SEQUENCE LISTING

<110> DUCHATEAU PHILIPPE
VALTON JULIEN
CELLECTIS

<120> METHOD TO OVERCOME DNA CHEMICAL MODIFICATIONS SENSITIVITY OF ENGINEERED TALE DNA BINDING DOMAINS

<130> 413114WO

<160> 57

<170> PatentIn version 3.5

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<220>
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ccaggcccac ggcttgaccc tcgagatgcg gtaccggggc cactggggcc 170

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<212> DNA
<213> artificial sequence

<220>
<223> TALE Repeat NI

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<210> 7

<211> 170
<212> DNA
<213> artificial sequence

<220>
<223> TALE Repeat NN

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His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly
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Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
    50                  55                  60

Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn
65                  70                  75                  80

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

Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala
            100                 105                 110

Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu
        115                 120                 125

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala
    130                 135                 140

Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
145                 150                 155                 160

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
                165                 170                 175

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

Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln
        195                 200                 205

Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu
    210                 215                 220

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
225                 230                 235                 240

Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala
                245                 250                 255

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
            260                 265                 270

Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys
        275                 280                 285
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Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
290 295 300

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly
305 310 315 320

Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
325 330 335

Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn
340 345 350

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

Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala
370 375 380

Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu
385 390 395 400

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala
405 410 415

Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala
420 425 430

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
435 440 445

Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val
450 455 460

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu
465 470 475 480

Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu
485 490 495

Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
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Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Arg Pro Ala
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His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Gly Gly
        35                  40                  45

Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln
    50                  55                  60

Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn
65                  70                  75                  80

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu
                85                  90                  95

Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser
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Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro
        115                 120                 125

Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile
    130                 135                 140

Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu
145                 150                 155                 160

Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val
                165                 170                 175

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

Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln
        195                 200                 205

Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr
    210                 215                 220

Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro
225                 230                 235                 240
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Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu
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Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu
            260                 265                 270

Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln
        275                 280                 285

Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His
    290                 295                 300

Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly
305                 310                 315                 320

Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln
                325                 330                 335

Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile
            340                 345                 350

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

Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser
    370                 375                 380

His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro
385                 390                 395                 400

Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile
                405                 410                 415

Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu
            420                 425                 430

Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val
        435                 440                 445

Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln
    450                 455                 460

Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln
465                 470                 475                 480

Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr
                485                 490                 495

Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro
            500                 505                 510
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Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Arg Pro Ala Leu
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<210> 16

<211> 530
<212> PRT
<213> artificial sequence

<220>
<223> XPCT1R

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20 25 30

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly
35 40 45

Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys
50 55 60

Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His
65 70 75 80

Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val
85 90 95

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
100 105 110

Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu
115 120 125

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala
130 135 140

Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
145 150 155 160

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val
165 170 175

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

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu
195 200 205

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Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu
    210                 215                 220

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
225                 230                 235                 240

Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala
                245                 250                 255

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

Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys
        275                 280                 285

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
    290                 295                 300

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly
305                 310                 315                 320

Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
                325                 330                 335

Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His
            340                 345                 350

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

Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala
    370                 375                 380

Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu
385                 390                 395                 400

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala
                405                 410                 415

Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
            420                 425                 430

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
        435                 440                 445

Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val
    450                 455                 460

Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu
465                 470                 475                 480
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Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu
485 490 495

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
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Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Arg Pro Ala
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Leu Glu
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<213> artificial sequence

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Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
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His Gly

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<211> 34
<212> PRT
<213> artificial sequence

<220>
<223> TALE Repeat NI

<400> 18
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20 25 30

His Gly

<210> 19

<211> 34
<212> PRT
<213> artificial sequence

<220>
<223> TALE Repeat NN

<400> 19
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Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
20 25 30

His Gly

<210> 20

<211> 34
<212> PRT
<213> artificial sequence

<220>
<223> TALE Repeat HG

<400> 20
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Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
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His Gly

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<211> 33
<212> PRT
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Val Ser Pro Pro Ala Gly Gly Pro Leu Asp Gly Leu Pro Ala Arg Arg
35 40 45

Thr Met Ser Arg Thr Arg Leu Pro Ser Pro Pro Ala Pro Ser Pro Ala
50 55 60

Phe Ser Ala Gly Ser Phe Ser Asp Leu Leu Arg Gln Phe Asp Pro Ser
65 70 75 80

Leu Phe Asn Thr Ser Leu Phe Asp Ser Leu Pro Pro Phe Gly Ala His
85 90 95

His Thr Glu Ala Ala Thr Gly Glu Trp Asp Glu Val Gln Ser Gly Leu
100 105 110

Arg Ala Ala Asp Ala Pro Pro Pro Thr Met Arg Val Ala Val Thr Ala
115 120 125

Ala Arg Pro Pro Arg Ala Lys Pro Ala Pro Arg Arg Arg Ala Ala Gln
130 135 140

Pro Ser Asp Ala Ser Pro Ala Ala Gln Val Asp Leu Arg Thr Leu Gly
145 150 155 160

Tyr Ser Gln Gln Gln Gln Glu Lys Ile Lys Pro Lys Val Arg Ser Thr
165 170 175

Val Ala Gln His His Glu Ala Leu Val Gly His Gly Phe Thr His Ala
180 185 190

His Ile Val Ala Leu Ser Gln His Pro Ala Ala Leu Gly Thr Val Ala
195 200 205

Val Lys Tyr Gln Asp Met Ile Ala Ala Leu Pro Glu Ala Thr His Glu
210 215 220

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

Ala Leu Leu Thr Val Ala Gly Glu Leu Arg Gly Pro Pro Leu Gln Leu
245 250 255

Asp Thr Gly Gln Leu Leu Lys Ile Ala Lys Arg Gly Gly Val Thr Ala
260 265 270

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Val Glu Ala Val His Ala Trp Arg Asn Ala Leu Thr Gly Ala Pro Leu
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Asn Leu Thr Gly Asp Ala Arg Gly Ile Arg Ser Arg Ala Ser Arg Ser
    290                 295                 300

Ile Val Ala Gln Leu Ser Arg Pro Asp Pro Ser Gly Ser Gly Ser Gly
305                 310                 315                 320

Gly Asp Pro Ile Ser Arg Ser Gln Leu Val Lys Ser Glu Leu Glu Glu
                325                 330                 335

Lys Lys Ser Glu Leu Arg His Lys Leu Lys Tyr Val Pro His Glu Tyr
            340                 345                 350

Ile Glu Leu Ile Glu Ile Ala Arg Asn Ser Thr Gln Asp Arg Ile Leu
        355                 360                 365

Glu Met Lys Val Met Glu Phe Phe Met Lys Val Tyr Gly Tyr Arg Gly
    370                 375                 380

Lys His Leu Gly Gly Ser Arg Lys Pro Asp Gly Ala Ile Tyr Thr Val
385                 390                 395                 400

Gly Ser Pro Ile Asp Tyr Gly Val Ile Val Asp Thr Lys Ala Tyr Ser
                405                 410                 415

Gly Gly Tyr Asn Leu Pro Ile Gly Gln Ala Asp Glu Met Gln Arg Tyr
            420                 425                 430

Val Glu Glu Asn Gln Thr Arg Asn Lys His Ile Asn Pro Asn Glu Trp
        435                 440                 445

Trp Lys Val Tyr Pro Ser Ser Val Thr Glu Phe Lys Phe Leu Phe Val
    450                 455                 460

Ser Gly His Phe Lys Gly Asn Tyr Lys Ala Gln Leu Thr Arg Leu Asn
465                 470                 475                 480

His Ile Thr Asn Cys Asn Gly Ala Val Leu Ser Val Glu Glu Leu Leu
                485                 490                 495

Ile Gly Gly Glu Met Ile Lys Ala Gly Thr Leu Thr Leu Glu Glu Val
            500                 505                 510

Arg Arg Lys Phe Asn Asn Gly Glu Ile Asn Phe Ala Ala Asp
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<223> pCLS11170

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        35                  40                  45

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

Asp Gly Leu Pro Ala Arg Arg Thr Met Ser Arg Thr Arg Leu Pro Ser
65                  70                  75                  80

Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala Gly Ser Phe Ser Asp Leu
                85                  90                  95

Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn Thr Ser Leu Phe Asp Ser
            100                 105                 110

Leu Pro Pro Phe Gly Ala His His Thr Glu Ala Ala Thr Gly Glu Trp
        115                 120                 125

Asp Glu Val Gln Ser Gly Leu Arg Ala Ala Asp Ala Pro Pro Pro Thr
    130                 135                 140

Met Arg Val Ala Val Thr Ala Ala Arg Pro Pro Arg Ala Lys Pro Ala
145                 150                 155                 160

Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp Ala Ser Pro Ala Ala Gln
                165                 170                 175

Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln Gln Gln Gln Glu Lys Ile
            180                 185                 190

Lys Pro Lys Val Arg Ser Thr Val Ala Gln His His Glu Ala Leu Val
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Gly His Gly Phe Thr His Ala His Ile Val Ala Leu Ser Gln His Pro
    210                 215                 220

Ala Ala Leu Gly Thr Val Ala Val Lys Tyr Gln Asp Met Ile Ala Ala
225                 230                 235                 240
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Leu Pro Glu Ala Thr His Glu Ala Ile Val Gly Val Gly Lys Gln Trp
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Ser Gly Ala Arg Ala Leu Glu Ala Leu Leu Thr Val Ala Gly Glu Leu
            260                 265                 270

Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly Gln Leu Leu Lys Ile Ala
        275                 280                 285

Lys Arg Gly Gly Val Thr Ala Val Glu Ala Val His Ala Trp Arg Asn
    290                 295                 300

Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr Gly Asp Ala Arg Gly Ile
305                 310                 315                 320

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

Pro Ser Gly Ser Gly Ser Gly Gly Asp Pro Ile Ser Arg Ser Gln Leu
            340                 345                 350

Val Lys Ser Glu Leu Glu Glu Lys Lys Ser Glu Leu Arg His Lys Leu
        355                 360                 365

Lys Tyr Val Pro His Glu Tyr Ile Glu Leu Ile Glu Ile Ala Arg Asn
    370                 375                 380

Ser Thr Gln Asp Arg Ile Leu Glu Met Lys Val Met Glu Phe Phe Met
385                 390                 395                 400

Lys Val Tyr Gly Tyr Arg Gly Lys His Leu Gly Gly Ser Arg Lys Pro
                405                 410                 415

Asp Gly Ala Ile Tyr Thr Val Gly Ser Pro Ile Asp Tyr Gly Val Ile
            420                 425                 430

Val Asp Thr Lys Ala Tyr Ser Gly Gly Tyr Asn Leu Pro Ile Gly Gln
        435                 440                 445

Ala Asp Glu Met Gln Arg Tyr Val Glu Glu Asn Gln Thr Arg Asn Lys
    450                 455                 460

His Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro Ser Ser Val Thr
465                 470                 475                 480

Glu Phe Lys Phe Leu Phe Val Ser Gly His Phe Lys Gly Asn Tyr Lys
                485                 490                 495

