SEQUENCE LISTING

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<120> COMPOSITIONS AND METHODS FOR TREATMENT OF TYPE VII COLLAGEN DEFICIENCIES

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Ile Leu Ile Thr Asp Gly Lys Ser Gln Asp Leu Val Asp Thr Ala Ala
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Pro Leu Val Ser Arg Arg Val Cys Thr Thr Ala Gly Gly Val Pro Val
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Thr Arg Pro Pro Asp Asp Ser Thr Ser Ala Pro Arg Asp Leu Val Leu
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Ser Glu Pro Ser Ser Gln Ser Leu Arg Val Gln Trp Thr Ala Ala Ser
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Gly Pro Val Thr Gly Tyr Lys Val Gln Tyr Thr Pro Leu Thr Gly Leu
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Asp Leu Gln Ala Thr Glu Leu Pro Gly Gln Arg Val Arg Val Ser Trp
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Ser Pro Val Pro Gly Ala Thr Gln Tyr Arg Ile Ile Val Arg Ser Thr
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Ser Asp Ala Thr Arg Val Arg Val Ala Trp Gly Pro Val Pro Gly Ala
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Ser Gly Phe Arg Ile Ser Trp Ser Thr Gly Ser Gly Pro Glu Ser Ser
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Pro Gly Thr Thr Tyr Gln Val Ala Val Ser Val Leu Arg Gly Arg Glu
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Glu Gly Pro Ala Ala Val Ile Val Ala Arg Thr Asp Pro Leu Gly Pro
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Val Arg Thr Val His Val Thr Gln Ala Ser Ser Ser Ser Val Thr Ile
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Ser Ala His Gly Pro Glu Lys Ser Gln Leu Val Ser Gly Glu Ala Thr
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His Ser Leu Arg Leu Arg Trp Glu Pro Val Pro Arg Ala Gln Gly Phe
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Arg Gly Pro Gly Gln Glu Val Pro  Gly Ser Pro Gln Thr  Leu Pro Gly
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Gly Pro  Leu Gly Pro Gln Ala  Val Gln Val Gly Leu  Leu Ser Tyr
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Ser His  Arg Pro Ser Pro Leu  Phe Pro Leu Asn Gly  Ser His Asp
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Leu Gly  Ile Ile Leu Gln Arg  Ile Arg Asp Met Pro  Tyr Met Asp
    1115                1120                1125

Pro Ser  Gly Asn Asn Leu Gly  Thr Ala Val Val Thr  Ala His Arg
    1130                1135                1140

Tyr Met  Leu Ala Pro Asp Ala  Pro Gly Arg Arg Gln  His Val Pro
    1145                1150                1155

Gly Val  Met Val Leu Leu Val  Asp Glu Pro Leu Arg  Gly Asp Ile
    1160                1165                1170

Phe Ser  Pro Ile Arg Glu Ala  Gln Ala Ser Gly Leu  Asn Val Val
    1175                1180                1185

Met Leu  Gly Met Ala Gly Ala  Asp Pro Glu Gln Leu  Arg Arg Leu
    1190                1195                1200

Ala Pro  Gly Met Asp Ser Val  Gln Thr Phe Phe Ala  Val Asp Asp
    1205                1210                1215

Gly Pro  Ser Leu Asp Gln Ala  Val Ser Gly Leu Ala  Thr Ala Leu
    1220                1225                1230

Cys Gln  Ala Ser Phe Thr Thr  Gln Pro Arg Pro Glu  Pro Cys Pro
    1235                1240                1245
```

```
Val Tyr  Cys Pro Lys Gly Gln  Lys Gly Glu Pro Gly  Glu Met Gly
    1250                1255                1260

Leu Arg  Gly Gln Val Gly Pro  Pro Gly Asp Pro Gly  Leu Pro Gly
    1265                1270                1275

Arg Thr  Gly Ala Pro Gly Pro  Gln Gly Pro Pro Gly  Ser Ala Thr
    1280                1285                1290

Ala Lys  Gly Glu Arg Gly Phe  Pro Gly Ala Asp Gly  Arg Pro Gly
    1295                1300                1305

Ser Pro  Gly Arg Ala Gly Asn  Pro Gly Thr Pro Gly  Ala Pro Gly
    1310                1315                1320

Leu Lys  Gly Ser Pro Gly Leu  Pro Gly Pro Arg Gly  Asp Pro Gly
    1325                1330                1335

Glu Arg  Gly Pro Arg Gly Pro  Lys Gly Glu Pro Gly  Ala Pro Gly
    1340                1345                1350

