

SEQUENCE LISTING

~~<110> BiatAtla LLC~~

~~<120> Conditionally active anti EpCAM antibodies~~

~~<130> BIAT-1029~~

~~<160> 50~~

~~<170> PatentIn version 3.5~~

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~~<221> VARIANT~~

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~~<223> This position may be Y or D~~

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~~Asp~~

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~~<222> (6)..(6)~~

~~<223> This position may be A or H~~

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~~Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala~~
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~~Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr~~
~~20 25 30~~

~~Trp Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile~~
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~~Gly Tyr Ile Arg Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe~~
~~50 55 60~~

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

~~Met Gln Leu Ser Ser Leu Thr Phe Glu Asp Ser Ala Val Tyr Tyr Cys~~
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~~Leu Val Thr Val Ser Ala~~
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~~Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr~~
~~20 25 30~~

~~Trp Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile~~
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~~Gly Asp Ile Arg Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe~~
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~~Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr~~
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~~Met Gln Leu Ser Ser Leu Thr Phe Glu Asp Ser Ala Val Tyr Tyr Cys~~
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~~Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr~~
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~~Trp Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile~~
~~35 40 45~~

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

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

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

~~Gly Asp Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr~~
~~100 105 110~~

~~Leu Val Thr Val Ser Ala~~
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~~Thr Val Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe Thr Ser Tyr~~
~~20 25 30~~

~~Trp Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met~~
~~35 40 45~~

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

~~Lys Asp Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr~~
~~65 70 75 80~~

~~Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys~~
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~~Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr~~
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~~Ser Leu Arg Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Ser Tyr~~
~~20 25 30~~

~~Trp Met His Trp Ile Arg Gln Ser Pro Ser Arg Gly Leu Glu Trp Leu~~
~~35 40 45~~

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

~~Lys Asp Arg Val Thr Ile Ser Ala Asp Lys Ser Ile Ser Thr Ala Tyr~~

Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met Tyr Tyr Cys

~~Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr~~
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~~Leu Val Thr Val Ser Ser~~
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~~Thr Val Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe Thr Ser Tyr~~
~~20 25 30~~

~~Trp Met His Trp Ile Arg Gln Ser Pro Ser Arg Gly Leu Glu Trp Leu~~
 35 40 45

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

~~Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Ala Tyr~~
~~65 70 75 80~~

~~Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr Tyr Cys~~

~~Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr~~
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~~Leu Val Thr Val Ser Ser~~
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~~Thr Val Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe Thr Ser Tyr~~
~~20 25 30~~

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

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

~~Lys Asp Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr~~
~~65 70 75 80~~

~~Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys~~
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~~Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr~~
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~~His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Phe Tyr Ser Leu Thr Ile Ser Ser Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Ala Ala Asp Tyr Phe Cys His Gln Trp Ser Thr Tyr His Thr Phe~~
~~85 90 95~~

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

~~Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
~~20 25 30~~

~~His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu His Ser Gly Val Pro Ser Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Phe Tyr Ser Leu Thr Ile Ser Ser Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Ala Ala Asp Tyr Phe Cys His Gln Trp Ser Thr Tyr His Thr Phe~~
~~85 90 95~~

~~Gly Ser Gly Thr Lys Leu Glu Ile Lys~~
~~100 105~~

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~~1 5 10 15~~

~~Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
~~20 25 30~~

~~His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Phe Tyr Ser Leu Thr Ile Ser Ser Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Ala Ala Asp Tyr Phe Cys Glu Gln Trp Ser Thr Tyr His Thr Phe~~
~~85 90 95~~

~~Gly Ser Gly Thr Lys Leu Glu Ile Lys~~
~~100 105~~

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~~Gln Ile Val Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Leu Gly~~
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~~Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
~~20 25 30~~

~~His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Phe Tyr Ser Leu Thr Ile Ser Ser Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Ala Ala Asp Tyr Phe Cys His Gln Trp Ser Thr Tyr Glu Thr Phe~~
~~85 90 95~~

~~Gly Ser Gly Thr Lys Leu Glu Ile Lys~~
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~~1 5 10 15~~

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

~~His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe~~
~~85 90 95~~

~~Gly Gln Gly Thr Lys Val Glu Ile Lys~~
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~~1 5 10 15~~

~~Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
~~20 25 30~~

~~His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Asp~~
~~65 70 75 80~~

~~Asp Phe Ala Thr Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe~~
~~85 90 95~~

~~Gly Gln Gly Thr Lys Val Glu Ile Lys~~
~~100 105~~

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~~1 5 10 15~~

~~Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
~~20 25 30~~

~~His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Ile Pro Pro Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Tyr Gly Thr Asp Phe Thr Leu Thr Ile Asn Asn Ile Glu Ser Glu~~
~~65 70 75 80~~

~~Asp Ala Ala Tyr Tyr Phe Cys His Gln Trp Ser Thr Tyr Glu Thr Phe~~
~~85 90 95~~

~~Gly Gln Gly Thr Lys Val Glu Ile Lys~~
~~100 105~~

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~~<212> PRT~~
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~~Glu Ile Val Met Thr Gln Ser Pro Ala Thr Leu Ser Val Ser Pro Gly~~
~~1 5 10 15~~

~~Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
~~20 25 30~~

~~His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu~~
~~65 70 75 80~~

~~Asp Phe Ala Thr Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe~~
~~85 90 95~~

~~Gly Gln Gly Thr Lys Val Glu Ile Lys~~
~~100 105~~

~~<210> 22~~

~~<211> 17~~

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~~<213> Artificial~~

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~~Asp~~

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~~<212> PRT~~

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~~Asp~~

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

~~His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

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

~~Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe~~
~~85 90 95~~

~~Gly Gln Gly Thr Lys Val Glu Ile Lys~~
~~100 105~~

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

~~His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

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

~~Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe~~
~~85 90 95~~

~~Gly Gln Gly Thr Lys Val Glu Ile Lys~~
~~100 105~~

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~~1 5 10 15~~

~~Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
~~20 25 30~~

~~His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Phe Tyr Ser Leu Thr Ile Ser Ser Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Ala Ala Asp Tyr Phe Cys His Gln Trp Ser Thr Tyr His Thr Phe~~
~~85 90 95~~

~~Gly Ser Gly Thr Lys Leu Glu Ile Lys~~
~~100 105~~

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~~1 5 10 15~~

~~Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
20 25 30

~~His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr~~
35 40 45

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser~~
50 55 60

~~Gly Ser Gly Thr Phe Tyr Ser Leu Thr Ile Ser Ser Val Glu Ala Glu~~
65 70 75 80

~~Asp Ala Ala Asp Tyr Phe Cys His Gln Trp Ser Thr Tyr His Thr Phe~~
85 90 95

~~Gly Ser Gly Thr Lys Leu Glu Ile Lys Arg Thr Val Ala Ala Pro Ser~~
100 105 110

~~Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala~~
115 120 125

~~Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val~~
130 135 140

~~Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser~~
145 150 155 160

~~Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr~~
165 170 175

~~Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys~~
180 185 190

~~Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn~~
195 200 205

~~Arg Gly Glu Cys Ser Arg Ser Gly Gly Gly Gly Glu Val Gln Leu Val~~
210 215 220

~~Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser~~
~~225 230 235 240~~

~~Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr Ala Met Asn Trp Val~~
~~245 250 255~~

~~Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Arg Ile Arg Ser~~
~~260 265 270~~

~~Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Asp Arg~~
~~275 280 285~~

~~Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser Leu Tyr Leu Gln Met~~
~~290 295 300~~

