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<120> THERAPEUTIC AGENT AGAINST CHOLANGIOCARCINOMA

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<170> PatentIn version 3.5

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Pro Ala Ala Asn Thr Val Lys Phe Arg Cys Pro Ala Gly Gly Asn Pro
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His Arg Ile Gly Gly Tyr Lys Val Arg Asn Gln His Trp Ser Leu Ile
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Glu Asn Glu Tyr Gly Ser Ile Asn His Thr Tyr His Leu Asp Val Val
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Glu Arg Ser Pro His Arg Pro Ile Leu Gln Ala Gly Leu Pro Ala Asn
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Ala Ser Thr Val Val Gly Gly Asp Val Glu Phe Val Cys Lys Val Tyr
            180                 185                 190

Ser Asp Ala Gln Pro His Ile Gln Trp Ile Lys His Val Glu Lys Asn
        195                 200                 205

Gly Ser Lys Tyr Gly Pro Asp Gly Leu Pro Tyr Leu Lys Val Leu Lys
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Asn Thr Pro Leu Val Arg Ile Thr Thr Arg Leu Ser Ser Thr Ala Asp
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Glu Gly Cys Phe Gly Gln Val Val Met Ala Glu Ala Val Gly Ile Asp
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Glu Tyr Ser Tyr Asp Ile Asn Arg Val Pro Glu Glu Gln Met Thr Phe
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Lys Asp Leu Val Ser Cys Thr Tyr Gln Leu Ala Arg Gly Met Glu Tyr
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Thr Pro Ala Gln Leu Thr Lys Ser Asn Ala Pro Val His Ile Asp Val
705                 710                 715                 720

Gly Gly His Met Tyr Thr Ser Ser Leu Ala Thr Leu Thr Lys Tyr Pro
                725                 730                 735

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

Lys Arg Leu His Ala Val Pro Ala Ala Asn Thr Val Lys Phe Arg Cys
    50                  55                  60

Pro Ala Gly Gly Asn Pro Met Pro Thr Met Arg Trp Leu Lys Asn Gly
65                  70                  75                  80

Lys Glu Phe Lys Gln Glu His Arg Ile Gly Gly Tyr Lys Val Arg Asn
                85                  90                  95

Gln His Trp Ser Leu Ile Met Glu Ser Val Val Pro Ser Asp Lys Gly
            100                 105                 110

Asn Tyr Thr Cys Val Val Glu Asn Glu Tyr Gly Ser Ile Asn His Thr
        115                 120                 125

Tyr His Leu Asp Val Val Glu Arg Ser Pro His Arg Pro Ile Leu Gln
    130                 135                 140

Ala Gly Leu Pro Ala Asn Ala Ser Thr Val Val Gly Gly Asp Val Glu
145                 150                 155                 160

Phe Val Cys Lys Val Tyr Ser Asp Ala Gln Pro His Ile Gln Trp Ile
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Lys His Val Glu Lys Asn Gly Ser Lys Tyr Gly Pro Asp Gly Leu Pro
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Tyr Leu Lys Val Leu Lys His Ser Gly Ile Asn Ser Ser Asn Ala Glu
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Val Leu Ala Leu Phe Asn Val Thr Glu Ala Asp Ala Gly Glu Tyr Ile
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Cys Lys Val Ser Asn Tyr Ile Gly Gln Ala Asn Gln Ser Ala Trp Leu
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Thr Val Leu Pro Lys Gln Gln Ala Pro Gly Arg Glu Lys Glu Ile Thr
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Ala Ser Pro Asp Tyr Leu Glu Ile Ala Ile Tyr Cys Ile Gly Val Phe
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Leu Ile Ala Cys Met Val Val Thr Val Ile Leu Cys Arg Met Lys Asn
        275                 280                 285

Thr Thr Lys Lys Pro Asp Phe Ser Ser Gln Pro Ala Val His Lys Leu
    290                 295                 300