Gln Val  Ile Gly Gly Glu Gly  Pro Gly Leu Pro Gly  Arg Lys Gly
    1355                1360                1365

Asp Pro  Gly Pro Ser Gly Pro  Pro Gly Pro Arg Gly  Pro Leu Gly
    1370                1375                1380

Asp Pro  Gly Pro Arg Gly Pro  Pro Gly Leu Pro Gly  Thr Ala Met
    1385                1390                1395

Lys Gly  Asp Lys Gly Asp Arg  Gly Glu Arg Gly Pro  Pro Gly Pro
    1400                1405                1410

Gly Glu  Gly Gly Ile Ala Pro  Gly Glu Pro Gly Leu  Pro Gly Leu
    1415                1420                1425

Pro Gly  Ser Pro Gly Pro Gln  Gly Pro Val Gly Pro  Pro Gly Lys
    1430                1435                1440

Lys Gly  Glu Lys Gly Asp Ser  Glu Asp Gly Ala Pro  Gly Leu Pro
    1445                1450                1455
```

```
Gly Gln  Pro Gly Ser Pro Gly  Glu Gln Gly Pro Arg  Gly Pro Pro
    1460                1465                1470

Gly Ala  Ile Gly Pro Lys Gly  Asp Arg Gly Phe Pro  Gly Pro Leu
    1475                1480                1485

Gly Glu  Ala Gly Glu Lys Gly  Glu Arg Gly Pro Pro  Gly Pro Ala
    1490                1495                1500

Gly Ser  Arg Gly Leu Pro Gly  Val Ala Gly Arg Pro  Gly Ala Lys
    1505                1510                1515

Gly Pro  Glu Gly Pro Pro Gly  Pro Thr Gly Arg Gln  Gly Glu Lys
    1520                1525                1530

Gly Glu  Pro Gly Arg Pro Gly  Asp Pro Ala Val Val  Gly Pro Ala
    1535                1540                1545

Val Ala  Gly Pro Lys Gly Glu  Lys Gly Asp Val Gly  Pro Ala Gly
    1550                1555                1560

Pro Arg  Gly Ala Thr Gly Val  Gln Gly Glu Arg Gly  Pro Pro Gly
    1565                1570                1575

Leu Val  Leu Pro Gly Asp Pro  Gly Pro Lys Gly Asp  Pro Gly Asp
    1580                1585                1590

Arg Gly  Pro Ile Gly Leu Thr  Gly Arg Ala Gly Pro  Pro Gly Asp
    1595                1600                1605

Ser Gly  Pro Pro Gly Glu Lys  Gly Asp Pro Gly Arg  Pro Gly Pro
    1610                1615                1620

Pro Gly  Pro Val Gly Pro Arg  Gly Arg Asp Gly Glu  Val Gly Glu
    1625                1630                1635

Lys Gly  Asp Glu Gly Pro Pro  Gly Asp Pro Gly Leu  Pro Gly Lys
    1640                1645                1650

Ala Gly  Glu Arg Gly Leu Arg  Gly Ala Pro Gly Val  Arg Gly Pro
    1655                1660                1665

Val Gly  Glu Lys Gly Asp Gln  Gly Asp Pro Gly Glu  Asp Gly Arg
    1670                1675                1680
```

```
Asn Gly  Ser Pro Gly Ser Ser  Gly Pro Lys Gly Asp  Arg Gly Glu
    1685                1690                1695

Pro Gly  Pro Pro Gly Pro Pro  Gly Arg Leu Val Asp  Thr Gly Pro
    1700                1705                1710

Gly Ala  Arg Glu Lys Gly Glu  Pro Gly Asp Arg Gly  Gln Glu Gly
    1715                1720                1725

Pro Arg  Gly Pro Lys Gly Asp  Pro Gly Leu Pro Gly  Ala Pro Gly
    1730                1735                1740

Glu Arg  Gly Ile Glu Gly Phe  Arg Gly Pro Pro Gly  Pro Gln Gly
    1745                1750                1755

Asp Pro  Gly Val Arg Gly Pro  Ala Gly Glu Lys Gly  Asp Arg Gly
    1760                1765                1770

Pro Pro  Gly Leu Asp Gly Arg  Ser Gly Leu Asp Gly  Lys Pro Gly
    1775                1780                1785

Ala Ala  Gly Pro Ser Gly Pro  Asn Gly Ala Ala Gly  Lys Ala Gly
    1790                1795                1800

Asp Pro  Gly Arg Asp Gly Leu  Pro Gly Leu Arg Gly  Glu Gln Gly
    1805                1810                1815