Ala Gln Leu Thr Arg Leu Asn His Ile Thr Asn Cys Asn Gly Ala Val
            500                 505                 510
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Leu Ser Val Glu Glu Leu Leu Ile Gly Gly Glu Met Ile Lys Ala Gly
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Asn Phe Ala Ala Asp
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<213> artificial sequence

<220>
<223> TALEN XPCT3R-N*

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tgtcaagctc acggactgac accacaacag gtggtcgcca ttgcttccaa cggcggcggc   2220
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<210> 38

<211> 1065
<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT1L-HD

<400> 38

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Val Pro Asp Tyr Ala Ile Asp Ile Ala Asp Pro Ile Arg Ser Arg Thr
            20                  25                  30

Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly Pro Gln Pro Asp Gly Val
        35                  40                  45

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

Asp Gly Leu Pro Ala Arg Arg Thr Met Ser Arg Thr Arg Leu Pro Ser
65                  70                  75                  80

Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala Gly Ser Phe Ser Asp Leu
                85                  90                  95

Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn Thr Ser Leu Phe Asp Ser
            100                 105                 110

Leu Pro Pro Phe Gly Ala His His Thr Glu Ala Ala Thr Gly Glu Trp
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115 120 125

Asp Glu Val Gln Ser Gly Leu Arg Ala Ala Asp Ala Pro Pro Pro Thr
130 135 140

Met Arg Val Ala Val Thr Ala Ala Arg Pro Pro Arg Ala Lys Pro Ala
145 150 155 160

Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp Ala Ser Pro Ala Ala Gln
165 170 175

Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln Gln Gln Gln Glu Lys Ile
180 185 190

Lys Pro Lys Val Arg Ser Thr Val Ala Gln His His Glu Ala Leu Val
195 200 205

Gly His Gly Phe Thr His Ala His Ile Val Ala Leu Ser Gln His Pro
210 215 220

Ala Ala Leu Gly Thr Val Ala Val Lys Tyr Gln Asp Met Ile Ala Ala
225 230 235 240

Leu Pro Glu Ala Thr His Glu Ala Ile Val Gly Val Gly Lys Gln Trp
245 250 255

Ser Gly Ala Arg Ala Leu Glu Ala Leu Leu Thr Val Ala Gly Glu Leu
260 265 270

Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly Gln Leu Leu Lys Ile Ala
275 280 285

Lys Arg Gly Gly Val Thr Ala Val Glu Ala Val His Ala Trp Arg Asn
290 295 300

Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr Pro Glu Gln Val Val Ala
305 310 315 320

Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
325 330 335

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
340 345 350

Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val
355 360 365

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln
370 375 380

Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu

385 390 395 400

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
405 410 415

Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala
420 425 430

Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly
435 440 445

Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys
450 455 460

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
465 470 475 480

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly
485 490 495

Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys
500 505 510

Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn
515 520 525

Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val
530 535 540

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
545 550 555 560

Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu
565 570 575

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala
580 585 590

Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
595 600 605

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
610 615 620

Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val
625 630 635 640

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu
645 650 655

Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu

660 665 670

Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
675 680 685

Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala
690 695 700

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
705 710 715 720

Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys
725 730 735

Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala
740 745 750

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly
755 760 765

Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
770 775 780

Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn
785 790 795 800

Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val
805 810 815

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
820 825 830

Ser Asn Gly Gly Gly Arg Pro Ala Leu Glu Ser Ile Val Ala Gln Leu
835 840 845

Ser Arg Pro Asp Pro Ser Gly Ser Gly Ser Gly Gly Asp Pro Ile Ser
850 855 860

Arg Ser Gln Leu Val Lys Ser Glu Leu Glu Glu Lys Lys Ser Glu Leu
865 870 875 880

Arg His Lys Leu Lys Tyr Val Pro His Glu Tyr Ile Glu Leu Ile Glu
885 890 895

Ile Ala Arg Asn Ser Thr Gln Asp Arg Ile Leu Glu Met Lys Val Met
900 905 910

Glu Phe Phe Met Lys Val Tyr Gly Tyr Arg Gly Lys His Leu Gly Gly
915 920 925

Ser Arg Lys Pro Asp Gly Ala Ile Tyr Thr Val Gly Ser Pro Ile Asp

930 935 940

Tyr Gly Val Ile Val Asp Thr Lys Ala Tyr Ser Gly Gly Tyr Asn Leu
945 950 955 960

Pro Ile Gly Gln Ala Asp Glu Met Gln Arg Tyr Val Glu Glu Asn Gln
965 970 975

Thr Arg Asn Lys His Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro
980 985 990

Ser Ser Val Thr Glu Phe Lys Phe Leu Phe Val Ser Gly His Phe Lys
995 1000 1005

Gly Asn Tyr Lys Ala Gln Leu Thr Arg Leu Asn His Ile Thr Asn Cys
1010 1015 1020

Asn Gly Ala Val Leu Ser Val Glu Glu Leu Leu Ile Gly Gly Glu Met
1025 1030 1035 1040

Ile Lys Ala Gly Thr Leu Thr Leu Glu Glu Val Arg Arg Lys Phe Asn
1045 1050 1055

Asn Gly Glu Ile Asn Phe Ala Ala Asp
1060 1065

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<211> 1064
<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT1L-N*

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Val Pro Asp Tyr Ala Ile Asp Ile Ala Asp Pro Ile Arg Ser Arg Thr
20 25 30

Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly Pro Gln Pro Asp Gly Val
35 40 45

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

Asp Gly Leu Pro Ala Arg Arg Thr Met Ser Arg Thr Arg Leu Pro Ser
65 70 75 80

Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala Gly Ser Phe Ser Asp Leu
85 90 95

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Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn Thr Ser Leu Phe Asp Ser
            100                 105                 110

Leu Pro Pro Phe Gly Ala His His Thr Glu Ala Ala Thr Gly Glu Trp
        115                 120                 125

Asp Glu Val Gln Ser Gly Leu Arg Ala Ala Asp Ala Pro Pro Pro Thr
    130                 135                 140

Met Arg Val Ala Val Thr Ala Ala Arg Pro Pro Arg Ala Lys Pro Ala
145                 150                 155                 160

Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp Ala Ser Pro Ala Ala Gln
                165                 170                 175

Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln Gln Gln Gln Glu Lys Ile
            180                 185                 190

Lys Pro Lys Val Arg Ser Thr Val Ala Gln His His Glu Ala Leu Val
        195                 200                 205

Gly His Gly Phe Thr His Ala His Ile Val Ala Leu Ser Gln His Pro
    210                 215                 220

Ala Ala Leu Gly Thr Val Ala Val Lys Tyr Gln Asp Met Ile Ala Ala
225                 230                 235                 240

Leu Pro Glu Ala Thr His Glu Ala Ile Val Gly Val Gly Lys Gln Trp
                245                 250                 255

Ser Gly Ala Arg Ala Leu Glu Ala Leu Leu Thr Val Ala Gly Glu Leu
            260                 265                 270

Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly Gln Leu Leu Lys Ile Ala
        275                 280                 285

Lys Arg Gly Gly Val Thr Ala Val Glu Ala Val His Ala Trp Arg Asn
    290                 295                 300

Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr Pro Glu Gln Val Val Ala
305                 310                 315                 320

Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
                325                 330                 335

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
            340                 345                 350

Val Ala Ile Ala Ser Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln
        355                 360                 365
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Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln
    370                 375                 380

Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr
385                 390                 395                 400

Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro
                405                 410                 415

Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu
            420                 425                 430

Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu
        435                 440                 445

Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln
    450                 455                 460

Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His
465                 470                 475                 480

Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly
                485                 490                 495

Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln
            500                 505                 510

Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly
        515                 520                 525

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu
    530                 535                 540

Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser
545                 550                 555                 560

Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro
                565                 570                 575

Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile
            580                 585                 590

Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu
        595                 600                 605

Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val
    610                 615                 620

Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln
625                 630                 635                 640
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Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln
645 650 655

Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr
660 665 670

Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro
675 680 685

Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu
690 695 700

Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu
705 710 715 720

Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln
725 730 735

Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His
740 745 750

Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly
755 760 765

Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln
770 775 780

Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile
785 790 795 800

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu
805 810 815

Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser
820 825 830

Asn Gly Gly Gly Arg Pro Ala Leu Glu Ser Ile Val Ala Gln Leu Ser
835 840 845

Arg Pro Asp Pro Ser Gly Ser Gly Ser Gly Gly Asp Pro Ile Ser Arg
850 855 860

Ser Gln Leu Val Lys Ser Glu Leu Glu Glu Lys Lys Ser Glu Leu Arg
865 870 875 880

His Lys Leu Lys Tyr Val Pro His Glu Tyr Ile Glu Leu Ile Glu Ile
885 890 895

Ala Arg Asn Ser Thr Gln Asp Arg Ile Leu Glu Met Lys Val Met Glu
900 905 910

Phe Phe Met Lys Val Tyr Gly Tyr Arg Gly Lys His Leu Gly Gly Ser
915 920 925

Arg Lys Pro Asp Gly Ala Ile Tyr Thr Val Gly Ser Pro Ile Asp Tyr
930 935 940

Gly Val Ile Val Asp Thr Lys Ala Tyr Ser Gly Gly Tyr Asn Leu Pro
945 950 955 960

Ile Gly Gln Ala Asp Glu Met Gln Arg Tyr Val Glu Glu Asn Gln Thr
965 970 975

Arg Asn Lys His Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro Ser
980 985 990

Ser Val Thr Glu Phe Lys Phe Leu Phe Val Ser Gly His Phe Lys Gly
995 1000 1005

Asn Tyr Lys Ala Gln Leu Thr Arg Leu Asn His Ile Thr Asn Cys Asn
1010 1015 1020

Gly Ala Val Leu Ser Val Glu Glu Leu Leu Ile Gly Gly Glu Met Ile
1025 1030 1035 1040

Lys Ala Gly Thr Leu Thr Leu Glu Glu Val Arg Arg Lys Phe Asn Asn
1045 1050 1055

Gly Glu Ile Asn Phe Ala Ala Asp
1060

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<211> 1065
<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT1L-NG

<400> 40
Met Gly Asp Pro Lys Lys Lys Arg Lys Val Ile Asp Tyr Pro Tyr Asp
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Val Pro Asp Tyr Ala Ile Asp Ile Ala Asp Pro Ile Arg Ser Arg Thr
20 25 30

Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly Pro Gln Pro Asp Gly Val
35 40 45

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

Asp Gly Leu Pro Ala Arg Arg Thr Met Ser Arg Thr Arg Leu Pro Ser

65 70 75 80

Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala Gly Ser Phe Ser Asp Leu
85 90 95

Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn Thr Ser Leu Phe Asp Ser
100 105 110

Leu Pro Pro Phe Gly Ala His His Thr Glu Ala Ala Thr Gly Glu Trp
115 120 125

Asp Glu Val Gln Ser Gly Leu Arg Ala Ala Asp Ala Pro Pro Pro Thr
130 135 140

Met Arg Val Ala Val Thr Ala Ala Arg Pro Pro Arg Ala Lys Pro Ala
145 150 155 160

Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp Ala Ser Pro Ala Ala Gln
165 170 175

Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln Gln Gln Gln Glu Lys Ile
180 185 190