~~Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His~~
~~305 310 315 320~~

~~Gly Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln~~
~~325 330 335~~

~~Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser Gly Gly Ser Gly Gly~~
~~340 345 350~~

~~Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr Gln Glu Pro Ser Leu~~
~~355 360 365~~

~~Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Arg Ser Ser Thr~~
~~370 375 380~~

~~Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro~~
~~385 390 395 400~~

~~Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro~~
~~405 410 415~~

~~Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala~~
~~420 425 430~~

~~Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys~~

435

440

445

~~Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly Thr Lys Leu~~
~~450 455 460~~

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

~~Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr~~
~~20 25 30~~

~~Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val~~
~~35 40 45~~

~~Ala Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp~~
~~50 55 60~~

~~Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser~~
~~65 70 75 80~~

~~Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr~~
~~85 90 95~~

~~Tyr Cys Val Arg His Gly Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe~~
~~100 105 110~~

~~Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser~~
~~115 120 125~~

~~Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr~~
~~130 135 140~~

~~Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr~~
~~145 150 155 160~~

~~Cys Arg Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp~~
~~165 170 175~~

~~Val Gln Gln Lys Pro Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr~~
~~180 185 190~~

~~Asn Lys Arg Ala Pro Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu~~
~~195 200 205~~

~~Gly Gly Lys Ala Ala Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu~~
~~210 215 220~~

~~Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly~~
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~~Gly Gly Thr Lys Leu Thr Val Leu Ser Arg~~
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~~Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala~~
~~1 5 10 15~~

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

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

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

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

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

~~Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr~~
~~100 105 110~~

~~Leu Val Thr Val Ser Ser~~
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~~<213> Artificial~~

~~<220>~~
~~<223> Synthetic sequence~~

~~<400> 35~~

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

~~Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
~~20 25 30~~

~~His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Phe Tyr Ser Leu Thr Ile Ser Ser Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Ala Ala Asp Tyr Phe Cys His Gln Trp Ser Thr Tyr His Thr Phe~~
~~85 90 95~~

~~Gly Ser Gly Thr Lys Leu Glu Ile Lys~~
~~100 105~~

~~<210> 36~~
~~<211> 469~~
~~<212> PRT~~
~~<213> Artificial~~

~~<220>~~
~~<223> Synthetic sequence~~

~~<400> 36~~

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

~~Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
~~20 25 30~~

~~His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Phe Tyr Ser Leu Thr Ile Ser Ser Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Ala Ala Asp Tyr Phe Cys His Gln Trp Ser Thr Tyr His Thr Phe~~
~~85 90 95~~

~~Gly Ser Gly Thr Lys Leu Glu Ile Lys Arg Thr Val Ala Ala Pro Ser~~
~~100 105 110~~

~~Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala~~
~~115 120 125~~

~~Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val~~
~~130 135 140~~

~~Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser~~

145	150	155	160
~~Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr~~			
	~~165~~	~~170~~	~~175~~
~~Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys~~			
	~~180~~	~~185~~	~~190~~
~~Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn~~			
	~~195~~	~~200~~	~~205~~
~~Arg Gly Glu Cys Ser Arg Ser Gly Gly Gly Gly Glu Val Gln Leu Val~~			
	~~210~~	~~215~~	~~220~~
~~Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser~~			
~~225~~	~~230~~	~~235~~	~~240~~
~~Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr Ala Met Asn Trp Val~~			
	~~245~~	~~250~~	~~255~~
~~Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Arg Ile Arg Ser~~			
	~~260~~	~~265~~	~~270~~
~~Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Asp Arg~~			
	~~275~~	~~280~~	~~285~~
~~Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser Leu Tyr Leu Gln Met~~			
	~~290~~	~~295~~	~~300~~
~~Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His~~			
~~305~~	~~310~~	~~315~~	~~320~~
~~Ser Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln~~			
	~~325~~	~~330~~	~~335~~
~~Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser Gly Gly Ser Gly Gly~~			
	~~340~~	~~345~~	~~350~~
~~Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr Gln Glu Pro Ser Leu~~			
	~~355~~	~~360~~	~~365~~

~~Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Arg Ser Ser Thr~~
~~370 375 380~~

~~Gly Ala Val Thr Thr Ser Asn Tyr Asp Asn Trp Val Gln Gln Lys Pro~~
~~385 390 395 400~~

~~Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro~~
~~405 410 415~~

~~Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala~~
~~420 425 430~~

~~Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys~~
~~435 440 445~~

~~Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly Thr Lys Leu~~
~~450 455 460~~

~~Thr Val Leu Ser Arg~~
~~465~~

~~<210> 37~~
~~<211> 250~~
~~<212> PRT~~
~~<213> Artificial~~

~~<220>~~
~~<223> Synthetic sequence~~

~~<400> 37~~

~~Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly~~
~~1 5 10 15~~

~~Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr~~
~~20 25 30~~

~~Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val~~
~~35 40 45~~

~~Ala Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp~~

50

55

60

~~Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser~~
~~65 70 75 80~~

~~Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr~~
~~85 90 95~~

~~Tyr Cys Val Arg His Ser Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe~~
~~100 105 110~~

~~Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser~~
~~115 120 125~~

~~Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr~~
~~130 135 140~~

~~Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr~~
~~145 150 155 160~~

~~Cys Arg Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Asp Asn Trp~~
~~165 170 175~~

~~Val Gln Gln Lys Pro Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr~~
~~180 185 190~~

~~Asn Lys Arg Ala Pro Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu~~
~~195 200 205~~

~~Gly Gly Lys Ala Ala Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu~~
~~210 215 220~~

~~Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly~~
~~225 230 235 240~~

~~Gly Gly Thr Lys Leu Thr Val Leu Ser Arg~~
~~245 250~~

<210> 38

<211> 118

~~<212> PRT~~
~~<213> Artificial~~

~~<220>~~
~~<223> Synthetic sequence~~

~~<400> 38~~

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

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

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

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

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

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

~~Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr~~
~~100 105 110~~

~~Leu Val Thr Val Ser Ser~~
~~115~~

~~<210> 39~~
~~<211> 105~~
~~<212> PRT~~
~~<213> Artificial~~

~~<220>~~
~~<223> Synthetic sequence~~

~~<400> 39~~

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

~~Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
~~20 25 30~~

~~His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr His Thr Phe~~
~~85 90 95~~

~~Gly Gln Gly Thr Lys Val Glu Ile Lys~~
~~100 105~~

~~<210> 40~~
~~<211> 469~~
~~<212> PRT~~
~~<213> Artificial~~

~~<220>~~
~~<223> Synthetic sequence~~

~~<400> 40~~

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

~~Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
~~20 25 30~~

~~His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr His Thr Phe~~
85 90 95

~~Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser~~
100 105 110

~~Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala~~
115 120 125

~~Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val~~
130 135 140

~~Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser~~
145 150 155 160

~~Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr~~
165 170 175

~~Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys~~
180 185 190

~~Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn~~
195 200 205

~~Arg Gly Glu Cys Ser Arg Ser Gly Gly Gly Gly Glu Val Gln Leu Val~~
210 215 220

~~Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser~~
225 230 235 240

~~Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr Ala Met Asn Trp Val~~
245 250 255

~~Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Arg Ile Arg Ser~~
260 265 270

~~Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Asp Arg~~
275 280 285

~~Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser Leu Tyr Leu Gln Met~~
~~290 295 300~~

~~Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His~~
~~305 310 315 320~~

~~Gly Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln~~
~~325 330 335~~

~~Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser Gly Gly Ser Gly Gly~~
~~340 345 350~~