Leu Pro  Gly Pro Ser Gly Pro  Pro Gly Leu Pro Gly  Lys Pro Gly
    1820                1825                1830

Glu Asp  Gly Lys Pro Gly Leu  Asn Gly Lys Asn Gly  Glu Pro Gly
    1835                1840                1845

Asp Pro  Gly Glu Asp Gly Arg  Lys Gly Glu Lys Gly  Asp Ser Gly
    1850                1855                1860

Ala Ser  Gly Arg Glu Gly Arg  Asp Gly Pro Lys Gly  Glu Arg Gly
    1865                1870                1875

Ala Pro  Gly Ile Leu Gly Pro  Gln Gly Pro Pro Gly  Leu Pro Gly
    1880                1885                1890
```

```
Pro Val  Gly Pro Pro Gly Gln  Gly Phe Pro Gly Val  Pro Gly Gly
    1895                1900                1905

Thr Gly  Pro Lys Gly Asp Arg  Gly Glu Thr Gly Ser  Lys Gly Glu
    1910                1915                1920

Gln Gly  Leu Pro Gly Glu Arg  Gly Leu Arg Gly Glu  Pro Gly Ser
    1925                1930                1935

Val Pro  Asn Val Asp Arg Leu  Leu Glu Thr Ala Gly  Ile Lys Ala
    1940                1945                1950

Ser Ala  Leu Arg Glu Ile Val  Glu Thr Trp Asp Glu  Ser Ser Gly
    1955                1960                1965

Ser Phe  Leu Pro Val Pro Glu  Arg Arg Arg Gly Pro  Lys Gly Asp
    1970                1975                1980

Ser Gly  Glu Gln Gly Pro Pro  Gly Lys Glu Gly Pro  Ile Gly Phe
    1985                1990                1995

Pro Gly  Glu Arg Gly Leu Lys  Gly Asp Arg Gly Asp  Pro Gly Pro
    2000                2005                2010

Gln Gly  Pro Pro Gly Leu Ala  Leu Gly Glu Arg Gly  Pro Pro Gly
    2015                2020                2025

Pro Ser  Gly Leu Ala Gly Glu  Pro Gly Lys Pro Gly  Ile Pro Gly
    2030                2035                2040

Leu Pro  Gly Arg Ala Gly Gly  Val Gly Glu Ala Gly  Arg Pro Gly
    2045                2050                2055

Glu Arg  Gly Glu Arg Gly Glu  Lys Gly Glu Arg Gly  Glu Gln Gly
    2060                2065                2070

Arg Asp  Gly Pro Pro Gly Leu  Pro Gly Thr Pro Gly  Pro Pro Gly
    2075                2080                2085

Pro Pro  Gly Pro Lys Val Ser  Val Asp Glu Pro Gly  Pro Gly Leu
    2090                2095                2100

Ser Gly  Glu Gln Gly Pro Pro  Gly Leu Lys Gly Ala  Lys Gly Glu
    2105                2110                2115
```

```
Pro Gly  Ser Asn Gly Asp Gln  Gly Pro Lys Gly Asp  Arg Gly Val
    2120                2125                2130

Pro Gly  Ile Lys Gly Asp Arg  Gly Glu Pro Gly Pro  Arg Gly Gln
    2135                2140                2145

Asp Gly  Asn Pro Gly Leu Pro  Gly Glu Arg Gly Met  Ala Gly Pro
    2150                2155                2160

Glu Gly  Lys Pro Gly Leu Gln  Gly Pro Arg Gly Pro  Pro Gly Pro
    2165                2170                2175

Val Gly  Gly His Gly Asp Pro  Gly Pro Pro Gly Ala  Pro Gly Leu
    2180                2185                2190

Ala Gly  Pro Ala Gly Pro Gln  Gly Pro Ser Gly Leu  Lys Gly Glu
    2195                2200                2205

Pro Gly  Glu Thr Gly Pro Pro  Gly Arg Gly Leu Thr  Gly Pro Thr
    2210                2215                2220

Gly Ala  Val Gly Leu Pro Gly  Pro Pro Gly Pro Ser  Gly Leu Val
    2225                2230                2235

Gly Pro  Gln Gly Ser Pro Gly  Leu Pro Gly Gln Val  Gly Glu Thr
    2240                2245                2250

Gly Lys  Pro Gly Ala Pro Gly  Arg Asp Gly Ala Ser  Gly Lys Asp
    2255                2260                2265

Gly Asp  Arg Gly Ser Pro Gly  Val Pro Gly Ser Pro  Gly Leu Pro
    2270                2275                2280