Thr Lys Arg Ile Pro Leu Arg Arg Gln Val Thr Val Ser Ala Glu Ser
305                 310                 315                 320

Ser Ser Ser Met Asn Ser Asn Thr Pro Leu Val Arg Ile Thr Thr Arg
                325                 330                 335

Leu Ser Ser Thr Ala Asp Thr Pro Met Leu Ala Gly Val Ser Glu Tyr
            340                 345                 350

Glu Leu Pro Glu Asp Pro Lys Trp Glu Phe Pro Arg Asp Lys Leu Thr
        355                 360                 365

Leu Gly Lys Pro Leu Gly Glu Gly Cys Phe Gly Gln Val Val Met Ala
    370                 375                 380

Glu Ala Val Gly Ile Asp Lys Asp Lys Pro Lys Glu Ala Val Thr Val
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Ile Val Glu Tyr Ala Ser Lys Gly Asn Leu Arg Glu Tyr Leu Arg Ala
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Arg Arg Pro Pro Gly Met Glu Tyr Ser Tyr Asp Ile Asn Arg Val Pro
465                 470                 475                 480

Glu Glu Gln Met Thr Phe Lys Asp Leu Val Ser Cys Thr Tyr Gln Leu
                485                 490                 495

Ala Arg Gly Met Glu Tyr Leu Ala Ser Gln Lys Cys Ile His Arg Asp
            500                 505                 510

Leu Ala Ala Arg Asn Val Leu Val Thr Glu Asn Asn Val Met Lys Ile
        515                 520                 525

Ala Asp Phe Gly Leu Ala Arg Asp Ile Asn Asn Ile Asp Tyr Tyr Lys
    530                 535                 540

Lys Thr Thr Asn Gly Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ala
545                 550                 555                 560

Leu Phe Asp Arg Val Tyr Thr His Gln Ser Asp Val Trp Ser Phe Gly
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Val Leu Met Trp Glu Ile Phe Thr Leu Gly Gly Ser Pro Tyr Pro Gly
            580                 585                 590

Ile Pro Val Glu Glu Leu Phe Lys Leu Leu Lys Glu Gly His Arg Met
        595                 600                 605
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Asp Lys Pro Ala Asn Cys Thr Asn Glu Leu Tyr Met Met Met Arg Asp
    610                 615                 620

Cys Trp His Ala Val Pro Ser Gln Arg Pro Thr Phe Lys Gln Leu Val
625                 630                 635                 640

Glu Asp Leu Asp Arg Ile Leu Thr Leu Thr Thr Asn Glu Gly Ser Ser
                645                 650                 655

Met Ser Leu Ser Arg Ser Asn Ser Arg Glu His Leu Gly Gly Gly Ser
            660                 665                 670

Glu Ser Asp Asn Trp Arg Asp Arg Asn Gly Ile Gly Pro Gly Ser His
        675                 680                 685

Ser Glu Phe Ala Ala Ser Ile Gly Ser Pro Lys Arg Lys Gln Asn Lys
    690                 695                 700

Ser Thr Glu His Tyr Leu Ser Ser Ser Asn Tyr Met Asp Cys Ile Ser
705                 710                 715                 720

Ser Leu Thr Gly Ser Asn Gly Cys Asn Leu Asn Ser Ser Phe Lys Gly
                725                 730                 735

Ser Asp Leu Pro Glu Leu Phe Ser Lys Leu Gly Leu Gly Lys Tyr Thr
            740                 745                 750

Asp Val Phe Gln Gln Gln Glu Ile Asp Leu Gln Thr Phe Leu Thr Leu
        755                 760                 765

Thr Asp Gln Asp Leu Lys Glu Leu Gly Ile Thr Thr Phe Gly Ala Arg
    770                 775                 780

Arg Lys Met Leu Leu Ala Ile Ser Glu Leu Asn Lys Asn Arg Arg Lys
785                 790                 795                 800

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

Val Tyr Val Ala Ala Pro Gly Glu Ser Leu Glu Val Arg Cys Leu Leu
    50                  55                  60