~~Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr Gln Glu Pro Ser Leu~~
~~355 360 365~~

~~Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Arg Ser Ser Thr~~
~~370 375 380~~

~~Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro~~
~~385 390 395 400~~

~~Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro~~
~~405 410 415~~

~~Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala~~
~~420 425 430~~

~~Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys~~
~~435 440 445~~

~~Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly Thr Lys Leu~~
~~450 455 460~~

~~Thr Val Leu Ser Arg~~
~~465~~

~~<210> 41~~
~~<211> 250~~
~~<212> PRT~~
~~<213> Artificial~~

<220>

<223> Synthetic sequence

<400> 41

~~Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly~~
~~1 5 10 15~~

~~Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr~~
~~20 25 30~~

~~Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val~~
~~35 40 45~~

~~Ala Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp~~
~~50 55 60~~

~~Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser~~
~~65 70 75 80~~

~~Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr~~
~~85 90 95~~

~~Tyr Cys Val Arg His Gly Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe~~
~~100 105 110~~

~~Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser~~
~~115 120 125~~

~~Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr~~
~~130 135 140~~

~~Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr~~
~~145 150 155 160~~

~~Cys Arg Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp~~
~~165 170 175~~

~~Val Gln Gln Lys Pro Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr~~
~~180 185 190~~

~~Asn Lys Arg Ala Pro Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu~~
~~195 200 205~~

~~Gly Gly Lys Ala Ala Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu~~
~~210 215 220~~

~~Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly~~
~~225 230 235 240~~

~~Gly Gly Thr Lys Leu Thr Val Leu Ser Arg~~
~~245 250~~

~~<210> 42~~

~~<211> 118~~

~~<212> PRT~~

~~<213> Artificial~~

~~<220>~~

~~<223> Synthetic sequence~~

~~<400> 42~~

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

~~Thr Val Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe Thr Ser Tyr~~
~~20 25 30~~

~~Trp Met His Trp Val Arg Gln Ala Arg Gly Gln Arg Leu Glu Trp Ile~~
~~35 40 45~~

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

~~Lys Asp Arg Val Thr Ile Ser Ala Asp Lys Ser Ile Ser Thr Ala Tyr~~
~~65 70 75 80~~

~~Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met Tyr Tyr Cys~~
~~85 90 95~~

~~Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr~~
~~100 105 110~~

~~Leu Val Thr Val Ser Ser~~
~~115~~

~~<210> 43~~
~~<211> 105~~
~~<212> PRT~~
~~<213> Artificial~~

~~<220>~~
~~<223> Synthetic sequence~~

~~<400> 43~~

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

~~Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
~~20 25 30~~

~~His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr His Thr Phe~~
~~85 90 95~~

~~Gly Gln Gly Thr Lys Val Glu Ile Lys~~
~~100 105~~

~~<210> 44~~
~~<211> 469~~
~~<212> PRT~~
~~<213> Artificial~~

~~<220>~~
~~<223> Synthetic sequence~~

~~<400> 44~~

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

~~Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met~~
~~20 25 30~~

~~His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr~~
~~35 40 45~~

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Gly Ser~~
~~50 55 60~~

~~Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu~~
~~65 70 75 80~~

~~Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr His Thr Phe~~
~~85 90 95~~

~~Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser~~
~~100 105 110~~

~~Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala~~
~~115 120 125~~

~~Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val~~
~~130 135 140~~

~~Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser~~
~~145 150 155 160~~

~~Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr~~
~~165 170 175~~

~~Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys~~
~~180 185 190~~

~~Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn~~
~~195 200 205~~

~~Arg Gly Glu Cys Ser Arg Ser Gly Gly Gly Gly Glu Val Gln Leu Val~~
~~210 215 220~~

~~Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser~~
~~225 230 235 240~~

~~Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr Ala Met Asn Trp Val~~
~~245 250 255~~

~~Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Arg Ile Arg Ser~~
~~260 265 270~~

~~Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Asp Arg~~
~~275 280 285~~

~~Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser Leu Tyr Leu Gln Met~~
~~290 295 300~~

~~Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His~~
~~305 310 315 320~~

~~Thr Asn Phe Gly Asn Ser Lys Val Ser Trp Phe Ala Tyr Trp Gly Gln~~
~~325 330 335~~

~~Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser Gly Gly Ser Gly Gly~~
~~340 345 350~~

~~Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr Gln Glu Pro Ser Leu~~
~~355 360 365~~

~~Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Arg Ser Ser Ala~~
~~370 375 380~~

~~Gly Ala Val Thr Thr Ser Asn Tyr Asp Asn Trp Val Gln Gln Lys Pro~~
~~385 390 395 400~~

~~Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro~~
~~405 410 415~~

~~Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala~~

420

425

430

~~Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys~~
~~435 440 445~~

~~Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly Thr Lys Leu~~
~~450 455 460~~

~~Thr Val Leu Ser Arg~~
~~465~~

~~<210> 45~~

~~<211> 250~~

~~<212> PRT~~

~~<213> Artificial~~

~~<220>~~

~~<223> Synthetic sequence~~

~~<400> 45~~

~~Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly~~
~~1 5 10 15~~

~~Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr~~
~~20 25 30~~

~~Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val~~
~~35 40 45~~

~~Ala Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp~~
~~50 55 60~~

~~Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser~~
~~65 70 75 80~~

~~Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr~~
~~85 90 95~~

~~Tyr Cys Val Arg His Thr Asn Phe Gly Asn Ser Lys Val Ser Trp Phe~~
~~100 105 110~~

~~Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser~~
~~115 120 125~~

~~Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr~~
~~130 135 140~~

~~Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr~~
~~145 150 155 160~~

~~Cys Arg Ser Ser Ala Gly Ala Val Thr Thr Ser Asn Tyr Asp Asn Trp~~
~~165 170 175~~

~~Val Gln Gln Lys Pro Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr~~
~~180 185 190~~

~~Asn Lys Arg Ala Pro Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu~~
~~195 200 205~~

~~Gly Gly Lys Ala Ala Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu~~
~~210 215 220~~

~~Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly~~
~~225 230 235 240~~

~~Gly Gly Thr Lys Leu Thr Val Leu Ser Arg~~
~~245 250~~

~~<210> 46~~
~~<211> 118~~
~~<212> PRT~~
~~<213> Artificial~~

~~<220>~~
~~<223> Synthetic sequence~~

~~<400> 46~~

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

~~Thr Val Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe Thr Ser Tyr~~
~~20 25 30~~

~~Trp Met His Trp Val Arg Gln Ala Arg Gly Gln Arg Leu Glu Trp Ile~~
35 40 45

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

~~Lys Asp Arg Val Thr Ile Ser Ala Asp Lys Ser Ile Ser Thr Ala Tyr~~
65 70 75 80

~~Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met Tyr Tyr Cys~~
85 90 95