Lys Pro Lys Val Arg Ser Thr Val Ala Gln His His Glu Ala Leu Val
195 200 205

Gly His Gly Phe Thr His Ala His Ile Val Ala Leu Ser Gln His Pro
210 215 220

Ala Ala Leu Gly Thr Val Ala Val Lys Tyr Gln Asp Met Ile Ala Ala
225 230 235 240

Leu Pro Glu Ala Thr His Glu Ala Ile Val Gly Val Gly Lys Gln Trp
245 250 255

Ser Gly Ala Arg Ala Leu Glu Ala Leu Leu Thr Val Ala Gly Glu Leu
260 265 270

Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly Gln Leu Leu Lys Ile Ala
275 280 285

Lys Arg Gly Gly Val Thr Ala Val Glu Ala Val His Ala Trp Arg Asn
290 295 300

Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr Pro Glu Gln Val Val Ala
305 310 315 320

Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
325 330 335

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val

340 345 350

Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val
355 360 365

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln
370 375 380

Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu
385 390 395 400

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
405 410 415

Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala
420 425 430

Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly
435 440 445

Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys
450 455 460

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
465 470 475 480

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly
485 490 495

Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys
500 505 510

Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn
515 520 525

Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val
530 535 540

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
545 550 555 560

Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu
565 570 575

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala
580 585 590

Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
595 600 605

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val

610 615 620

Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val
625 630 635 640

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu
645 650 655

Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu
660 665 670

Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
675 680 685

Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala
690 695 700

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
705 710 715 720

Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys
725 730 735

Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala
740 745 750

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly
755 760 765

Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
770 775 780

Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn
785 790 795 800

Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val
805 810 815

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
820 825 830

Ser Asn Gly Gly Gly Arg Pro Ala Leu Glu Ser Ile Val Ala Gln Leu
835 840 845

Ser Arg Pro Asp Pro Ser Gly Ser Gly Ser Gly Gly Asp Pro Ile Ser
850 855 860

Arg Ser Gln Leu Val Lys Ser Glu Leu Glu Glu Lys Lys Ser Glu Leu
865 870 875 880

Arg His Lys Leu Lys Tyr Val Pro His Glu Tyr Ile Glu Leu Ile Glu

885 890 895

Ile Ala Arg Asn Ser Thr Gln Asp Arg Ile Leu Glu Met Lys Val Met
900 905 910

Glu Phe Phe Met Lys Val Tyr Gly Tyr Arg Gly Lys His Leu Gly Gly
915 920 925

Ser Arg Lys Pro Asp Gly Ala Ile Tyr Thr Val Gly Ser Pro Ile Asp
930 935 940

Tyr Gly Val Ile Val Asp Thr Lys Ala Tyr Ser Gly Gly Tyr Asn Leu
945 950 955 960

Pro Ile Gly Gln Ala Asp Glu Met Gln Arg Tyr Val Glu Glu Asn Gln
965 970 975

Thr Arg Asn Lys His Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro
980 985 990

Ser Ser Val Thr Glu Phe Lys Phe Leu Phe Val Ser Gly His Phe Lys
995 1000 1005

Gly Asn Tyr Lys Ala Gln Leu Thr Arg Leu Asn His Ile Thr Asn Cys
1010 1015 1020

Asn Gly Ala Val Leu Ser Val Glu Glu Leu Leu Ile Gly Gly Glu Met
1025 1030 1035 1040

Ile Lys Ala Gly Thr Leu Thr Leu Glu Glu Val Arg Arg Lys Phe Asn
1045 1050 1055

Asn Gly Glu Ile Asn Phe Ala Ala Asp
1060 1065

<210> 41

<211> 1064
<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT1L-H*

<400> 41
Met Gly Asp Pro Lys Lys Lys Arg Lys Val Ile Asp Tyr Pro Tyr Asp
1 5 10 15

Val Pro Asp Tyr Ala Ile Asp Ile Ala Asp Pro Ile Arg Ser Arg Thr
20 25 30

Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly Pro Gln Pro Asp Gly Val
35 40 45

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

Asp Gly Leu Pro Ala Arg Arg Thr Met Ser Arg Thr Arg Leu Pro Ser
65                  70                  75                  80

Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala Gly Ser Phe Ser Asp Leu
                85                  90                  95

Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn Thr Ser Leu Phe Asp Ser
            100                 105                 110

Leu Pro Pro Phe Gly Ala His His Thr Glu Ala Ala Thr Gly Glu Trp
        115                 120                 125

Asp Glu Val Gln Ser Gly Leu Arg Ala Ala Asp Ala Pro Pro Pro Thr
    130                 135                 140

Met Arg Val Ala Val Thr Ala Ala Arg Pro Pro Arg Ala Lys Pro Ala
145                 150                 155                 160

Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp Ala Ser Pro Ala Ala Gln
                165                 170                 175

Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln Gln Gln Gln Glu Lys Ile
            180                 185                 190

Lys Pro Lys Val Arg Ser Thr Val Ala Gln His His Glu Ala Leu Val
        195                 200                 205

Gly His Gly Phe Thr His Ala His Ile Val Ala Leu Ser Gln His Pro
    210                 215                 220

Ala Ala Leu Gly Thr Val Ala Val Lys Tyr Gln Asp Met Ile Ala Ala
225                 230                 235                 240

Leu Pro Glu Ala Thr His Glu Ala Ile Val Gly Val Gly Lys Gln Trp
                245                 250                 255

Ser Gly Ala Arg Ala Leu Glu Ala Leu Leu Thr Val Ala Gly Glu Leu
            260                 265                 270

Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly Gln Leu Leu Lys Ile Ala
        275                 280                 285

Lys Arg Gly Gly Val Thr Ala Val Glu Ala Val His Ala Trp Arg Asn
    290                 295                 300

Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr Pro Glu Gln Val Val Ala
305                 310                 315                 320
```

Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
325 330 335

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
340 345 350

Val Ala Ile Ala Ser His Gly Gly Lys Gln Ala Leu Glu Thr Val Gln
355 360 365

Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln
370 375 380

Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr
385 390 395 400

Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro
405 410 415

Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu
420 425 430

Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu
435 440 445

Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln
450 455 460

Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His
465 470 475 480

Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly
485 490 495

Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln
500 505 510

Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly
515 520 525

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu
530 535 540

Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser
545 550 555 560

Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro
565 570 575

Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile
580 585 590

```
Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu
        595                 600                 605

Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val
    610                 615                 620

Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln
625                 630                 635                 640

Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln
                645                 650                 655

Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr
            660                 665                 670

Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro
        675                 680                 685

Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu
    690                 695                 700

Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu
705                 710                 715                 720

Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln
                725                 730                 735

Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His
            740                 745                 750

Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly
        755                 760                 765

Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln
    770                 775                 780

Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile
785                 790                 795                 800

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu
                805                 810                 815

Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser
            820                 825                 830

Asn Gly Gly Gly Arg Pro Ala Leu Glu Ser Ile Val Ala Gln Leu Ser
        835                 840                 845

Arg Pro Asp Pro Ser Gly Ser Gly Ser Gly Gly Asp Pro Ile Ser Arg
    850                 855                 860
```

Ser Gln Leu Val Lys Ser Glu Leu Glu Glu Lys Lys Ser Glu Leu Arg
865 870 875 880

His Lys Leu Lys Tyr Val Pro His Glu Tyr Ile Glu Leu Ile Glu Ile
885 890 895

Ala Arg Asn Ser Thr Gln Asp Arg Ile Leu Glu Met Lys Val Met Glu
900 905 910

Phe Phe Met Lys Val Tyr Gly Tyr Arg Gly Lys His Leu Gly Gly Ser
915 920 925

Arg Lys Pro Asp Gly Ala Ile Tyr Thr Val Gly Ser Pro Ile Asp Tyr
930 935 940

Gly Val Ile Val Asp Thr Lys Ala Tyr Ser Gly Gly Tyr Asn Leu Pro
945 950 955 960

Ile Gly Gln Ala Asp Glu Met Gln Arg Tyr Val Glu Glu Asn Gln Thr
965 970 975

Arg Asn Lys His Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro Ser
980 985 990

Ser Val Thr Glu Phe Lys Phe Leu Phe Val Ser Gly His Phe Lys Gly
995 1000 1005

Asn Tyr Lys Ala Gln Leu Thr Arg Leu Asn His Ile Thr Asn Cys Asn
1010 1015 1020

Gly Ala Val Leu Ser Val Glu Glu Leu Leu Ile Gly Gly Glu Met Ile
1025 1030 1035 1040

Lys Ala Gly Thr Leu Thr Leu Glu Glu Val Arg Arg Lys Phe Asn Asn
1045 1050 1055

Gly Glu Ile Asn Phe Ala Ala Asp
1060

<210> 42

<211> 1071
<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT1R

<400> 42
Met Gly Asp Pro Lys Lys Lys Arg Lys Val Ile Asp Lys Glu Thr Ala
1 5 10 15

Ala Ala Lys Phe Glu Arg Gln His Met Asp Ser Ile Asp Ile Ala Asp

```
            20                  25                  30

Pro Ile Arg Ser Arg Thr Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly
        35                  40                  45

Pro Gln Pro Asp Gly Val Gln Pro Thr Ala Asp Arg Gly Val Ser Pro
    50                  55                  60

Pro Ala Gly Gly Pro Leu Asp Gly Leu Pro Ala Arg Arg Thr Met Ser
65                  70                  75                  80

Arg Thr Arg Leu Pro Ser Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala
                85                  90                  95

Gly Ser Phe Ser Asp Leu Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn
            100                 105                 110

Thr Ser Leu Phe Asp Ser Leu Pro Pro Phe Gly Ala His His Thr Glu
        115                 120                 125

Ala Ala Thr Gly Glu Trp Asp Glu Val Gln Ser Gly Leu Arg Ala Ala
    130                 135                 140

Asp Ala Pro Pro Pro Thr Met Arg Val Ala Val Thr Ala Ala Arg Pro
145                 150                 155                 160

Pro Arg Ala Lys Pro Ala Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp
                165                 170                 175

Ala Ser Pro Ala Ala Gln Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln
            180                 185                 190

Gln Gln Gln Glu Lys Ile Lys Pro Lys Val Arg Ser Thr Val Ala Gln
        195                 200                 205

His His Glu Ala Leu Val Gly His Gly Phe Thr His Ala His Ile Val
    210                 215                 220

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

Gln Asp Met Ile Ala Ala Leu Pro Glu Ala Thr His Glu Ala Ile Val
                245                 250                 255

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

Thr Val Ala Gly Glu Leu Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly
        275                 280                 285