Lys Asp Ala Ala Val Ile Ser Trp Thr Lys Asp Gly Val His Leu Gly
65                  70                  75                  80

Pro Asn Asn Arg Thr Val Leu Ile Gly Glu Tyr Leu Gln Ile Lys Gly
                85                  90                  95

Ala Thr Pro Arg Asp Ser Gly Leu Tyr Ala Cys Thr Ala Ser Arg Thr
            100                 105                 110

Val Asp Ser Glu Thr Trp Tyr Phe Met Val Asn Val Thr Asp Ala Ile
        115                 120                 125

Ser Ser Gly Asp Asp Glu Asp Asp Thr Asp Gly Ala Glu Asp Phe Val
    130                 135                 140

Ser Glu Asn Ser Asn Asn Lys Arg Ala Pro Tyr Trp Thr Asn Thr Glu
145                 150                 155                 160

Lys Met Glu Lys Arg Leu His Ala Val Pro Ala Ala Asn Thr Val Lys
                165                 170                 175

Phe Arg Cys Pro Ala Gly Gly Asn Pro Met Pro Thr Met Arg Trp Leu
            180                 185                 190

Lys Asn Gly Lys Glu Phe Lys Gln Glu His Arg Ile Gly Gly Tyr Lys
        195                 200                 205

Val Arg Asn Gln His Trp Ser Leu Ile Met Glu Ser Val Val Pro Ser
    210                 215                 220
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Asp Lys Gly Asn Tyr Thr Cys Val Val Glu Asn Glu Tyr Gly Ser Ile
225                 230                 235                 240

Asn His Thr Tyr His Leu Asp Val Val Glu Arg Ser Pro His Arg Pro
                245                 250                 255

Ile Leu Gln Ala Gly Leu Pro Ala Asn Ala Ser Thr Val Val Gly Gly
            260                 265                 270

Asp Val Glu Phe Val Cys Lys Val Tyr Ser Asp Ala Gln Pro His Ile
        275                 280                 285

Gln Trp Ile Lys His Val Glu Lys Asn Gly Ser Lys Tyr Gly Pro Asp
    290                 295                 300

Gly Leu Pro Tyr Leu Lys Val Leu Lys His Ser Gly Ile Asn Ser Ser
305                 310                 315                 320

Asn Ala Glu Val Leu Ala Leu Phe Asn Val Thr Glu Ala Asp Ala Gly
                325                 330                 335

Glu Tyr Ile Cys Lys Val Ser Asn Tyr Ile Gly Gln Ala Asn Gln Ser
            340                 345                 350

Ala Trp Leu Thr Val Leu Pro Lys Gln Gln Ala Pro Gly Arg Glu Lys
        355                 360                 365

Glu Ile Thr Ala Ser Pro Asp Tyr Leu Glu Ile Ala Ile Tyr Cys Ile
    370                 375                 380

Gly Val Phe Leu Ile Ala Cys Met Val Val Thr Val Ile Leu Cys Arg
385                 390                 395                 400

Met Lys Asn Thr Thr Lys Lys Pro Asp Phe Ser Ser Gln Pro Ala Val
                405                 410                 415

His Lys Leu Thr Lys Arg Ile Pro Leu Arg Arg Gln Val Thr Val Ser
            420                 425                 430
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Ala Glu Ser Ser Ser Ser Met Asn Ser Asn Thr Pro Leu Val Arg Ile
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Thr Thr Arg Leu Ser Ser Thr Ala Asp Thr Pro Met Leu Ala Gly Val
    450                 455                 460

Ser Glu Tyr Glu Leu Pro Glu Asp Pro Lys Trp Glu Phe Pro Arg Asp
465                 470                 475                 480

Lys Leu Thr Leu Gly Lys Pro Leu Gly Glu Gly Cys Phe Gly Gln Val
                485                 490                 495

Val Met Ala Glu Ala Val Gly Ile Asp Lys Asp Lys Pro Lys Glu Ala
            500                 505                 510