~~Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr~~
100 105 110

~~Leu Val Thr Val Ser Ser~~
115

~~<210> 47~~

~~<211> 105~~

~~<212> PRT~~

~~<213> Artificial~~

~~<220>~~

~~<223> Synthetic sequence~~

~~<400> 47~~

~~Glu Ile Val Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys~~
1 5 10 15

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

~~His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr~~
35 40 45

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Gly Ser~~
50 55 60

~~Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu~~
65 70 75 80

~~Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe~~
85 90 95

~~Gly Gln Gly Thr Lys Val Glu Ile Lys~~
100 105

~~<210> 48~~
~~<211> 469~~
~~<212> PRT~~
~~<213> Artificial~~

~~<220>~~
~~<223> Synthetic sequence~~

~~<400> 48~~

~~Glu Ile Val Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys~~
1 5 10 15

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

~~His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr~~
35 40 45

~~Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Gly Ser~~
50 55 60

~~Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu~~
65 70 75 80

~~Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe~~
85 90 95

~~Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser~~
100 105 110

~~Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala~~
115 120 125

~~Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val~~

130

135

140

~~Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser~~
~~145 150 155 160~~

~~Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr~~
~~165 170 175~~

~~Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys~~
~~180 185 190~~

~~Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn~~
~~195 200 205~~

~~Arg Gly Glu Cys Ser Arg Ser Gly Gly Gly Gly Glu Val Gln Leu Val~~
~~210 215 220~~

~~Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser~~
~~225 230 235 240~~

~~Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr Ala Met Asn Trp Val~~
~~245 250 255~~

~~Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Arg Ile Arg Ser~~
~~260 265 270~~

~~Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Asp Arg~~
~~275 280 285~~

~~Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser Leu Tyr Leu Gln Met~~
~~290 295 300~~

~~Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His~~
~~305 310 315 320~~

~~Ser Asn Phe Gly Asn Ser Lys Val Ser Trp Phe Ala Tyr Trp Gly Gln~~
~~325 330 335~~

~~Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser Gly Gly Ser Gly Gly~~
~~340 345 350~~

~~Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr Gln Glu Pro Ser Leu~~
355 360 365

~~Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Arg Ser Ser Ala~~
370 375 380

~~Gly Ala Val Thr Thr Ser Asn Tyr Asp Asn Trp Val Gln Gln Lys Pro~~
385 390 395 400

~~Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro~~
405 410 415

~~Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala~~
420 425 430

~~Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys~~
435 440 445

~~Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly Thr Lys Leu~~
450 455 460

~~Thr Val Leu Ser Arg~~
465

~~<210> 49~~
~~<211> 250~~
~~<212> PRT~~
~~<213> Artificial~~

~~<220>~~
~~<223> Synthetic sequence~~

~~<400> 49~~

~~Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly~~
1 5 10 15

~~Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr~~
20 25 30

~~Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val~~

35

40

45

~~Ala Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp~~
~~50 55 60~~

~~Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser~~
~~65 70 75 80~~

~~Leu Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr~~
~~85 90 95~~

~~Tyr Cys Val Arg His Ser Asn Phe Gly Asn Ser Lys Val Ser Trp Phe~~
~~100 105 110~~

~~Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser~~
~~115 120 125~~

~~Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr~~
~~130 135 140~~

~~Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr~~
~~145 150 155 160~~

~~Cys Arg Ser Ser Ala Gly Ala Val Thr Thr Ser Asn Tyr Asp Asn Trp~~
~~165 170 175~~

~~Val Gln Gln Lys Pro Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr~~
~~180 185 190~~

~~Asn Lys Arg Ala Pro Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu~~
~~195 200 205~~

~~Gly Gly Lys Ala Ala Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu~~
~~210 215 220~~

~~Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly~~
~~225 230 235 240~~

~~Gly Gly Thr Lys Leu Thr Val Leu Ser Arg~~
~~245 250~~

~~<210> 50~~
~~<211> 118~~
~~<212> PRT~~
~~<213> Artificial~~

~~<220>~~
~~<223> Synthetic sequence~~

~~<400> 50~~

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

~~Ser Leu Arg Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Ser Tyr~~
~~20 25 30~~

~~Trp Met His Trp Ile Arg Gln Ser Pro Ser Arg Gly Leu Glu Trp Leu~~
~~35 40 45~~

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

~~Lys Asp Arg Val Thr Ile Ser Ala Asp Lys Ser Ile Ser Thr Ala Tyr~~
~~65 70 75 80~~

~~Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met Tyr Tyr Cys~~
~~85 90 95~~

~~Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr~~
~~100 105 110~~

~~Leu Val Thr Val Ser Ser~~
~~115~~

SEQUENCE LISTING

<110> BioAtla LLC

<120> Conditionally Active Anti-EpCAM Antibodies, Antibody
Fragments, Their Immunoconjugates and Uses Thereof

<130> BIAT-1029

<150> PCT/US2020/037096

<151> 2020-06-10

<150> US 62/860092

<151> 2019-06-11

<160> 64

<170> PatentIn version 3.5

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Gly Asp Asn Trp Val Gly Phe Ala Asn
1 5

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Ser Ala Ser Ser Ser Ile Ser Tyr Met His
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<223> This position may be A or H

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Ser Thr Ser Asn Leu Xaa Ser
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<222> (1)..(1)

<223> This position may be H or E

<220>

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<222> (7)..(7)

<223> This position may be H or E

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Xaa Gln Trp Ser Thr Tyr Xaa Thr

1 5

<210> 7

<211> 118

<212> PRT

<213> Artificial

<220>

<223> Synthetic sequence

<400> 7

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala

1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr

20 25 30

Trp Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile

35 40 45

Gly Tyr Ile Arg Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe

50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr

65 70 75 80

Met Gln Leu Ser Ser Leu Thr Phe Glu Asp Ser Ala Val Tyr Tyr Cys

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Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ala
115

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<400> 8

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

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

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

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

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

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

Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ala
115

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<400> 9

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

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

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

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

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

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

Gly Asp Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr
100 105 110

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

Thr Val Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Trp Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

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

Lys Asp Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

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

Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
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1 5 10 15

Ser Leu Arg Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Trp Met His Trp Ile Arg Gln Ser Pro Ser Arg Gly Leu Glu Trp Leu
35 40 45

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

Lys Asp Arg Val Thr Ile Ser Ala Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

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

Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
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<210> 12

<211> 118

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<400> 12

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

Thr Val Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Trp Met His Trp Ile Arg Gln Ser Pro Ser Arg Gly Leu Glu Trp Leu
35 40 45

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

Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Ala Tyr
65 70 75 80

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

Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 13
<211> 118
<212> PRT
<213> Artificial

<220>
<223> Synthetic sequence

<400> 13

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

Thr Val Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

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

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

Lys Asp Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

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

Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 14
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<400> 14

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

Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr
35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
50 55 60

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

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

Gly Ser Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 15

<211> 105

<212> PRT

<213> Artificial

<220>

<223> Synthetic sequence

<400> 15

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

Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr
35 40 45

Ser Thr Ser Asn Leu His Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
50 55 60

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

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

Gly Ser Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 16
<211> 105
<212> PRT
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<400> 16

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

Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr
35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
50 55 60

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

Asp Ala Ala Asp Tyr Phe Cys Glu Gln Trp Ser Thr Tyr His Thr Phe
85 90 95

Gly Ser Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 17
<211> 105

<212> PRT
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<220>
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<400> 17

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

Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
 20 25 30

His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr
 35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
 50 55 60

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

Asp Ala Ala Asp Tyr Phe Cys His Gln Trp Ser Thr Tyr Glu Thr Phe
 85 90 95

Gly Ser Gly Thr Lys Leu Glu Ile Lys
 100 105

<210> 18
<211> 105
<212> PRT
<213> Artificial

<220>
<223> Synthetic sequence

<400> 18

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

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

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
35 40 45

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

Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu
65 70 75 80

Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe
85 90 95

Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 19
<211> 105
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<400> 19

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

Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
50 55 60

Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Asp
65 70 75 80

Asp Phe Ala Thr Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe
85 90 95

Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 20
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<212> PRT
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<400> 20

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

Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Ile Pro Pro Arg Phe Ser Gly Ser
50 55 60