Gln Leu Leu Lys Ile Ala Lys Arg Gly Gly Val Thr Ala Val Glu Ala
```

290 295 300

Val His Ala Trp Arg Asn Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr
305 310 315 320

Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala
325 330 335

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
340 345 350

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

Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala
370 375 380

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly
385 390 395 400

Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
405 410 415

Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn
420 425 430

Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val
435 440 445

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
450 455 460

Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu
465 470 475 480

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala
485 490 495

Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
500 505 510

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
515 520 525

Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val
530 535 540

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu
545 550 555 560

Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu

565 570 575

Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
580 585 590

Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala
595 600 605

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
610 615 620

Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys
625 630 635 640

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
645 650 655

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly
660 665 670

Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
675 680 685

Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn
690 695 700

Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val
705 710 715 720

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
725 730 735

Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu
740 745 750

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala
755 760 765

Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala
770 775 780

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
785 790 795 800

Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val
805 810 815

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln
820 825 830

Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Arg Pro Ala Leu Glu

835 840 845

Ser Ile Val Ala Gln Leu Ser Arg Pro Asp Pro Ser Gly Ser Gly Ser
850 855 860

Gly Gly Asp Pro Ile Ser Arg Ser Gln Leu Val Lys Ser Glu Leu Glu
865 870 875 880

Glu Lys Lys Ser Glu Leu Arg His Lys Leu Lys Tyr Val Pro His Glu
885 890 895

Tyr Ile Glu Leu Ile Glu Ile Ala Arg Asn Ser Thr Gln Asp Arg Ile
900 905 910

Leu Glu Met Lys Val Met Glu Phe Phe Met Lys Val Tyr Gly Tyr Arg
915 920 925

Gly Lys His Leu Gly Gly Ser Arg Lys Pro Asp Gly Ala Ile Tyr Thr
930 935 940

Val Gly Ser Pro Ile Asp Tyr Gly Val Ile Val Asp Thr Lys Ala Tyr
945 950 955 960

Ser Gly Gly Tyr Asn Leu Pro Ile Gly Gln Ala Asp Glu Met Gln Arg
965 970 975

Tyr Val Glu Glu Asn Gln Thr Arg Asn Lys His Ile Asn Pro Asn Glu
980 985 990

Trp Trp Lys Val Tyr Pro Ser Ser Val Thr Glu Phe Lys Phe Leu Phe
995 1000 1005

Val Ser Gly His Phe Lys Gly Asn Tyr Lys Ala Gln Leu Thr Arg Leu
1010 1015 1020

Asn His Ile Thr Asn Cys Asn Gly Ala Val Leu Ser Val Glu Glu Leu
1025 1030 1035 1040

Leu Ile Gly Gly Glu Met Ile Lys Ala Gly Thr Leu Thr Leu Glu Glu
1045 1050 1055

Val Arg Arg Lys Phe Asn Asn Gly Glu Ile Asn Phe Ala Ala Asp
1060 1065 1070

<210> 43

<211> 1065
<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT2L-HD

<400> 43

Met Gly Asp Pro Lys Lys Lys Arg Lys Val Ile Asp Tyr Pro Tyr Asp
1 5 10 15

Val Pro Asp Tyr Ala Ile Asp Ile Ala Asp Pro Ile Arg Ser Arg Thr
20 25 30

Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly Pro Gln Pro Asp Gly Val
35 40 45

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

Asp Gly Leu Pro Ala Arg Arg Thr Met Ser Arg Thr Arg Leu Pro Ser
65 70 75 80

Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala Gly Ser Phe Ser Asp Leu
85 90 95

Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn Thr Ser Leu Phe Asp Ser
100 105 110

Leu Pro Pro Phe Gly Ala His His Thr Glu Ala Ala Thr Gly Glu Trp
115 120 125

Asp Glu Val Gln Ser Gly Leu Arg Ala Ala Asp Ala Pro Pro Pro Thr
130 135 140

Met Arg Val Ala Val Thr Ala Ala Arg Pro Pro Arg Ala Lys Pro Ala
145 150 155 160

Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp Ala Ser Pro Ala Ala Gln
165 170 175

Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln Gln Gln Gln Glu Lys Ile
180 185 190

Lys Pro Lys Val Arg Ser Thr Val Ala Gln His His Glu Ala Leu Val
195 200 205

Gly His Gly Phe Thr His Ala His Ile Val Ala Leu Ser Gln His Pro
210 215 220

Ala Ala Leu Gly Thr Val Ala Val Lys Tyr Gln Asp Met Ile Ala Ala
225 230 235 240

Leu Pro Glu Ala Thr His Glu Ala Ile Val Gly Val Gly Lys Gln Trp
245 250 255

Ser Gly Ala Arg Ala Leu Glu Ala Leu Leu Thr Val Ala Gly Glu Leu
260 265 270

```
Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly Gln Leu Leu Lys Ile Ala
        275                 280                 285

Lys Arg Gly Gly Val Thr Ala Val Glu Ala Val His Ala Trp Arg Asn
    290                 295                 300

Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr Pro Gln Gln Val Val Ala
305                 310                 315                 320

Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
                325                 330                 335

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val
            340                 345                 350

Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val
        355                 360                 365

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln
    370                 375                 380

Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu
385                 390                 395                 400

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
                405                 410                 415

Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala
            420                 425                 430

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
        435                 440                 445

Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys
    450                 455                 460

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
465                 470                 475                 480

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly
                485                 490                 495

Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
            500                 505                 510

Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn
        515                 520                 525

Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val
    530                 535                 540
```

```
Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala
545                 550                 555                 560

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

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala
            580                 585                 590

Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
        595                 600                 605

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
    610                 615                 620

Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val
625                 630                 635                 640

Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln
                645                 650                 655

Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu
            660                 665                 670

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
        675                 680                 685

Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala
    690                 695                 700

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
705                 710                 715                 720

Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys
                725                 730                 735

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
            740                 745                 750

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly
        755                 760                 765

Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
    770                 775                 780

Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn
785                 790                 795                 800

Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val
                805                 810                 815
```

```
Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
            820                 825                 830

Ser Asn Gly Gly Gly Arg Pro Ala Leu Glu Ser Ile Val Ala Gln Leu
        835                 840                 845

Ser Arg Pro Asp Pro Ser Gly Ser Gly Ser Gly Gly Asp Pro Ile Ser
    850                 855                 860

Arg Ser Gln Leu Val Lys Ser Glu Leu Glu Glu Lys Lys Ser Glu Leu
865                 870                 875                 880

Arg His Lys Leu Lys Tyr Val Pro His Glu Tyr Ile Glu Leu Ile Glu
                885                 890                 895

Ile Ala Arg Asn Ser Thr Gln Asp Arg Ile Leu Glu Met Lys Val Met
            900                 905                 910

Glu Phe Phe Met Lys Val Tyr Gly Tyr Arg Gly Lys His Leu Gly Gly
        915                 920                 925

Ser Arg Lys Pro Asp Gly Ala Ile Tyr Thr Val Gly Ser Pro Ile Asp
    930                 935                 940

Tyr Gly Val Ile Val Asp Thr Lys Ala Tyr Ser Gly Gly Tyr Asn Leu
945                 950                 955                 960

Pro Ile Gly Gln Ala Asp Glu Met Gln Arg Tyr Val Glu Glu Asn Gln
                965                 970                 975

Thr Arg Asn Lys His Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro
            980                 985                 990

Ser Ser Val Thr Glu Phe Lys Phe Leu Phe Val Ser Gly His Phe Lys
        995                 1000                1005

Gly Asn Tyr Lys Ala Gln Leu Thr Arg Leu Asn His Ile Thr Asn Cys
    1010                1015                1020

Asn Gly Ala Val Leu Ser Val Glu Glu Leu Leu Ile Gly Gly Glu Met
1025                1030                1035                1040

Ile Lys Ala Gly Thr Leu Thr Leu Glu Glu Val Arg Arg Lys Phe Asn
                1045                1050                1055

Asn Gly Glu Ile Asn Phe Ala Ala Asp
            1060                1065
```

<210> 44

<211> 1064

<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT2L-N*

<400> 44

```
Met Gly Asp Pro Lys Lys Lys Arg Lys Val Ile Asp Tyr Pro Tyr Asp
1               5                  10                  15

Val Pro Asp Tyr Ala Ile Asp Ile Ala Asp Pro Ile Arg Ser Arg Thr
            20                  25                  30

Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly Pro Gln Pro Asp Gly Val
        35                  40                  45

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

Asp Gly Leu Pro Ala Arg Arg Thr Met Ser Arg Thr Arg Leu Pro Ser
65                  70                  75                  80

Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala Gly Ser Phe Ser Asp Leu
                85                  90                  95

Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn Thr Ser Leu Phe Asp Ser
            100                 105                 110

Leu Pro Pro Phe Gly Ala His His Thr Glu Ala Ala Thr Gly Glu Trp
        115                 120                 125

Asp Glu Val Gln Ser Gly Leu Arg Ala Ala Asp Ala Pro Pro Pro Thr
    130                 135                 140

Met Arg Val Ala Val Thr Ala Ala Arg Pro Pro Arg Ala Lys Pro Ala
145                 150                 155                 160

Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp Ala Ser Pro Ala Ala Gln
                165                 170                 175

Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln Gln Gln Gln Glu Lys Ile
            180                 185                 190

Lys Pro Lys Val Arg Ser Thr Val Ala Gln His His Glu Ala Leu Val
        195                 200                 205

Gly His Gly Phe Thr His Ala His Ile Val Ala Leu Ser Gln His Pro
    210                 215                 220

Ala Ala Leu Gly Thr Val Ala Val Lys Tyr Gln Asp Met Ile Ala Ala
225                 230                 235                 240