Val Thr Val Ala Val Lys Met Leu Lys Asp Asp Ala Thr Glu Lys Asp
        515                 520                 525

Leu Ser Asp Leu Val Ser Glu Met Glu Met Met Lys Met Ile Gly Lys
    530                 535                 540

His Lys Asn Ile Ile Asn Leu Leu Gly Ala Cys Thr Gln Asp Gly Pro
545                 550                 555                 560

Leu Tyr Val Ile Val Glu Tyr Ala Ser Lys Gly Asn Leu Arg Glu Tyr
                565                 570                 575

Leu Arg Ala Arg Arg Pro Pro Gly Met Glu Tyr Ser Tyr Asp Ile Asn
            580                 585                 590

Arg Val Pro Glu Glu Gln Met Thr Phe Lys Asp Leu Val Ser Cys Thr
        595                 600                 605

Tyr Gln Leu Ala Arg Gly Met Glu Tyr Leu Ala Ser Gln Lys Cys Ile
    610                 615                 620

His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Thr Glu Asn Asn Val
625                 630                 635                 640
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Met Lys Ile Ala Asp Phe Gly Leu Ala Arg Asp Ile Asn Asn Ile Asp
                645                 650                 655

Tyr Tyr Lys Lys Thr Thr Asn Gly Arg Leu Pro Val Lys Trp Met Ala
            660                 665                 670

Pro Glu Ala Leu Phe Asp Arg Val Tyr Thr His Gln Ser Asp Val Trp
        675                 680                 685

Ser Phe Gly Val Leu Met Trp Glu Ile Phe Thr Leu Gly Gly Ser Pro
    690                 695                 700

Tyr Pro Gly Ile Pro Val Glu Glu Leu Phe Lys Leu Leu Lys Glu Gly
705                 710                 715                 720

His Arg Met Asp Lys Pro Ala Asn Cys Thr Asn Glu Leu Tyr Met Met
                725                 730                 735

Met Arg Asp Cys Trp His Ala Val Pro Ser Gln Arg Pro Thr Phe Lys
            740                 745                 750

Gln Leu Val Glu Asp Leu Asp Arg Ile Leu Thr Leu Thr Thr Asn Glu
        755                 760                 765

Glu Tyr Leu Asp Leu Ser Gln Pro Leu Glu Gln Tyr Ser Pro Ser Tyr
    770                 775                 780

Pro Asp Thr Arg Ser Ser Cys Ser Ser Gly Asp Asp Ser Val Phe Ser
785                 790                 795                 800