Gly Tyr Gly Thr Asp Phe Thr Leu Thr Ile Asn Asn Ile Glu Ser Glu
65 70 75 80

Asp Ala Ala Tyr Tyr Phe Cys His Gln Trp Ser Thr Tyr Glu Thr Phe
85 90 95

Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 21
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<400> 21

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

Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
50 55 60

Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu
65 70 75 80

Asp Phe Ala Thr Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe
85 90 95

Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 22
<211> 17
<212> PRT
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<220>
<223> Synthetic sequence

<400> 22

Tyr Ile Arg Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe Lys
1 5 10 15

Asp

<210> 23
<211> 17
<212> PRT
<213> Artificial

<220>
<223> Synthetic sequence

<400> 23

Asp Ile Arg Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe Lys
1 5 10 15

Asp

<210> 24
<211> 7
<212> PRT
<213> Artificial

<220>
<223> Synthetic sequence

<400> 24

Ser Thr Ser Asn Leu Ala Ser
1 5

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

<220>
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<400> 25

Ser Thr Ser Asn Leu His Ser
1 5

<210> 26
<211> 8
<212> PRT
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<220>
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<400> 26

His Gln Trp Ser Thr Tyr His Thr
1 5

<210> 27
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<400> 27

His Gln Trp Ser Thr Tyr Glu Thr

1 5

<210> 28

<211> 8

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<400> 28

Glu Gln Trp Ser Thr Tyr His Thr

1 5

<210> 29

<211> 105

<212> PRT

<213> Artificial Sequence

<220>

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<400> 29

Glu Ile Val Leu Thr Gln Ser Pro Asp Phe Gln Ser Val Thr Pro Lys

1 5 10 15

Glu Lys Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met

20 25 30

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr

35 40 45

Ser Thr Ser Lys Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Gly Ser

50 55 60

Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu

65 70 75 80

Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe
85 90 95

Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 30
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<400> 30

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

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

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
35 40 45

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

Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu
65 70 75 80

Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe
85 90 95

Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 31
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<400> 31

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

Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr
35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
50 55 60

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

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

Gly Ser Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 32

<211> 469

<212> PRT

<213> Artificial

<220>

<223> Synthetic sequence

<400> 32

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

Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr
35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
50 55 60

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

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

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

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

Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val
130 135 140

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

Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr
165 170 175

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

Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn
195 200 205

Arg Gly Glu Cys Ser Arg Ser Gly Gly Gly Glu Val Gln Leu Val
210 215 220

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser
225 230 235 240

Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr Ala Met Asn Trp Val
245 250 255

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Arg Ile Arg Ser
260 265 270

Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Asp Arg
275 280 285

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser Leu Tyr Leu Gln Met
290 295 300

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

Gly Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln
325 330 335

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser Gly Gly Ser Gly Gly
340 345 350

Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr Gln Glu Pro Ser Leu
355 360 365

Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Arg Ser Ser Thr
370 375 380

Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro
385 390 395 400

Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro
405 410 415

Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala
420 425 430

Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys
435 440 445

Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly Thr Lys Leu
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Thr Val Leu Ser Arg
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<212> PRT
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<400> 33

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr
 20 25 30

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ala Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
 50 55 60

Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser
65 70 75 80

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe
 100 105 110

Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser
 115 120 125

Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr
 130 135 140

Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr
145 150 155 160

Cys Arg Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp
 165 170 175

Val Gln Gln Lys Pro Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr
 180 185 190

Asn Lys Arg Ala Pro Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu
195 200 205

Gly Gly Lys Ala Ala Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu
210 215 220

Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly
225 230 235 240

Gly Gly Thr Lys Leu Thr Val Leu Ser Arg
245 250

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<400> 34

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

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

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

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

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

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

Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 35
<211> 105
<212> PRT
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<220>
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<400> 35

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

Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr
35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
50 55 60

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

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

Gly Ser Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 36
<211> 469
<212> PRT
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<400> 36

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

Glu Glu Ile Ala Leu Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Leu Leu Ile Tyr
35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
50 55 60

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

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

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

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

Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val
130 135 140

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

Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr
165 170 175

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

Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn
195 200 205

Arg Gly Glu Cys Ser Arg Ser Gly Gly Gly Glu Val Gln Leu Val
210 215 220

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser
225 230 235 240

Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr Ala Met Asn Trp Val
245 250 255

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Arg Ile Arg Ser
260 265 270

Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Asp Arg
275 280 285

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser Leu Tyr Leu Gln Met
290 295 300

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

Ser Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln
325 330 335

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser Gly Gly Ser Gly Gly
340 345 350

Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr Gln Glu Pro Ser Leu
355 360 365

Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Arg Ser Ser Thr
370 375 380

Gly Ala Val Thr Thr Ser Asn Tyr Asp Asn Trp Val Gln Gln Lys Pro
385 390 395 400

Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro
405 410 415

Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala
420 425 430

Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys
435 440 445

Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly Thr Lys Leu
450 455 460

Thr Val Leu Ser Arg
465

<210> 37
<211> 250
<212> PRT
<213> Artificial

<220>
<223> Synthetic sequence

<400> 37

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr
20 25 30

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
50 55 60

Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser
65 70 75 80

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

Tyr Cys Val Arg His Ser Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe
100 105 110

Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser
115 120 125

Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr
130 135 140

Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr
145 150 155 160

Cys Arg Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Asp Asn Trp
165 170 175

Val Gln Gln Lys Pro Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr
180 185 190

Asn Lys Arg Ala Pro Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu
195 200 205

Gly Gly Lys Ala Ala Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu
210 215 220

Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly
225 230 235 240

Gly Gly Thr Lys Leu Thr Val Leu Ser Arg
245 250

<210> 38
<211> 118
<212> PRT
<213> Artificial

<220>
<223> Synthetic sequence

<400> 38

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

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

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

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

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

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

Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 39
<211> 105
<212> PRT
<213> Artificial

<220>
<223> Synthetic sequence

<400> 39

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

Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
35 40 45

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

Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu
65 70 75 80

Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr His Thr Phe
85 90 95

Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 40
<211> 469
<212> PRT
<213> Artificial

<220>
<223> Synthetic sequence

<400> 40

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

Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
35 40 45

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

Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu
65 70 75 80

Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr His Thr Phe
85 90 95

Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser
100 105 110

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

Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val
130 135 140

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

Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr
165 170 175

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

Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn
195 200 205

Arg Gly Glu Cys Ser Arg Ser Gly Gly Gly Gly Glu Val Gln Leu Val
210 215 220

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser
225 230 235 240

Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr Ala Met Asn Trp Val
245 250 255

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Arg Ile Arg Ser
260 265 270

Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Asp Arg
275 280 285

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser Leu Tyr Leu Gln Met
290 295 300

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

Gly Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln
325 330 335

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser Gly Gly Ser Gly Gly
340 345 350

Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr Gln Glu Pro Ser Leu
355 360 365

Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Arg Ser Ser Thr
370 375 380

Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val Gln Gln Lys Pro
385 390 395 400

Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro
405 410 415

Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala
420 425 430

Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys
435 440 445

Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly Thr Lys Leu
450 455 460

Thr Val Leu Ser Arg
465

<210> 41
<211> 250
<212> PRT
<213> Artificial

<220>
<223> Synthetic sequence

<400> 41

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr
20 25 30

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
50 55 60

Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser
65 70 75 80

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe
100 105 110

Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser
115 120 125

Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr
130 135 140

Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr
145 150 155 160

Cys Arg Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp
165 170 175

Val Gln Gln Lys Pro Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr
180 185 190