Leu Pro Glu Ala Thr His Glu Ala Ile Val Gly Val Gly Lys Gln Trp
```

245 250 255

Ser Gly Ala Arg Ala Leu Glu Ala Leu Leu Thr Val Ala Gly Glu Leu
260 265 270

Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly Gln Leu Leu Lys Ile Ala
275 280 285

Lys Arg Gly Gly Val Thr Ala Val Glu Ala Val His Ala Trp Arg Asn
290 295 300

Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr Pro Gln Gln Val Val Ala
305 310 315 320

Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
325 330 335

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val
340 345 350

Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val
355 360 365

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln
370 375 380

Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu
385 390 395 400

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
405 410 415

Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala
420 425 430

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
435 440 445

Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys
450 455 460

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
465 470 475 480

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Gly Gly
485 490 495

Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln
500 505 510

Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn

515 520 525

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu
530 535 540

Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser
545 550 555 560

Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro
565 570 575

Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile
580 585 590

Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu
595 600 605

Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val
610 615 620

Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln
625 630 635 640

Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln
645 650 655

Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr
660 665 670

Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro
675 680 685

Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu
690 695 700

Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu
705 710 715 720

Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln
725 730 735

Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His
740 745 750

Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly
755 760 765

Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln
770 775 780

Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile

785 790 795 800

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu
805 810 815

Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser
820 825 830

Asn Gly Gly Gly Arg Pro Ala Leu Glu Ser Ile Val Ala Gln Leu Ser
835 840 845

Arg Pro Asp Pro Ser Gly Ser Gly Ser Gly Gly Asp Pro Ile Ser Arg
850 855 860

Ser Gln Leu Val Lys Ser Glu Leu Glu Glu Lys Lys Ser Glu Leu Arg
865 870 875 880

His Lys Leu Lys Tyr Val Pro His Glu Tyr Ile Glu Leu Ile Glu Ile
885 890 895

Ala Arg Asn Ser Thr Gln Asp Arg Ile Leu Glu Met Lys Val Met Glu
900 905 910

Phe Phe Met Lys Val Tyr Gly Tyr Arg Gly Lys His Leu Gly Gly Ser
915 920 925

Arg Lys Pro Asp Gly Ala Ile Tyr Thr Val Gly Ser Pro Ile Asp Tyr
930 935 940

Gly Val Ile Val Asp Thr Lys Ala Tyr Ser Gly Gly Tyr Asn Leu Pro
945 950 955 960

Ile Gly Gln Ala Asp Glu Met Gln Arg Tyr Val Glu Glu Asn Gln Thr
965 970 975

Arg Asn Lys His Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro Ser
980 985 990

Ser Val Thr Glu Phe Lys Phe Leu Phe Val Ser Gly His Phe Lys Gly
995 1000 1005

Asn Tyr Lys Ala Gln Leu Thr Arg Leu Asn His Ile Thr Asn Cys Asn
1010 1015 1020

Gly Ala Val Leu Ser Val Glu Glu Leu Leu Ile Gly Gly Glu Met Ile
1025 1030 1035 1040

Lys Ala Gly Thr Leu Thr Leu Glu Glu Val Arg Arg Lys Phe Asn Asn
1045 1050 1055

Gly Glu Ile Asn Phe Ala Ala Asp

1060

<210> 45

<211> 1071
<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT2R

<400> 45

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Met Gly Asp Pro Lys Lys Lys Arg Lys Val Ile Asp Lys Glu Thr Ala
1               5                  10                  15

Ala Ala Lys Phe Glu Arg Gln His Met Asp Ser Ile Asp Ile Ala Asp
            20                  25                  30

Pro Ile Arg Ser Arg Thr Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly
        35                  40                  45

Pro Gln Pro Asp Gly Val Gln Pro Thr Ala Asp Arg Gly Val Ser Pro
    50                  55                  60

Pro Ala Gly Gly Pro Leu Asp Gly Leu Pro Ala Arg Arg Thr Met Ser
65                  70                  75                  80

Arg Thr Arg Leu Pro Ser Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala
                85                  90                  95

Gly Ser Phe Ser Asp Leu Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn
            100                 105                 110

Thr Ser Leu Phe Asp Ser Leu Pro Pro Phe Gly Ala His His Thr Glu
        115                 120                 125

Ala Ala Thr Gly Glu Trp Asp Glu Val Gln Ser Gly Leu Arg Ala Ala
    130                 135                 140

Asp Ala Pro Pro Pro Thr Met Arg Val Ala Val Thr Ala Ala Arg Pro
145                 150                 155                 160

Pro Arg Ala Lys Pro Ala Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp
                165                 170                 175

Ala Ser Pro Ala Ala Gln Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln
            180                 185                 190

Gln Gln Gln Glu Lys Ile Lys Pro Lys Val Arg Ser Thr Val Ala Gln
        195                 200                 205

His His Glu Ala Leu Val Gly His Gly Phe Thr His Ala His Ile Val
    210                 215                 220
```

```
Ala Leu Ser Gln His Pro Ala Ala Leu Gly Thr Val Ala Val Lys Tyr
225                 230                 235                 240

Gln Asp Met Ile Ala Ala Leu Pro Glu Ala Thr His Glu Ala Ile Val
                245                 250                 255

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

Thr Val Ala Gly Glu Leu Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly
        275                 280                 285

Gln Leu Leu Lys Ile Ala Lys Arg Gly Gly Val Thr Ala Val Glu Ala
    290                 295                 300

Val His Ala Trp Arg Asn Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr
305                 310                 315                 320

Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala
                325                 330                 335

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
            340                 345                 350

Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys
        355                 360                 365

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
    370                 375                 380

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly
385                 390                 395                 400

Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
                405                 410                 415

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

Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val
        435                 440                 445

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
    450                 455                 460

Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu
465                 470                 475                 480

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala
                485                 490                 495
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Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
500 505 510

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
515 520 525

Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val
530 535 540

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu
545 550 555 560

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

Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
580 585 590

Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala
595 600 605

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
610 615 620

Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys
625 630 635 640

Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala
645 650 655

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly
660 665 670

Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
675 680 685

Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn
690 695 700

Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val
705 710 715 720

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
725 730 735

Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu
740 745 750

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala
755 760 765

```
Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
    770                 775                 780

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val
785                 790                 795                 800

Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val
                805                 810                 815

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln
            820                 825                 830

Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Arg Pro Ala Leu Glu
        835                 840                 845

Ser Ile Val Ala Gln Leu Ser Arg Pro Asp Pro Ser Gly Ser Gly Ser
    850                 855                 860

Gly Gly Asp Pro Ile Ser Arg Ser Gln Leu Val Lys Ser Glu Leu Glu
865                 870                 875                 880

Glu Lys Lys Ser Glu Leu Arg His Lys Leu Lys Tyr Val Pro His Glu
                885                 890                 895

Tyr Ile Glu Leu Ile Glu Ile Ala Arg Asn Ser Thr Gln Asp Arg Ile
            900                 905                 910

Leu Glu Met Lys Val Met Glu Phe Phe Met Lys Val Tyr Gly Tyr Arg
        915                 920                 925

Gly Lys His Leu Gly Gly Ser Arg Lys Pro Asp Gly Ala Ile Tyr Thr
    930                 935                 940

Val Gly Ser Pro Ile Asp Tyr Gly Val Ile Val Asp Thr Lys Ala Tyr
945                 950                 955                 960

Ser Gly Gly Tyr Asn Leu Pro Ile Gly Gln Ala Asp Glu Met Gln Arg
                965                 970                 975

Tyr Val Glu Glu Asn Gln Thr Arg Asn Lys His Ile Asn Pro Asn Glu
            980                 985                 990

Trp Trp Lys Val Tyr Pro Ser Ser Val Thr Glu Phe Lys Phe Leu Phe
        995                 1000                1005

Val Ser Gly His Phe Lys Gly Asn Tyr Lys Ala Gln Leu Thr Arg Leu
    1010                1015                1020

Asn His Ile Thr Asn Cys Asn Gly Ala Val Leu Ser Val Glu Glu Leu
1025                1030                1035                1040
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Leu Ile Gly Gly Glu Met Ile Lys Ala Gly Thr Leu Thr Leu Glu Glu
1045 1050 1055

Val Arg Arg Lys Phe Asn Asn Gly Glu Ile Asn Phe Ala Ala Asp
1060 1065 1070

<210> 46

<211> 1065
<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT3L-HD

<400> 46
Met Gly Asp Pro Lys Lys Lys Arg Lys Val Ile Asp Tyr Pro Tyr Asp
1 5 10 15

Val Pro Asp Tyr Ala Ile Asp Ile Ala Asp Pro Ile Arg Ser Arg Thr
20 25 30

Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly Pro Gln Pro Asp Gly Val
35 40 45

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

Asp Gly Leu Pro Ala Arg Arg Thr Met Ser Arg Thr Arg Leu Pro Ser
65 70 75 80

Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala Gly Ser Phe Ser Asp Leu
85 90 95

Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn Thr Ser Leu Phe Asp Ser
100 105 110

Leu Pro Pro Phe Gly Ala His His Thr Glu Ala Ala Thr Gly Glu Trp
115 120 125

Asp Glu Val Gln Ser Gly Leu Arg Ala Ala Asp Ala Pro Pro Pro Thr
130 135 140

Met Arg Val Ala Val Thr Ala Ala Arg Pro Pro Arg Ala Lys Pro Ala
145 150 155 160

Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp Ala Ser Pro Ala Ala Gln
165 170 175

Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln Gln Gln Gln Glu Lys Ile
180 185 190

Lys Pro Lys Val Arg Ser Thr Val Ala Gln His His Glu Ala Leu Val

195 200 205

Gly His Gly Phe Thr His Ala His Ile Val Ala Leu Ser Gln His Pro
210 215 220

Ala Ala Leu Gly Thr Val Ala Val Lys Tyr Gln Asp Met Ile Ala Ala
225 230 235 240

Leu Pro Glu Ala Thr His Glu Ala Ile Val Gly Val Gly Lys Gln Trp
245 250 255

Ser Gly Ala Arg Ala Leu Glu Ala Leu Leu Thr Val Ala Gly Glu Leu
260 265 270

Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly Gln Leu Leu Lys Ile Ala
275 280 285

Lys Arg Gly Gly Val Thr Ala Val Glu Ala Val His Ala Trp Arg Asn
290 295 300

Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr Pro Gln Gln Val Val Ala
305 310 315 320

Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
325 330 335

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val
340 345 350

Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val
355 360 365

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu
370 375 380

Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu
385 390 395 400

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
405 410 415

Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala
420 425 430

Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly
435 440 445

Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys
450 455 460

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala

465 470 475 480

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly
485 490 495

Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys
500 505 510

Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His
515 520 525

Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val
530 535 540

Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala
545 550 555 560

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

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala
580 585 590

Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
595 600 605

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
610 615 620

Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val
625 630 635 640

Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln
645 650 655

Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu
660 665 670

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
675 680 685

Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala
690 695 700

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
705 710 715 720

Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys
725 730 735

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala

740 745 750

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly
755 760 765

Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys
770 775 780

Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His
785 790 795 800

Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val
805 810 815

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
820 825 830

Ser Asn Gly Gly Gly Arg Pro Ala Leu Glu Ser Ile Val Ala Gln Leu
835 840 845

Ser Arg Pro Asp Pro Ser Gly Ser Gly Ser Gly Gly Asp Pro Ile Ser
850 855 860

Arg Ser Gln Leu Val Lys Ser Glu Leu Glu Glu Lys Lys Ser Glu Leu
865 870 875 880

Arg His Lys Leu Lys Tyr Val Pro His Glu Tyr Ile Glu Leu Ile Glu
885 890 895

Ile Ala Arg Asn Ser Thr Gln Asp Arg Ile Leu Glu Met Lys Val Met
900 905 910

Glu Phe Phe Met Lys Val Tyr Gly Tyr Arg Gly Lys His Leu Gly Gly
915 920 925

Ser Arg Lys Pro Asp Gly Ala Ile Tyr Thr Val Gly Ser Pro Ile Asp
930 935 940

Tyr Gly Val Ile Val Asp Thr Lys Ala Tyr Ser Gly Gly Tyr Asn Leu
945 950 955 960

Pro Ile Gly Gln Ala Asp Glu Met Gln Arg Tyr Val Glu Glu Asn Gln
965 970 975

Thr Arg Asn Lys His Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro
980 985 990

Ser Ser Val Thr Glu Phe Lys Phe Leu Phe Val Ser Gly His Phe Lys
995 1000 1005

Gly Asn Tyr Lys Ala Gln Leu Thr Arg Leu Asn His Ile Thr Asn Cys

1010 1015 1020

Asn Gly Ala Val Leu Ser Val Glu Glu Leu Leu Ile Gly Gly Glu Met
1025 1030 1035 1040

Ile Lys Ala Gly Thr Leu Thr Leu Glu Glu Val Arg Arg Lys Phe Asn
1045 1050 1055

Asn Gly Glu Ile Asn Phe Ala Ala Asp
1060 1065

<210> 47

<211> 1064
<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT3L-N*

<400> 47
Met Gly Asp Pro Lys Lys Lys Arg Lys Val Ile Asp Tyr Pro Tyr Asp
1 5 10 15