Pro Asp Pro Met Pro Tyr Glu Pro Cys Leu Pro Gln Tyr Pro His Ile
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Asn Gly Ser Val Lys Thr
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Ser Gln Ala Pro Arg Lys Pro Glu Gly Ala Gln Ala Arg Thr Ala Gln
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Asp Ile Leu Ser Thr Tyr Cys Val Asp Asn Asn Gln Gly Gly Pro Gly
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Glu Asp Gly Ala Gln Gly Glu Pro Ala Glu Pro Glu Asp Ala Glu Lys
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Ser Arg Thr Tyr Val Ala Arg Asn Gly Glu Pro Glu Pro Thr Pro Val
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Val Asn Gly Glu Lys Glu Pro Ser Lys Gly Asp Pro Asn Thr Glu Glu
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Ile Arg Gln Ser Asp Glu Val Gly Asp Arg Asp His Arg Arg Pro Gln
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Glu Lys Lys Lys Ala Lys Gly Leu Gly Lys Glu Ile Thr Leu Leu Met
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Gln Thr Leu Asn Thr Leu Ser Thr Pro Glu Glu Lys Leu Ala Ala Leu
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Cys Lys Lys Tyr Ala Glu Leu Leu Glu Glu His Arg Asn Ser Gln Lys
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Gln Met Lys Leu Leu Gln Lys Lys Gln Ser Gln Leu Val Gln Glu Lys
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Asp His Leu Arg Gly Glu His Ser Lys Ala Val Leu Ala Arg Ser Lys
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Leu Glu Ser Leu Cys Arg Glu Leu Gln Arg His Asn Arg Ser Leu Lys
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Val Thr Ser His Phe Gln Val Thr Leu Asn Asp Ile Gln Leu Gln Met
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Glu Gln His Asn Glu Arg Asn Ser Lys Leu Arg Gln Glu Asn Met Glu
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Leu Ala Glu Arg Leu Lys Lys Leu Ile Glu Gln Tyr Glu Leu Arg Glu
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Ser Gln Arg Met Cys Glu Leu Met Lys Gln Gln Glu Thr His Leu Lys
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Lys Met Thr Lys Lys Ile Lys Lys Leu Glu Lys Glu Thr Thr Met Tyr
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His Tyr Cys Ser Ala Gly Glu Glu Glu Glu Glu Glu Glu Glu Glu Asp
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Glu Ile Gln Glu Val Gln Ile Thr Gly Asp Glu Glu Glu Glu Glu Asp
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Gly Gly Gly Gly Leu Glu Glu Asp Glu Glu Glu Glu Glu Glu Glu Glu
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Met Gly Leu Asp Trp Asp Glu Pro Leu Glu Pro Glu Asp Ser Ala Gly
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Ser Pro Asp Phe Glu Thr Met Asp Lys Gly Ala Leu Cys Arg Val Leu
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Lys Ser Ser Leu Ile Ser Ile Arg Ser Ser Leu Asn Arg Tyr Leu Asn
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Gln Gly Ala Gly Pro Val Val Gln Lys Gln Ala Ile Thr Arg Ala Asp
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Gly Leu Leu Asn Lys Val Trp Phe Glu Thr Cys Met Tyr Phe Cys Thr
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Ala Met Asp Glu Asp Gly Arg Lys Phe Val Tyr Phe Lys Ser Leu Gly
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Ser Ser Asp Glu Glu Asn Leu Pro Arg Met Tyr Glu Thr Gly Thr Glu
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Thr Tyr Ile Leu Pro Lys Asp Ser Gln Val Gly Pro Asp Val Lys Ser
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Glu Ile Cys Gly Pro Thr Ser Pro Lys Arg Leu Cys Ile Arg Pro Ser
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Glu Pro Val Asp Ala Val Val Val Val Ser Val Lys His Asp Pro Leu
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Pro Leu Leu Pro Glu Ala Asn Gly His Arg Ser Thr Asn Ser Pro Thr
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His Ile Asp Val Gly Gly His Met Tyr Thr Ser Ser Leu Ala Thr Leu
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Thr Lys Tyr Pro Glu Ser Arg Ile Gly Arg Leu Phe Asp Gly Thr Glu
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Leu Ile Pro Asp Asp Phe Lys Asp Tyr Thr Leu Leu Tyr Glu Glu Ala
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Lys Tyr Phe Gln Leu Gln Pro Met Leu Leu Glu Met Glu Arg Trp Lys
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Gln Asp Arg Glu Thr Gly Arg Phe Ser Arg Pro Cys Glu Cys Leu Val
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Val Arg Val Ala Pro Asp Leu Gly Glu Arg Ile Thr Leu Ser Gly Asp
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Lys Ser Leu Ile Glu Glu Val Phe Pro Glu Ile Gly Asp Val Met Cys
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<400> 14

Met Ala Ala Gln Gly Glu Pro Gly Tyr Leu Ala Ala Gln Ser Asp Pro

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Gly Ser Asn Ser Glu Arg Ser Thr Asp Ser Pro Val Pro Gly Ser Glu
            20                  25                  30

Asp Asp Leu Val Ala Gly Ala Thr Leu His Ser Pro Glu Trp Ser Glu
        35                  40                  45

Glu Arg Phe Arg Val Asp Arg Lys Lys Leu Glu Ala Met Leu Gln Ala
    50                  55                  60