Asn Lys Arg Ala Pro Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu
195 200 205

Gly Gly Lys Ala Ala Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu
210 215 220

Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly
225 230 235 240

Gly Gly Thr Lys Leu Thr Val Leu Ser Arg
245 250

<210> 42

<211> 118

<212> PRT

<213> Artificial

<220>

<223> Synthetic sequence

<400> 42

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

Thr Val Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Trp Met His Trp Val Arg Gln Ala Arg Gly Gln Arg Leu Glu Trp Ile
35 40 45

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

Lys Asp Arg Val Thr Ile Ser Ala Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

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

Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 43

<211> 105

<212> PRT

<213> Artificial

<220>

<223> Synthetic sequence

<400> 43

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

Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
35 40 45

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

Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu
65 70 75 80

Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr His Thr Phe
85 90 95

Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 44

<211> 469

<212> PRT

<213> Artificial

<220>

<223> Synthetic sequence

<400> 44

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

Glu Arg Ala Thr Leu Ser Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
35 40 45

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

Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu
65 70 75 80

Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr His Thr Phe
85 90 95

Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser
100 105 110

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

Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val
130 135 140

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

Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr
165 170 175

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

Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn
195 200 205

Arg Gly Glu Cys Ser Arg Ser Gly Gly Gly Gly Glu Val Gln Leu Val
210 215 220

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser
225 230 235 240

Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr Ala Met Asn Trp Val
245 250 255

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Arg Ile Arg Ser
260 265 270

Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Asp Arg
275 280 285

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser Leu Tyr Leu Gln Met
290 295 300

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

Thr Asn Phe Gly Asn Ser Lys Val Ser Trp Phe Ala Tyr Trp Gly Gln
325 330 335

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser Gly Gly Ser Gly Gly
340 345 350

Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr Gln Glu Pro Ser Leu
355 360 365

Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Arg Ser Ser Ala
370 375 380

Gly Ala Val Thr Thr Ser Asn Tyr Asp Asn Trp Val Gln Gln Lys Pro
385 390 395 400

Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro
405 410 415

Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala
420 425 430

Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys
435 440 445

Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly Thr Lys Leu
450 455 460

Thr Val Leu Ser Arg
465

<210> 45
<211> 250
<212> PRT
<213> Artificial

<220>
<223> Synthetic sequence

<400> 45

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr
20 25 30

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
50 55 60

Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser
65 70 75 80

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

Tyr Cys Val Arg His Thr Asn Phe Gly Asn Ser Lys Val Ser Trp Phe
100 105 110

Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser
115 120 125

Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr
130 135 140

Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr
145 150 155 160

Cys Arg Ser Ser Ala Gly Ala Val Thr Thr Ser Asn Tyr Asp Asn Trp
165 170 175

Val Gln Gln Lys Pro Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr
180 185 190

Asn Lys Arg Ala Pro Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu
195 200 205

Gly Gly Lys Ala Ala Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu
210 215 220

Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly
225 230 235 240

Gly Gly Thr Lys Leu Thr Val Leu Ser Arg
245 250

<210> 46
<211> 118
<212> PRT
<213> Artificial

<220>
<223> Synthetic sequence

<400> 46

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

Thr Val Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Trp Met His Trp Val Arg Gln Ala Arg Gly Gln Arg Leu Glu Trp Ile
35 40 45

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

Lys Asp Arg Val Thr Ile Ser Ala Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

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

Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 47
<211> 105
<212> PRT
<213> Artificial

<220>

<223> Synthetic sequence

<400> 47

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

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

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
 35 40 45

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

Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu
65 70 75 80

Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe
 85 90 95

Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105

<210> 48

<211> 469

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic sequence

<400> 48

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

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

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
 35 40 45

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

Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu
65 70 75 80

Asp Val Gly Val Tyr Tyr Cys His Gln Trp Ser Thr Tyr Glu Thr Phe
85 90 95

Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser
100 105 110

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

Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val
130 135 140

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

Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr
165 170 175

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

Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn
195 200 205

Arg Gly Glu Cys Ser Arg Ser Gly Gly Gly Gly Glu Val Gln Leu Val
210 215 220

Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser
225 230 235 240

Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr Ala Met Asn Trp Val
245 250 255

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Arg Ile Arg Ser
260 265 270

Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Asp Arg
275 280 285

Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser Leu Tyr Leu Gln Met
290 295 300

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

Ser Asn Phe Gly Asn Ser Lys Val Ser Trp Phe Ala Tyr Trp Gly Gln
325 330 335

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser Gly Gly Ser Gly Gly
340 345 350

Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr Gln Glu Pro Ser Leu
355 360 365

Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Arg Ser Ser Ala
370 375 380

Gly Ala Val Thr Thr Ser Asn Tyr Asp Asn Trp Val Gln Gln Lys Pro
385 390 395 400

Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro
405 410 415

Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala
420 425 430

Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys
435 440 445

Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly Thr Lys Leu
450 455 460

Thr Val Leu Ser Arg
465

<210> 49
<211> 250
<212> PRT
<213> Artificial

<220>
<223> Synthetic sequence

<400> 49

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Thr Tyr
20 25 30

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
50 55 60

Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Ser
65 70 75 80

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

Tyr Cys Val Arg His Ser Asn Phe Gly Asn Ser Lys Val Ser Trp Phe
100 105 110

Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Ser
115 120 125

Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Gln Ala Val Val Thr
130 135 140

Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr
145 150 155 160

Cys Arg Ser Ser Ala Gly Ala Val Thr Thr Ser Asn Tyr Asp Asn Trp
165 170 175

Val Gln Gln Lys Pro Gly Gln Ala Pro Arg Gly Leu Ile Gly Gly Thr
180 185 190

Asn Lys Arg Ala Pro Trp Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu
195 200 205

Gly Gly Lys Ala Ala Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu
210 215 220

Ala Asp Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly
225 230 235 240

Gly Gly Thr Lys Leu Thr Val Leu Ser Arg
245 250

<210> 50
<211> 118
<212> PRT
<213> Artificial

<220>
<223> Synthetic sequence

<400> 50

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

Ser Leu Arg Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Trp Met His Trp Ile Arg Gln Ser Pro Ser Arg Gly Leu Glu Trp Leu
35 40 45

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

Lys Asp Arg Val Thr Ile Ser Ala Asp Lys Ser Ile Ser Thr Ala Tyr
65 70 75 80

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

Gly Arg Gly Asp Asn Trp Val Gly Phe Ala Asn Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 51
<211> 242
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic sequence

