gly His His His His His His  
 1                  5                                  10

<210> 41  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
           6xHis tag

<400> 41  
 His His His His His His  
 1                  5

<210> 42  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
           peptide

<400> 42  
 Gly Lys Pro Ile Pro Asn Pro Leu Leu Gly Leu Asp Ser Thr  
 1                  5                                  10

<210> 43  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 43  
 Ile Pro Asn Pro Leu Leu Gly Leu Asp  
 1 5

<210> 44  
 <211> 9  
 <212> PRT  
 <213> Human immunodeficiency virus 1

<400> 44  
 Arg Lys Lys Arg Arg Gln Arg Arg Arg  
 1 5