Ala Ala Glu Gly Lys Gly Arg Ser Gly Glu Asp Phe Phe Gln Lys Ile
65                  70                  75                  80

Met Glu Glu Thr Asn Thr Gln Ile Ala Trp Pro Ser Lys Leu Lys Ile
                85                  90                  95

Gly Ala Lys Ser Lys Lys Asp Pro His Ile Lys Val Ser Gly Lys Lys
            100                 105                 110

Glu Asp Val Lys Glu Ala Lys Glu Met Ile Met Ser Val Leu Asp Thr
        115                 120                 125

Lys Ser Asn Arg Val Thr Leu Lys Met Asp Val Ser His Thr Glu His
    130                 135                 140

Ser His Val Ile Gly Lys Gly Gly Asn Asn Ile Lys Lys Val Met Glu
145                 150                 155                 160

Glu Thr Gly Cys His Ile His Phe Pro Asp Ser Asn Arg Asn Asn Gln
                165                 170                 175

Ala Glu Lys Ser Asn Gln Val Ser Ile Ala Gly Gln Pro Ala Gly Val
            180                 185                 190

Glu Ser Ala Arg Val Arg Ile Arg Glu Leu Leu Pro Leu Val Leu Met
        195                 200                 205

Phe Glu Leu Pro Ile Ala Gly Ile Leu Gln Pro Val Pro Asp Pro Asn
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    210                 215                 220

Ser Pro Ser Ile Gln His Ile Ser Gln Thr Tyr Asn Ile Ser Val Ser
225                 230                 235                 240

Phe Lys Gln Arg Ser Arg Met Tyr Gly Ala Thr Val Ile Val Arg Gly
                245                 250                 255

Ser Gln Asn Asn Thr Ser Ala Val Lys Glu Gly Thr Ala Met Leu Leu
            260                 265                 270

Glu His Leu Ala Gly Ser Leu Ala Ser Ala Ile Pro Val Ser Thr Gln
        275                 280                 285

Leu Asp Ile Ala Ala Gln His His Leu Phe Met Met Gly Arg Asn Gly
    290                 295                 300

Ser Asn Ile Lys His Ile Met Gln Arg Thr Gly Ala Gln Ile His Phe
305                 310                 315                 320

Pro Asp Pro Ser Asn Pro Gln Lys Lys Ser Thr Val Tyr Leu Gln Gly
                325                 330                 335

Thr Ile Glu Ser Val Cys Leu Ala Arg Gln Tyr Leu Met Gly Cys Leu
            340                 345                 350

Pro Leu Val Leu Met Phe Asp Met Lys Glu Glu Ile Glu Val Asp Pro
        355                 360                 365

Gln Phe Ile Ala Gln Leu Met Glu Gln Leu Asp Val Phe Ile Ser Ile
    370                 375                 380

Lys Pro Lys Pro Lys Gln Pro Ser Lys Ser Val Ile Val Lys Ser Val
385                 390                 395                 400

Glu Arg Asn Ala Leu Asn Met Tyr Glu Ala Arg Lys Cys Leu Leu Gly
                405                 410                 415

Leu Glu Ser Ser Gly Val Thr Ile Ala Thr Ser Pro Ser Pro Ala Ser
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            420                 425                 430

Cys Pro Ala Gly Leu Ala Cys Pro Ser Leu Asp Ile Leu Ala Ser Ala
        435                 440                 445

Gly Leu Gly Leu Thr Gly Leu Gly Leu Leu Gly Pro Thr Thr Leu Ser
    450                 455                 460

Leu Asn Thr Ser Thr Thr Pro Asn Ser Leu Leu Asn Ala Leu Asn Ser
465                 470                 475                 480

Ser Val Ser Pro Leu Gln Ser Pro Ser Ser Gly Thr Pro Ser Pro Thr
                485                 490                 495

Leu Trp Ala Pro Pro Leu Ala Asn Thr Ser Ser Ala Thr Gly Phe Ser
            500                 505                 510