<400> 51

Gln Glu Glu Cys Val Cys Glu Asn Tyr Lys Leu Ala Val Asn Cys Phe
1 5 10 15

Val Asn Asn Asn Arg Gln Cys Gln Cys Thr Ser Val Gly Ala Gln Asn
20 25 30

Thr Val Ile Cys Ser Lys Leu Ala Ala Lys Cys Leu Val Met Lys Ala
35 40 45

Glu Met Asn Gly Ser Lys Leu Gly Arg Arg Ala Lys Pro Glu Gly Ala
50 55 60

Leu Gln Asn Asn Asp Gly Leu Tyr Asp Pro Asp Cys Asp Glu Ser Gly
65 70 75 80

Leu Phe Lys Ala Lys Gln Cys Asn Gly Thr Ser Met Cys Trp Cys Val
85 90 95

Asn Thr Ala Gly Val Arg Arg Thr Asp Lys Asp Thr Glu Ile Thr Cys
100 105 110

Ser Glu Arg Val Arg Thr Tyr Trp Ile Ile Ile Glu Leu Lys His Lys
115 120 125

Ala Arg Glu Lys Pro Tyr Asp Ser Lys Ser Leu Arg Thr Ala Leu Gln
130 135 140

Lys Glu Ile Thr Thr Arg Tyr Gln Leu Asp Pro Lys Phe Ile Thr Ser
145 150 155 160

Ile Leu Tyr Glu Asn Asn Val Ile Thr Ile Asp Leu Val Gln Asn Ser
165 170 175

Ser Gln Lys Thr Gln Asn Asp Val Asp Ile Ala Asp Val Ala Tyr Tyr
180 185 190

Phe Glu Lys Asp Val Lys Gly Glu Ser Leu Phe His Ser Lys Lys Met
195 200 205

Asp Leu Thr Val Asn Gly Glu Gln Leu Asp Leu Asp Pro Gly Gln Thr
210 215 220

Leu Ile Tyr Tyr Val Asp Glu Lys Ala Pro Glu Phe Ser Met Gln Gly
225 230 235 240

Leu Lys

<210> 52

<211> 242

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic sequence

<400> 52

Gln Glu Glu Cys Val Cys Glu Asn Tyr Lys Leu Ala Val Asn Cys Phe
1 5 10 15

Leu Asn Asp Asn Gly Gln Cys Gln Cys Thr Ser Ile Gly Ala Gln Asn
20 25 30

Thr Val Leu Cys Ser Lys Leu Ala Ala Lys Cys Leu Val Met Lys Ala
35 40 45

Glu Met Asn Gly Ser Lys Leu Gly Arg Arg Ala Lys Pro Glu Gly Ala
50 55 60

Leu Gln Asn Asn Asp Gly Leu Tyr Asp Pro Asp Cys Asp Glu Ser Gly

<400> 53

Gln Arg Asp Cys Val Cys Asp Asn Tyr Lys Leu Ala Thr Ser Cys Ser
1 5 10 15

Leu Asn Glu Tyr Gly Glu Cys Gln Cys Thr Ser Tyr Gly Thr Gln Asn
20 25 30

Thr Val Ile Cys Ser Lys Leu Ala Ala Lys Cys Leu Val Met Lys Ala
35 40 45

Glu Met Asn Gly Ser Lys Leu Gly Arg Arg Ala Lys Pro Glu Gly Ala
50 55 60

Leu Gln Asn Asn Asp Gly Leu Tyr Asp Pro Asp Cys Asp Glu Ser Gly
65 70 75 80

Leu Phe Lys Ala Lys Gln Cys Asn Gly Thr Ser Met Cys Trp Cys Val
85 90 95

Asn Thr Ala Gly Val Arg Arg Thr Asp Lys Asp Thr Glu Ile Thr Cys
100 105 110

Ser Glu Arg Val Arg Thr Tyr Trp Ile Ile Ile Glu Leu Lys His Lys
115 120 125

Ala Arg Glu Lys Pro Tyr Asp Ser Lys Ser Leu Arg Thr Ala Leu Gln
130 135 140

Lys Glu Ile Thr Thr Arg Tyr Gln Leu Asp Pro Lys Phe Ile Thr Ser
145 150 155 160

Ile Leu Tyr Glu Asn Asn Val Ile Thr Ile Asp Leu Val Gln Asn Ser
165 170 175

Ser Gln Lys Thr Gln Asn Asp Val Asp Ile Ala Asp Val Ala Tyr Tyr
180 185 190

Phe Glu Lys Asp Val Lys Gly Glu Ser Leu Phe His Ser Lys Lys Met
195 200 205

Asp Leu Thr Val Asn Gly Glu Gln Leu Asp Leu Asp Pro Gly Gln Thr
210 215 220

Leu Ile Tyr Tyr Val Asp Glu Lys Ala Pro Glu Phe Ser Met Gln Gly
225 230 235 240

Leu Lys Ser Arg His His His His His His His His
245 250

<210> 54
<211> 252
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic sequence

<400> 54

Gln Glu Glu Cys Val Cys Glu Asn Tyr Lys Leu Ala Val Asn Cys Phe
1 5 10 15

Val Asn Asn Asn Arg Gln Cys Gln Cys Thr Ser Val Gly Ala Gln Asn
20 25 30

Thr Val Ile Cys Ser Lys Leu Ala Ser Lys Cys Leu Ala Met Lys Ala
35 40 45

Glu Met Thr His Ser Lys Ser Gly Arg Arg Ile Lys Pro Glu Gly Ala
50 55 60

Ile Gln Asn Asn Asp Gly Leu Tyr Asp Pro Asp Cys Asp Glu Ser Gly
65 70 75 80

Leu Phe Lys Ala Lys Gln Cys Asn Gly Thr Ser Met Cys Trp Cys Val
85 90 95

Asn Thr Ala Gly Val Arg Arg Thr Asp Lys Asp Thr Glu Ile Thr Cys
100 105 110

Ser Glu Arg Val Arg Thr Tyr Trp Ile Ile Ile Glu Leu Lys His Lys
115 120 125

Ala Arg Glu Lys Pro Tyr Asp Ser Lys Ser Leu Arg Thr Ala Leu Gln
130 135 140

Lys Glu Ile Thr Thr Arg Tyr Gln Leu Asp Pro Lys Phe Ile Thr Ser
145 150 155 160

Ile Leu Tyr Glu Asn Asn Val Ile Thr Ile Asp Leu Val Gln Asn Ser
165 170 175

Ser Gln Lys Thr Gln Asn Asp Val Asp Ile Ala Asp Val Ala Tyr Tyr
180 185 190

Phe Glu Lys Asp Val Lys Gly Glu Ser Leu Phe His Ser Lys Lys Met
195 200 205

Asp Leu Thr Val Asn Gly Glu Gln Leu Asp Leu Asp Pro Gly Gln Thr
210 215 220

Leu Ile Tyr Tyr Val Asp Glu Lys Ala Pro Glu Phe Ser Met Gln Gly
225 230 235 240

Leu Lys Ser Arg His His His His His His His His
245 250

<210> 55
<211> 252
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic sequence

<400> 55

Gln Glu Glu Cys Val Cys Glu Asn Tyr Lys Leu Ala Val Asn Cys Phe
1 5 10 15

Val Asn Asn Asn Arg Gln Cys Gln Cys Thr Ser Val Gly Ala Gln Asn
20 25 30

Thr Val Ile Cys Ser Lys Leu Ala Ala Lys Cys Leu Val Met Lys Ala
35 40 45

Glu Met Asn Gly Ser Lys Leu Gly Arg Arg Ala Lys Pro Glu Gly Ala
50 55 60

Leu Gln Asn Asn Asp Gly Leu Tyr Asp Pro Asp Cys Asp Glu Ser Gly
65 70 75 80

Leu Phe Lys Ala Lys Gln Cys Asn Gly Thr Ser Met Cys Trp Cys Val
85 90 95

Asn Thr Ala Gly Val Arg Arg Thr Asp Lys Asp Thr Glu Ile Thr Cys
100 105 110

Ser Glu Arg Val Arg Thr Tyr Trp Ile Ile Ile Glu Leu Lys His Lys
115 120 125

Glu Arg Glu Ser Pro Tyr Asp His Gln Ser Leu Gln Thr Ala Leu Gln
130 135 140

Glu Ala Phe Thr Ser Arg Tyr Lys Leu Asn Gln Lys Phe Ile Lys Asn
145 150 155 160

Ile Met Tyr Glu Asn Asn Val Ile Thr Ile Asp Leu Met Gln Asn Ser
165 170 175

Ser Gln Lys Thr Gln Asp Asp Val Asp Ile Ala Asp Val Ala Tyr Tyr
180 185 190

Phe Glu Lys Asp Val Lys Gly Glu Ser Leu Phe His Ser Lys Lys Met
195 200 205

Asp Leu Thr Val Asn Gly Glu Gln Leu Asp Leu Asp Pro Gly Gln Thr
210 215 220

Leu Ile Tyr Tyr Val Asp Glu Lys Ala Pro Glu Phe Ser Met Gln Gly
225 230 235 240

Leu Lys Ser Arg His His His His His His His
245 250

<210> 56
<211> 252
<212> PRT

<213> Artificial Sequence

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<223> synthetic sequence

<400> 56

Gln Glu Glu Cys Val Cys Glu Asn Tyr Lys Leu Ala Val Asn Cys Phe
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Val Asn Asn Asn Arg Gln Cys Gln Cys Thr Ser Val Gly Ala Gln Asn
20 25 30