Val Pro Asp Tyr Ala Ile Asp Ile Ala Asp Pro Ile Arg Ser Arg Thr
20 25 30

Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly Pro Gln Pro Asp Gly Val
35 40 45

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

Asp Gly Leu Pro Ala Arg Arg Thr Met Ser Arg Thr Arg Leu Pro Ser
65 70 75 80

Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala Gly Ser Phe Ser Asp Leu
85 90 95

Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn Thr Ser Leu Phe Asp Ser
100 105 110

Leu Pro Pro Phe Gly Ala His His Thr Glu Ala Ala Thr Gly Glu Trp
115 120 125

Asp Glu Val Gln Ser Gly Leu Arg Ala Ala Asp Ala Pro Pro Pro Thr
130 135 140

Met Arg Val Ala Val Thr Ala Ala Arg Pro Pro Arg Ala Lys Pro Ala
145 150 155 160

Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp Ala Ser Pro Ala Ala Gln
165 170 175

Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln Gln Gln Gln Glu Lys Ile
180 185 190

Lys Pro Lys Val Arg Ser Thr Val Ala Gln His His Glu Ala Leu Val
195 200 205

Gly His Gly Phe Thr His Ala His Ile Val Ala Leu Ser Gln His Pro
210 215 220

Ala Ala Leu Gly Thr Val Ala Val Lys Tyr Gln Asp Met Ile Ala Ala
225 230 235 240

Leu Pro Glu Ala Thr His Glu Ala Ile Val Gly Val Gly Lys Gln Trp
245 250 255

Ser Gly Ala Arg Ala Leu Glu Ala Leu Leu Thr Val Ala Gly Glu Leu
260 265 270

Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly Gln Leu Leu Lys Ile Ala
275 280 285

Lys Arg Gly Gly Val Thr Ala Val Glu Ala Val His Ala Trp Arg Asn
290 295 300

Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr Pro Gln Gln Val Val Ala
305 310 315 320

Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
325 330 335

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val
340 345 350

Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val
355 360 365

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu
370 375 380

Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu
385 390 395 400

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
405 410 415

Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala
420 425 430

Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly
435 440 445

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Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys
    450                 455                 460

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
465                 470                 475                 480

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly
                485                 490                 495

Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys
            500                 505                 510

Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His
        515                 520                 525

Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val
    530                 535                 540

Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala
545                 550                 555                 560

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

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala
            580                 585                 590

Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
        595                 600                 605

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
    610                 615                 620

Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val
625                 630                 635                 640

Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln
                645                 650                 655

Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu
            660                 665                 670

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
        675                 680                 685

Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala
    690                 695                 700

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
705                 710                 715                 720
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Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys
725 730 735

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
740 745 750

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly
755 760 765

Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys
770 775 780

Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn
785 790 795 800

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu
805 810 815

Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser
820 825 830

Asn Gly Gly Gly Arg Pro Ala Leu Glu Ser Ile Val Ala Gln Leu Ser
835 840 845

Arg Pro Asp Pro Ser Gly Ser Gly Ser Gly Gly Asp Pro Ile Ser Arg
850 855 860

Ser Gln Leu Val Lys Ser Glu Leu Glu Glu Lys Lys Ser Glu Leu Arg
865 870 875 880

His Lys Leu Lys Tyr Val Pro His Glu Tyr Ile Glu Leu Ile Glu Ile
885 890 895

Ala Arg Asn Ser Thr Gln Asp Arg Ile Leu Glu Met Lys Val Met Glu
900 905 910

Phe Phe Met Lys Val Tyr Gly Tyr Arg Gly Lys His Leu Gly Gly Ser
915 920 925

Arg Lys Pro Asp Gly Ala Ile Tyr Thr Val Gly Ser Pro Ile Asp Tyr
930 935 940

Gly Val Ile Val Asp Thr Lys Ala Tyr Ser Gly Gly Tyr Asn Leu Pro
945 950 955 960

Ile Gly Gln Ala Asp Glu Met Gln Arg Tyr Val Glu Glu Asn Gln Thr
965 970 975

Arg Asn Lys His Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro Ser
980 985 990

Ser Val Thr Glu Phe Lys Phe Leu Phe Val Ser Gly His Phe Lys Gly
995 1000 1005

Asn Tyr Lys Ala Gln Leu Thr Arg Leu Asn His Ile Thr Asn Cys Asn
1010 1015 1020

Gly Ala Val Leu Ser Val Glu Glu Leu Leu Ile Gly Gly Glu Met Ile
1025 1030 1035 1040

Lys Ala Gly Thr Leu Thr Leu Glu Glu Val Arg Arg Lys Phe Asn Asn
1045 1050 1055

Gly Glu Ile Asn Phe Ala Ala Asp
1060

<210> 48

<211> 1071
<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT3R-HD

<400> 48
Met Gly Asp Pro Lys Lys Lys Arg Lys Val Ile Asp Lys Glu Thr Ala
1 5 10 15

Ala Ala Lys Phe Glu Arg Gln His Met Asp Ser Ile Asp Ile Ala Asp
20 25 30

Pro Ile Arg Ser Arg Thr Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly
35 40 45

Pro Gln Pro Asp Gly Val Gln Pro Thr Ala Asp Arg Gly Val Ser Pro
50 55 60

Pro Ala Gly Gly Pro Leu Asp Gly Leu Pro Ala Arg Arg Thr Met Ser
65 70 75 80

Arg Thr Arg Leu Pro Ser Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala
85 90 95

Gly Ser Phe Ser Asp Leu Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn
100 105 110

Thr Ser Leu Phe Asp Ser Leu Pro Pro Phe Gly Ala His His Thr Glu
115 120 125

Ala Ala Thr Gly Glu Trp Asp Glu Val Gln Ser Gly Leu Arg Ala Ala
130 135 140

Asp Ala Pro Pro Pro Thr Met Arg Val Ala Val Thr Ala Ala Arg Pro

145 150 155 160

Pro Arg Ala Lys Pro Ala Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp
165 170 175

Ala Ser Pro Ala Ala Gln Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln
180 185 190

Gln Gln Gln Glu Lys Ile Lys Pro Lys Val Arg Ser Thr Val Ala Gln
195 200 205

His His Glu Ala Leu Val Gly His Gly Phe Thr His Ala His Ile Val
210 215 220

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

Gln Asp Met Ile Ala Ala Leu Pro Glu Ala Thr His Glu Ala Ile Val
245 250 255

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

Thr Val Ala Gly Glu Leu Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly
275 280 285

Gln Leu Leu Lys Ile Ala Lys Arg Gly Gly Val Thr Ala Val Glu Ala
290 295 300

Val His Ala Trp Arg Asn Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr
305 310 315 320

Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala
325 330 335

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
340 345 350

Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys
355 360 365

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
370 375 380

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly
385 390 395 400

Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
405 410 415

Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn

420 425 430

Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val
435 440 445

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
450 455 460

Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu
465 470 475 480

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala
485 490 495

Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
500 505 510

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val
515 520 525

Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val
530 535 540

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu
545 550 555 560

Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu
565 570 575

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
580 585 590

Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala
595 600 605

Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly
610 615 620

Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys
625 630 635 640

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
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His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly
660 665 670

Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
675 680 685

Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn

690 695 700

Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val
705 710 715 720

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
725 730 735

Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu
740 745 750

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala
755 760 765

Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
770 775 780

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
785 790 795 800

Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val
805 810 815

Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln
820 825 830

Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Arg Pro Ala Leu Glu
835 840 845

Ser Ile Val Ala Gln Leu Ser Arg Pro Asp Pro Ser Gly Ser Gly Ser
850 855 860

Gly Gly Asp Pro Ile Ser Arg Ser Gln Leu Val Lys Ser Glu Leu Glu
865 870 875 880

Glu Lys Lys Ser Glu Leu Arg His Lys Leu Lys Tyr Val Pro His Glu
885 890 895

Tyr Ile Glu Leu Ile Glu Ile Ala Arg Asn Ser Thr Gln Asp Arg Ile
900 905 910

Leu Glu Met Lys Val Met Glu Phe Phe Met Lys Val Tyr Gly Tyr Arg
915 920 925

Gly Lys His Leu Gly Gly Ser Arg Lys Pro Asp Gly Ala Ile Tyr Thr
930 935 940

Val Gly Ser Pro Ile Asp Tyr Gly Val Ile Val Asp Thr Lys Ala Tyr
945 950 955 960

Ser Gly Gly Tyr Asn Leu Pro Ile Gly Gln Ala Asp Glu Met Gln Arg

965 970 975

Tyr Val Glu Glu Asn Gln Thr Arg Asn Lys His Ile Asn Pro Asn Glu
980 985 990

Trp Trp Lys Val Tyr Pro Ser Ser Val Thr Glu Phe Lys Phe Leu Phe
995 1000 1005

Val Ser Gly His Phe Lys Gly Asn Tyr Lys Ala Gln Leu Thr Arg Leu
1010 1015 1020

Asn His Ile Thr Asn Cys Asn Gly Ala Val Leu Ser Val Glu Glu Leu
1025 1030 1035 1040

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

Pro Gln Pro Asp Gly Val Gln Pro Thr Ala Asp Arg Gly Val Ser Pro
50 55 60

Pro Ala Gly Gly Pro Leu Asp Gly Leu Pro Ala Arg Arg Thr Met Ser
65 70 75 80

Arg Thr Arg Leu Pro Ser Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala
85 90 95

Gly Ser Phe Ser Asp Leu Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn
100 105 110

Thr Ser Leu Phe Asp Ser Leu Pro Pro Phe Gly Ala His His Thr Glu
115 120 125

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Ala Ala Thr Gly Glu Trp Asp Glu Val Gln Ser Gly Leu Arg Ala Ala
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Asp Ala Pro Pro Pro Thr Met Arg Val Ala Val Thr Ala Ala Arg Pro
145                 150                 155                 160

Pro Arg Ala Lys Pro Ala Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp
                165                 170                 175

Ala Ser Pro Ala Ala Gln Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln
            180                 185                 190

Gln Gln Gln Glu Lys Ile Lys Pro Lys Val Arg Ser Thr Val Ala Gln
        195                 200                 205

His His Glu Ala Leu Val Gly His Gly Phe Thr His Ala His Ile Val
    210                 215                 220

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

Gln Asp Met Ile Ala Ala Leu Pro Glu Ala Thr His Glu Ala Ile Val
                245                 250                 255

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

Thr Val Ala Gly Glu Leu Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly
        275                 280                 285

Gln Leu Leu Lys Ile Ala Lys Arg Gly Gly Val Thr Ala Val Glu Ala
    290                 295                 300

Val His Ala Trp Arg Asn Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr
305                 310                 315                 320

Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala
                325                 330                 335

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
            340                 345                 350

Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys
        355                 360                 365

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
    370                 375                 380

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Gly Gly
385                 390                 395                 400
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Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln
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Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn
420 425 430

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu
435 440 445

Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser
450 455 460

Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro
465 470 475 480

Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile
485 490 495

Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu
500 505 510

Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val
515 520 525

Ala Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln
530 535 540

Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln
545 550 555 560

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

Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro
580 585 590

Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu
595 600 605

Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu
610 615 620

Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln
625 630 635 640

Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His
645 650 655

Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly Gly Gly
660 665 670

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Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln
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Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn
    690                 695                 700