Ala Ile Pro His Leu Met Ile Pro Ser Thr Ala Gln Ala Thr Leu Thr
        515                 520                 525

Asn Ile Leu Leu Ser Gly Val Pro Thr Tyr Gly His Thr Ala Pro Ser
    530                 535                 540

Pro Pro Pro Gly Leu Thr Pro Val Asp Val His Ile Asn Ser Met Gln
545                 550                 555                 560

Thr Glu Gly Lys Lys Ile Ser Ala Ala Leu Asn Gly His Ala Gln Ser
                565                 570                 575

Pro Asp Ile Lys Tyr Gly Ala Ile Ser Thr Ser Ser Leu Gly Glu Lys
            580                 585                 590

Val Leu Ser Ala Asn His Gly Asp Pro Ser Ile Gln Thr Ser Gly Ser
        595                 600                 605

Glu Gln Thr Ser Pro Lys Ser Ser Pro Thr Glu Gly Cys Asn Asp Ala
    610                 615                 620

Phe Val Glu Val Gly Met Pro Arg Ser Pro Ser His Ser Gly Asn Ala
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625 630 635 640

Gly Asp Leu Lys Gln Met Met Cys Pro Ser Lys Val Ser Cys Ala Lys
645 650 655

Arg Gln Thr Val Glu Leu Leu Gln Gly Thr Lys Asn Ser His Leu His
660 665 670

Ser Thr Asp Arg Leu Leu Ser Asp Pro Glu Leu Ser Ala Thr Glu Ser
675 680 685

Pro Leu Ala Asp Lys Lys Ala Pro Gly Ser Glu Arg Ala Ala Glu Arg
690 695 700

Ala Ala Ala Ala Gln Gln Asn Ser Glu Arg Ala His Leu Ala Pro Arg
705 710 715 720

Ser Ser Tyr Val Asn Met Gln Ala Phe Asp Tyr Glu Gln Lys Lys Leu
725 730 735

Leu Ala Thr Lys Ala Met Leu Lys Lys Pro Val Val Thr Glu Val Arg
740 745 750

Thr Pro Thr Asn Thr Trp Ser Gly Leu Gly Phe Ser Lys Ser Met Pro
755 760 765

Ala Glu Thr Ile Lys Glu Leu Arg Arg Ala Asn His Val Ser Tyr Lys
770 775 780

Pro Thr Met Thr Thr Thr Tyr Glu Gly Ser Ser Met Ser Leu Ser Arg
785 790 795 800

Ser Asn Ser Arg Glu His Leu Gly Gly Gly Ser Glu Ser Asp Asn Trp
805 810 815

Arg Asp Arg Asn Gly Ile Gly Pro Gly Ser His Ser Glu Phe Ala Ala
820 825 830

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

```
        835                 840                 845

Leu Ser Ser Ser Asn Tyr Met Asp Cys Ile Ser Ser Leu Thr Gly Ser
    850                 855                 860

Asn Gly Cys Asn Leu Asn Ser Ser Phe Lys Gly Ser Asp Leu Pro Glu
865                 870                 875                 880

Leu Phe Ser Lys Leu Gly Leu Gly Lys Tyr Thr Asp Val Phe Gln Gln
                885                 890                 895

Gln Glu Ile Asp Leu Gln Thr Phe Leu Thr Leu Thr Asp Gln Asp Leu
            900                 905                 910

Lys Glu Leu Gly Ile Thr Thr Phe Gly Ala Arg Arg Lys Met Leu Leu
        915                 920                 925

Ala Ile Ser Glu Leu Asn Lys Asn Arg Arg Lys Leu Phe Glu Ser Pro
    930                 935                 940

Asn Ala Arg Thr Ser Phe Leu Glu Gly Gly Ala Ser Gly Arg Leu Pro
945                 950                 955                 960

Arg Gln Tyr His Ser Asp Ile Ala Ser Val Ser Gly Arg Trp
                965                 970
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