Thr Val Ile Cys Ser Lys Leu Ala Ala Lys Cys Leu Val Met Lys Ala
35 40 45

Glu Met Asn Gly Ser Lys Leu Gly Arg Arg Ala Lys Pro Glu Gly Ala
50 55 60

Leu Gln Asn Asn Asp Gly Leu Tyr Asp Pro Asp Cys Asp Glu Ser Gly
65 70 75 80

Leu Phe Lys Ala Lys Gln Cys Asn Gly Thr Ser Met Cys Trp Cys Val
85 90 95

Asn Thr Ala Gly Val Arg Arg Thr Asp Lys Asp Thr Glu Ile Thr Cys
100 105 110

Ser Glu Arg Val Arg Thr Tyr Trp Ile Ile Ile Glu Leu Lys His Lys
115 120 125

Ala Arg Glu Lys Pro Tyr Asp Ser Lys Ser Leu Arg Thr Ala Leu Gln
130 135 140

Lys Glu Ile Thr Thr Arg Tyr Gln Leu Asp Pro Lys Phe Ile Thr Ser
145 150 155 160

Ile Leu Tyr Glu Asn Asn Val Ile Thr Ile Asp Leu Val Gln Asn Ser
165 170 175

Ser Gln Lys Thr Gln Asn Asp Val Asp Ile Ala Asp Val Ala Tyr Tyr
180 185 190

Phe Glu Lys Asp Val Lys Gly Glu Ser Leu Phe His Ser Ser Lys Ser
195 200 205

Met Asp Leu Arg Val Asn Gly Glu Pro Leu Asp Leu Asp Pro Gly Gln
210 215 220

Thr Leu Ile Tyr Tyr Val Asp Glu Lys Ala Pro Glu Phe Ser Met Gln
225 230 235 240

Gly Leu Ser Arg His His His His His His His His
245 250

<210> 57
<211> 242
<212> PRT
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<220>
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<400> 57

Gln Arg Asp Cys Val Cys Asp Asn Tyr Lys Leu Ala Thr Ser Cys Ser
1 5 10 15

Leu Asn Glu Tyr Gly Glu Cys Gln Cys Thr Ser Tyr Gly Thr Gln Asn
20 25 30

Thr Val Ile Cys Ser Lys Leu Ala Ser Lys Cys Leu Ala Met Lys Ala
35 40 45

Glu Met Thr His Ser Lys Ser Gly Arg Arg Ile Lys Pro Glu Gly Ala
50 55 60

Ile Gln Asn Asn Asp Gly Leu Tyr Asp Pro Asp Cys Asp Glu Gln Gly
65 70 75 80

Leu Phe Lys Ala Lys Gln Cys Asn Gly Thr Ala Thr Cys Trp Cys Val
85 90 95

Asn Thr Ala Gly Val Arg Arg Thr Asp Lys Asp Thr Glu Ile Thr Cys
100 105 110

Ser Glu Arg Val Arg Thr Tyr Trp Ile Ile Ile Glu Leu Lys His Lys
115 120 125

Glu Arg Glu Ser Pro Tyr Asp His Gln Ser Leu Gln Thr Ala Leu Gln
130 135 140

Glu Ala Phe Thr Ser Arg Tyr Lys Leu Asn Gln Lys Phe Ile Lys Asn
145 150 155 160

Ile Met Tyr Glu Asn Asn Val Ile Thr Ile Asp Leu Met Gln Asn Ser
165 170 175

Ser Gln Lys Thr Gln Asp Asp Val Asp Ile Ala Asp Val Ala Tyr Tyr
180 185 190

Phe Glu Lys Asp Val Lys Gly Glu Ser Leu Phe His Ser Ser Lys Ser
195 200 205

Met Asp Leu Arg Val Asn Gly Glu Pro Leu Asp Leu Asp Pro Gly Gln
210 215 220

Thr Leu Ile Tyr Tyr Val Asp Glu Lys Ala Pro Glu Phe Ser Met Gln
225 230 235 240

Gly Leu

<210> 58

<211> 40

<212> PRT

<213> Artificial Sequence

<220>

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<400> 58

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

Val Asn Asn Asn Arg Gln Cys Gln Cys Thr Ser Val Gly Ala Gln Asn
20 25 30

Thr Val Ile Cys Ser Lys Leu Ala
35 40

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<213> Artificial Sequence

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<400> 59

Gln Glu Glu Cys Val Cys Glu Asn Tyr Lys Leu Ala Thr Ser Cys Phe
1 5 10 15

Val Asn Asn Asn Arg Gln Cys Gln Cys Thr Ser Val Gly Ala Gln Asn
20 25 30

Thr Val Ile Cys Ser Lys Leu Ala
35 40

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Gln Glu Glu Cys Val Cys Glu Asn Tyr Lys Leu Ala Val Asn Cys Phe
1 5 10 15

Val Asn Asn Asn Arg Gln Cys Gln Cys Thr Ser Tyr Gly Ala Gln Asn
20 25 30

Thr Val Ile Cys Ser Lys Leu Ala
35 40

<210> 61
<211> 40
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<213> Artificial Sequence

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Val Asn Asn Asn Arg Gln Cys Gln Cys Thr Ser Val Gly Ala Gln Asn
20 25 30

Thr Val Ile Cys Ser Lys Leu Ala
35 40

<210> 62

<211> 40

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<400> 62

Gln Glu Glu Cys Val Cys Glu Asn Tyr Lys Leu Ala Thr Ser Cys Phe
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Val Asn Asn Asn Arg Gln Cys Gln Cys Thr Ser Tyr Gly Ala Gln Asn
20 25 30

Thr Val Ile Cys Ser Lys Leu Ala
35 40

<210> 63

<211> 40

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Gln Arg Asp Cys Val Cys Glu Asn Tyr Lys Leu Ala Val Asn Cys Phe
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Val Asn Asn Asn Arg Gln Cys Gln Cys Thr Ser Tyr Gly Ala Gln Asn
 20 25 30

Thr Val Ile Cys Ser Lys Leu Ala
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Gln Arg Asp Cys Val Cys Glu Asn Tyr Lys Leu Ala Thr Ser Cys Phe
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Val Asn Asn Asn Arg Gln Cys Gln Cys Thr Ser Tyr Gly Ala Gln Asn
 20 25 30

Thr Val Ile Cys Ser Lys Leu Ala
 35 40