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu
705                 710                 715                 720

Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser
                725                 730                 735

Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro
            740                 745                 750

Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile
        755                 760                 765

Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu
    770                 775                 780

Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val
785                 790                 795                 800

Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln
                805                 810                 815

Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln
            820                 825                 830

Val Val Ala Ile Ala Ser Asn Gly Gly Gly Arg Pro Ala Leu Glu Ser
        835                 840                 845

Ile Val Ala Gln Leu Ser Arg Pro Asp Pro Ser Gly Ser Gly Ser Gly
    850                 855                 860

Gly Asp Pro Ile Ser Arg Ser Gln Leu Val Lys Ser Glu Leu Glu Glu
865                 870                 875                 880

Lys Lys Ser Glu Leu Arg His Lys Leu Lys Tyr Val Pro His Glu Tyr
                885                 890                 895

Ile Glu Leu Ile Glu Ile Ala Arg Asn Ser Thr Gln Asp Arg Ile Leu
            900                 905                 910

Glu Met Lys Val Met Glu Phe Phe Met Lys Val Tyr Gly Tyr Arg Gly
        915                 920                 925

Lys His Leu Gly Gly Ser Arg Lys Pro Asp Gly Ala Ile Tyr Thr Val
    930                 935                 940
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Gly Ser Pro Ile Asp Tyr Gly Val Ile Val Asp Thr Lys Ala Tyr Ser
945 950 955 960

Gly Gly Tyr Asn Leu Pro Ile Gly Gln Ala Asp Glu Met Gln Arg Tyr
965 970 975

Val Glu Glu Asn Gln Thr Arg Asn Lys His Ile Asn Pro Asn Glu Trp
980 985 990

Trp Lys Val Tyr Pro Ser Ser Val Thr Glu Phe Lys Phe Leu Phe Val
995 1000 1005

Ser Gly His Phe Lys Gly Asn Tyr Lys Ala Gln Leu Thr Arg Leu Asn
1010 1015 1020

His Ile Thr Asn Cys Asn Gly Ala Val Leu Ser Val Glu Glu Leu Leu
1025 1030 1035 1040

Ile Gly Gly Glu Met Ile Lys Ala Gly Thr Leu Thr Leu Glu Glu Val
1045 1050 1055

Arg Arg Lys Phe Asn Asn Gly Glu Ile Asn Phe Ala Ala Asp
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<223> xpc3 locus

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ggaaaacaag ccctggaaac agtccagcgc ctcctgcctg tgctgtgtca ggcccacggc  1140
ttgaccccac agcaggtcgt cgccattgct tccaacaatg gcggaaagca ggctctggag  1200
actgtgcaga gactgctccc cgtgctgtgc caggcacacg ggctgacacc tgagcaagtg  1260
gtcgccatcg caagcaacat tggcggcaag caagcccttg agacagtcca agctctgctg  1320
ccagtgcttt gtcaggctca tgggctcacc ccccagcaag tcgtggccat tgcctctaac  1380
aacggcggga agcaggcctt ggagaccgtc cagagactcc tgcccgtgct ctgccaagca  1440
catgggttga ctccagaaca ggtggtcgca attgccagta acatcggcgg gaagcaagcg  1500
ttggaaactg tgcaagctct cctccccgtg ctgtgtcagg cacacggcct cacacctcaa  1560
caagtcgtgg caatcgcctc caacgggggg gggaagcagg ccctggagac agtccagagg  1620
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caagcccacg gactgactcc ccaacaggtc gtggccatcg cctctaacgg cgggggcaag  1800
caagcactcg agactgtcca gcgcctcctg cccgtgcttt gccaagctca cggccttacc  1860
cctgagcaag tggtcgctat tgccagccat gatggcggaa agcaagccct ggaaaccgtg  1920
cagaggctgc tgccagtgct gtgccaggct catgggctga cacccgagca ggtggtggcc  1980
attgcctcaa atattggagg gaaacaggcc ttggagactg tgcaggcact cctcccagtg  2040
ctgtgtcagg ctcatggcct gactcccgag caagtcgtgg ccatcgcaag ccacgacggg  2100
gggaagcaag cactggagac cgtccagaga ctgctgcccg tgctctgtca agctcacgga  2160
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acagtgcaag ctctcctgcc tgtgttgtgc caggctcacg gcctgacccc tgagcaggtc  2280
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cctgtccttt gccaggccca cggcctcaca cccgaacagg tcgtcgctat tgccagcaat  2400
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cacgggctta ctccacagca ggtggtggct atcgccagca acgggggagg gcggccagct  2520
ctggagagca ttgttgccca gttatctcgc cctgatccga gtggcagcgg aagtggcggg  2580
gatcctatca gccgttccca gctggtgaag tccgagctgg aggagaagaa atccgagttg  2640
aggcacaagc tgaagtacgt gccccacgag tacatcgagc tgatcgagat cgcccggaac  2700
agcacccagg accgtatcct ggagatgaag gtgatggagt tcttcatgaa ggtgtacggc  2760
tacaggggca agcacctggg cggctccagg aagcccgacg gcgccatcta caccgtgggc  2820
tcccccatcg actacggcgt gatcgtggac accaaggcct actccggcgg ctacaacctg  2880
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cacatcaacc ccaacgagtg gtggaaggtg tacccctcca gcgtgaccga gttcaagttc  3000
ctgttcgtgt ccggccactt caagggcaac tacaaggccc agctgaccag gctgaaccac  3060
atcaccaact gcaacggcgc cgtgctgtcc gtggaggagc tcctgatcgg cggcgagatg  3120
atcaaggccg gcaccctgac cctggaggag gtgaggagga agttcaacaa cggcgagatc  3180
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<210> 55

<211> 1064
<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT1L-T*

<400> 55

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Met Gly Asp Pro Lys Lys Lys Arg Lys Val Ile Asp Tyr Pro Tyr Asp
1               5                  10                  15

Val Pro Asp Tyr Ala Ile Asp Ile Ala Asp Pro Ile Arg Ser Arg Thr
```

```
            20                  25                  30

Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly Pro Gln Pro Asp Gly Val
        35                  40                  45

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

Asp Gly Leu Pro Ala Arg Arg Thr Met Ser Arg Thr Arg Leu Pro Ser
65                  70                  75                  80

Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala Gly Ser Phe Ser Asp Leu
                85                  90                  95

Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn Thr Ser Leu Phe Asp Ser
            100                 105                 110

Leu Pro Pro Phe Gly Ala His His Thr Glu Ala Ala Thr Gly Glu Trp
        115                 120                 125

Asp Glu Val Gln Ser Gly Leu Arg Ala Ala Asp Ala Pro Pro Pro Thr
    130                 135                 140

Met Arg Val Ala Val Thr Ala Ala Arg Pro Pro Arg Ala Lys Pro Ala
145                 150                 155                 160

Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp Ala Ser Pro Ala Ala Gln
                165                 170                 175

Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln Gln Gln Gln Glu Lys Ile
            180                 185                 190

Lys Pro Lys Val Arg Ser Thr Val Ala Gln His His Glu Ala Leu Val
        195                 200                 205

Gly His Gly Phe Thr His Ala His Ile Val Ala Leu Ser Gln His Pro
    210                 215                 220

Ala Ala Leu Gly Thr Val Ala Val Lys Tyr Gln Asp Met Ile Ala Ala
225                 230                 235                 240

Leu Pro Glu Ala Thr His Glu Ala Ile Val Gly Val Gly Lys Gln Trp
                245                 250                 255

Ser Gly Ala Arg Ala Leu Glu Ala Leu Leu Thr Val Ala Gly Glu Leu
            260                 265                 270

Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly Gln Leu Leu Lys Ile Ala
        275                 280                 285

Lys Arg Gly Gly Val Thr Ala Val Glu Ala Val His Ala Trp Arg Asn
```

290 295 300

Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr Pro Glu Gln Val Val Ala
305 310 315 320

Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
325 330 335

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
340 345 350

Val Ala Ile Ala Ser Thr Gly Gly Lys Gln Ala Leu Glu Thr Val Gln
355 360 365

Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln
370 375 380

Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr
385 390 395 400

Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro
405 410 415

Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu
420 425 430

Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu
435 440 445

Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln
450 455 460

Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His
465 470 475 480

Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly
485 490 495

Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln
500 505 510

Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly
515 520 525

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu
530 535 540

Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser
545 550 555 560

Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro

565 570 575

Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile
580 585 590

Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu
595 600 605

Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val
610 615 620

Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln
625 630 635 640

Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln
645 650 655

Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr
660 665 670

Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro
675 680 685

Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu
690 695 700

Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu
705 710 715 720

Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln
725 730 735

Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His
740 745 750

Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly
755 760 765

Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln
770 775 780

Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile
785 790 795 800

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu
805 810 815

Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser
820 825 830

Asn Gly Gly Gly Arg Pro Ala Leu Glu Ser Ile Val Ala Gln Leu Ser

835 840 845

Arg Pro Asp Pro Ser Gly Ser Gly Ser Gly Gly Asp Pro Ile Ser Arg
850 855 860

Ser Gln Leu Val Lys Ser Glu Leu Glu Glu Lys Lys Ser Glu Leu Arg
865 870 875 880

His Lys Leu Lys Tyr Val Pro His Glu Tyr Ile Glu Leu Ile Glu Ile
885 890 895

Ala Arg Asn Ser Thr Gln Asp Arg Ile Leu Glu Met Lys Val Met Glu
900 905 910

Phe Phe Met Lys Val Tyr Gly Tyr Arg Gly Lys His Leu Gly Gly Ser
915 920 925

Arg Lys Pro Asp Gly Ala Ile Tyr Thr Val Gly Ser Pro Ile Asp Tyr
930 935 940

Gly Val Ile Val Asp Thr Lys Ala Tyr Ser Gly Gly Tyr Asn Leu Pro
945 950 955 960

Ile Gly Gln Ala Asp Glu Met Gln Arg Tyr Val Glu Glu Asn Gln Thr
965 970 975

Arg Asn Lys His Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro Ser
980 985 990

Ser Val Thr Glu Phe Lys Phe Leu Phe Val Ser Gly His Phe Lys Gly
995 1000 1005

Asn Tyr Lys Ala Gln Leu Thr Arg Leu Asn His Ile Thr Asn Cys Asn
1010 1015 1020

Gly Ala Val Leu Ser Val Glu Glu Leu Leu Ile Gly Gly Glu Met Ile
1025 1030 1035 1040

Lys Ala Gly Thr Leu Thr Leu Glu Glu Val Arg Arg Lys Phe Asn Asn
1045 1050 1055

Gly Glu Ile Asn Phe Ala Ala Asp
1060

<210> 56

<211> 1064
<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT1L-Q*

<400> 56

Met Gly Asp Pro Lys Lys Lys Arg Lys Val Ile Asp Tyr Pro Tyr Asp
1 5 10 15

Val Pro Asp Tyr Ala Ile Asp Ile Ala Asp Pro Ile Arg Ser Arg Thr
20 25 30

Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly Pro Gln Pro Asp Gly Val
35 40 45

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

Asp Gly Leu Pro Ala Arg Arg Thr Met Ser Arg Thr Arg Leu Pro Ser
65 70 75 80

Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala Gly Ser Phe Ser Asp Leu
85 90 95

Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn Thr Ser Leu Phe Asp Ser
100 105 110

Leu Pro Pro Phe Gly Ala His His Thr Glu Ala Ala Thr Gly Glu Trp
115 120 125

Asp Glu Val Gln Ser Gly Leu Arg Ala Ala Asp Ala Pro Pro Pro Thr
130 135 140

Met Arg Val Ala Val Thr Ala Ala Arg Pro Pro Arg Ala Lys Pro Ala
145 150 155 160

Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp Ala Ser Pro Ala Ala Gln
165 170 175

Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln Gln Gln Gln Glu Lys Ile
180 185 190

Lys Pro Lys Val Arg Ser Thr Val Ala Gln His His Glu Ala Leu Val
195 200 205

Gly His Gly Phe Thr His Ala His Ile Val Ala Leu Ser Gln His Pro
210 215 220

Ala Ala Leu Gly Thr Val Ala Val Lys Tyr Gln Asp Met Ile Ala Ala
225 230 235 240

Leu Pro Glu Ala Thr His Glu Ala Ile Val Gly Val Gly Lys Gln Trp
245 250 255

Ser Gly Ala Arg Ala Leu Glu Ala Leu Leu Thr Val Ala Gly Glu Leu
260 265 270

```
Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly Gln Leu Leu Lys Ile Ala
        275                 280                 285

Lys Arg Gly Gly Val Thr Ala Val Glu Ala Val His Ala Trp Arg Asn
    290                 295                 300

Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr Pro Glu Gln Val Val Ala
305                 310                 315                 320

Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
                325                 330                 335

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
            340                 345                 350

Val Ala Ile Ala Ser Gln Gly Gly Lys Gln Ala Leu Glu Thr Val Gln
        355                 360                 365

Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln
    370                 375                 380

Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr
385                 390                 395                 400

Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro
                405                 410                 415

Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu
            420                 425                 430

Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu
        435                 440                 445

Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln
    450                 455                 460

Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His
465                 470                 475                 480

Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly
                485                 490                 495

Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln
            500                 505                 510

Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Gly
        515                 520                 525

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu
    530                 535                 540
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```
Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser
545                 550                 555                 560

Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro
                565                 570                 575

Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile
            580                 585                 590

Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu
        595                 600                 605

Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val Val
    610                 615                 620

Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln
625                 630                 635                 640

Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln
                645                 650                 655

Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu Thr
            660                 665                 670

Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro
        675                 680                 685

Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu
    690                 695                 700

Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu
705                 710                 715                 720

Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln
                725                 730                 735

Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His
            740                 745                 750

Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly
        755                 760                 765

Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln
    770                 775                 780

Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile
785                 790                 795                 800

Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu
                805                 810                 815
```

Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser
820 825 830

Asn Gly Gly Gly Arg Pro Ala Leu Glu Ser Ile Val Ala Gln Leu Ser
835 840 845

Arg Pro Asp Pro Ser Gly Ser Gly Ser Gly Gly Asp Pro Ile Ser Arg
850 855 860

Ser Gln Leu Val Lys Ser Glu Leu Glu Glu Lys Lys Ser Glu Leu Arg
865 870 875 880

His Lys Leu Lys Tyr Val Pro His Glu Tyr Ile Glu Leu Ile Glu Ile
885 890 895

Ala Arg Asn Ser Thr Gln Asp Arg Ile Leu Glu Met Lys Val Met Glu
900 905 910

Phe Phe Met Lys Val Tyr Gly Tyr Arg Gly Lys His Leu Gly Gly Ser
915 920 925

Arg Lys Pro Asp Gly Ala Ile Tyr Thr Val Gly Ser Pro Ile Asp Tyr
930 935 940

Gly Val Ile Val Asp Thr Lys Ala Tyr Ser Gly Gly Tyr Asn Leu Pro
945 950 955 960

Ile Gly Gln Ala Asp Glu Met Gln Arg Tyr Val Glu Glu Asn Gln Thr
965 970 975

Arg Asn Lys His Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro Ser
980 985 990

Ser Val Thr Glu Phe Lys Phe Leu Phe Val Ser Gly His Phe Lys Gly
995 1000 1005

Asn Tyr Lys Ala Gln Leu Thr Arg Leu Asn His Ile Thr Asn Cys Asn
1010 1015 1020

Gly Ala Val Leu Ser Val Glu Glu Leu Leu Ile Gly Gly Glu Met Ile
1025 1030 1035 1040

Lys Ala Gly Thr Leu Thr Leu Glu Glu Val Arg Arg Lys Phe Asn Asn
1045 1050 1055

Gly Glu Ile Asn Phe Ala Ala Asp
1060

<210> 57

<211> 1065

<212> PRT
<213> artificial sequence

<220>
<223> TALEN XPCT1L-HG

<400> 57

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Met Gly Asp Pro Lys Lys Lys Arg Lys Val Ile Asp Tyr Pro Tyr Asp
1               5                  10                  15

Val Pro Asp Tyr Ala Ile Asp Ile Ala Asp Pro Ile Arg Ser Arg Thr
            20                  25                  30

Pro Ser Pro Ala Arg Glu Leu Leu Pro Gly Pro Gln Pro Asp Gly Val
        35                  40                  45

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

Asp Gly Leu Pro Ala Arg Arg Thr Met Ser Arg Thr Arg Leu Pro Ser
65                  70                  75                  80

Pro Pro Ala Pro Ser Pro Ala Phe Ser Ala Gly Ser Phe Ser Asp Leu
                85                  90                  95

Leu Arg Gln Phe Asp Pro Ser Leu Phe Asn Thr Ser Leu Phe Asp Ser
            100                 105                 110

Leu Pro Pro Phe Gly Ala His His Thr Glu Ala Ala Thr Gly Glu Trp
        115                 120                 125

Asp Glu Val Gln Ser Gly Leu Arg Ala Ala Asp Ala Pro Pro Pro Thr
    130                 135                 140

Met Arg Val Ala Val Thr Ala Ala Arg Pro Pro Arg Ala Lys Pro Ala
145                 150                 155                 160

Pro Arg Arg Arg Ala Ala Gln Pro Ser Asp Ala Ser Pro Ala Ala Gln
                165                 170                 175

Val Asp Leu Arg Thr Leu Gly Tyr Ser Gln Gln Gln Gln Glu Lys Ile
            180                 185                 190

Lys Pro Lys Val Arg Ser Thr Val Ala Gln His His Glu Ala Leu Val
        195                 200                 205

Gly His Gly Phe Thr His Ala His Ile Val Ala Leu Ser Gln His Pro
    210                 215                 220

Ala Ala Leu Gly Thr Val Ala Val Lys Tyr Gln Asp Met Ile Ala Ala
225                 230                 235                 240

Leu Pro Glu Ala Thr His Glu Ala Ile Val Gly Val Gly Lys Gln Trp
```

245 250 255

Ser Gly Ala Arg Ala Leu Glu Ala Leu Leu Thr Val Ala Gly Glu Leu
260 265 270

Arg Gly Pro Pro Leu Gln Leu Asp Thr Gly Gln Leu Leu Lys Ile Ala
275 280 285

Lys Arg Gly Gly Val Thr Ala Val Glu Ala Val His Ala Trp Arg Asn
290 295 300

Ala Leu Thr Gly Ala Pro Leu Asn Leu Thr Pro Glu Gln Val Val Ala
305 310 315 320

Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
325 330 335

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
340 345 350

Val Ala Ile Ala Ser His Gly Gly Gly Lys Gln Ala Leu Glu Thr Val
355 360 365

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln
370 375 380

Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu
385 390 395 400

Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
405 410 415

Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala
420 425 430

Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly
435 440 445

Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn Asn Gly Gly Lys
450 455 460

Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala
465 470 475 480

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly
485 490 495

Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys
500 505 510

Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala Ser Asn

515 520 525

Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val
530 535 540

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
545 550 555 560

Ser Asn Asn Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu
565 570 575

Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala
580 585 590

Ile Ala Ser Asn Gly Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Arg
595 600 605

Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu Gln Val
610 615 620

Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala Leu Glu Thr Val
625 630 635 640

Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr Pro Glu
645 650 655

Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys Gln Ala Leu Glu
660 665 670

Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala His Gly Leu Thr
675 680 685

Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly Gly Lys Gln Ala
690 695 700

Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys Gln Ala His Gly
705 710 715 720

Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn Ile Gly Gly Lys
725 730 735

Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val Leu Cys Gln Ala
740 745 750

His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser His Asp Gly
755 760 765

Gly Lys Gln Ala Leu Glu Thr Val Gln Arg Leu Leu Pro Val Leu Cys
770 775 780

Gln Ala His Gly Leu Thr Pro Glu Gln Val Val Ala Ile Ala Ser Asn

785 790 795 800

Ile Gly Gly Lys Gln Ala Leu Glu Thr Val Gln Ala Leu Leu Pro Val
805 810 815

Leu Cys Gln Ala His Gly Leu Thr Pro Gln Gln Val Val Ala Ile Ala
820 825 830

Ser Asn Gly Gly Gly Arg Pro Ala Leu Glu Ser Ile Val Ala Gln Leu
835 840 845

Ser Arg Pro Asp Pro Ser Gly Ser Gly Ser Gly Gly Asp Pro Ile Ser
850 855 860

Arg Ser Gln Leu Val Lys Ser Glu Leu Glu Glu Lys Lys Ser Glu Leu
865 870 875 880

Arg His Lys Leu Lys Tyr Val Pro His Glu Tyr Ile Glu Leu Ile Glu
885 890 895

Ile Ala Arg Asn Ser Thr Gln Asp Arg Ile Leu Glu Met Lys Val Met
900 905 910

Glu Phe Phe Met Lys Val Tyr Gly Tyr Arg Gly Lys His Leu Gly Gly
915 920 925

Ser Arg Lys Pro Asp Gly Ala Ile Tyr Thr Val Gly Ser Pro Ile Asp
930 935 940

Tyr Gly Val Ile Val Asp Thr Lys Ala Tyr Ser Gly Gly Tyr Asn Leu
945 950 955 960

Pro Ile Gly Gln Ala Asp Glu Met Gln Arg Tyr Val Glu Glu Asn Gln
965 970 975

Thr Arg Asn Lys His Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro
980 985 990

Ser Ser Val Thr Glu Phe Lys Phe Leu Phe Val Ser Gly His Phe Lys
995 1000 1005

Gly Asn Tyr Lys Ala Gln Leu Thr Arg Leu Asn His Ile Thr Asn Cys
1010 1015 1020

Asn Gly Ala Val Leu Ser Val Glu Glu Leu Leu Ile Gly Gly Glu Met
1025 1030 1035 1040

Ile Lys Ala Gly Thr Leu Thr Leu Glu Glu Val Arg Arg Lys Phe Asn
1045 1050 1055

Asn Gly Glu Ile Asn Phe Ala Ala Asp

1060 1065