Gly Pro  Val Gly Pro Lys Gly  Glu Pro Gly Pro Thr  Gly Ala Pro
    2285                2290                2295

Gly Gln  Ala Val Val Gly Leu  Pro Gly Ala Lys Gly  Glu Lys Gly
    2300                2305                2310

Ala Pro  Gly Gly Leu Ala Gly  Asp Leu Val Gly Glu  Pro Gly Ala
    2315                2320                2325
```

```
Lys Gly  Asp Arg Gly Leu Pro  Gly Pro Arg Gly Glu  Lys Gly Glu
    2330                2335                2340

Ala Gly  Arg Ala Gly Glu Pro  Gly Asp Pro Gly Glu  Asp Gly Gln
    2345                2350                2355

Lys Gly  Ala Pro Gly Pro Lys  Gly Phe Lys Gly Asp  Pro Gly Val
    2360                2365                2370

Gly Val  Pro Gly Ser Pro Gly  Pro Pro Gly Pro Pro  Gly Val Lys
    2375                2380                2385

Gly Asp  Leu Gly Leu Pro Gly  Leu Pro Gly Ala Pro  Gly Val Val
    2390                2395                2400

Gly Phe  Pro Gly Gln Thr Gly  Pro Arg Gly Glu Met  Gly Gln Pro
    2405                2410                2415

Gly Pro  Ser Gly Glu Arg Gly  Leu Ala Gly Pro Pro  Gly Arg Glu
    2420                2425                2430

Gly Ile  Pro Gly Pro Leu Gly  Pro Pro Gly Pro Pro  Gly Ser Val
    2435                2440                2445

Gly Pro  Pro Gly Ala Ser Gly  Leu Lys Gly Asp Lys  Gly Asp Pro
    2450                2455                2460

Gly Val  Gly Leu Pro Gly Pro  Arg Gly Glu Arg Gly  Glu Pro Gly
    2465                2470                2475

Ile Arg  Gly Glu Asp Gly Arg  Pro Gly Gln Glu Gly  Pro Arg Gly
    2480                2485                2490

Leu Thr  Gly Pro Pro Gly Ser  Arg Gly Glu Arg Gly  Glu Lys Gly
    2495                2500                2505

Asp Val  Gly Ser Ala Gly Leu  Lys Gly Asp Lys Gly  Asp Ser Ala
    2510                2515                2520

Val Ile  Leu Gly Pro Pro Gly  Pro Arg Gly Ala Lys  Gly Asp Met
    2525                2530                2535

Gly Glu  Arg Gly Pro Arg Gly  Leu Asp Gly Asp Lys  Gly Pro Arg
    2540                2545                2550
```

```
Gly Asp  Asn Gly Asp Pro Gly  Asp Lys Gly Ser Lys  Gly Glu Pro
    2555                2560                2565

Gly Asp  Lys Gly Ser Ala Gly  Leu Pro Gly Leu Arg  Gly Leu Leu
    2570                2575                2580

Gly Pro  Gln Gly Gln Pro Gly  Ala Ala Gly Ile Pro  Gly Asp Pro
    2585                2590                2595

Gly Ser  Pro Gly Lys Asp Gly  Val Pro Gly Ile Arg  Gly Glu Lys
    2600                2605                2610

Gly Asp  Val Gly Phe Met Gly  Pro Arg Gly Leu Lys  Gly Glu Arg
    2615                2620                2625

Gly Val  Lys Gly Ala Cys Gly  Leu Asp Gly Glu Lys  Gly Asp Lys
    2630                2635                2640

Gly Glu  Ala Gly Pro Pro Gly  Arg Pro Gly Leu Ala  Gly His Lys
    2645                2650                2655

Gly Glu  Met Gly Glu Pro Gly  Val Pro Gly Gln Ser  Gly Ala Pro
    2660                2665                2670

Gly Lys  Glu Gly Leu Ile Gly  Pro Lys Gly Asp Arg  Gly Phe Asp
    2675                2680                2685

Gly Gln  Pro Gly Pro Lys Gly  Asp Gln Gly Glu Lys  Gly Glu Arg
    2690                2695                2700

Gly Thr  Pro Gly Ile Gly Gly  Phe Pro Gly Pro Ser  Gly Asn Asp
    2705                2710                2715

Gly Ser  Ala Gly Pro Pro Gly  Pro Pro Gly Ser Val  Gly Pro Arg
    2720                2725                2730

Gly Pro  Glu Gly Leu Gln Gly  Gln Lys Gly Glu Arg  Gly Pro Pro
    2735                2740                2745

Gly Glu  Arg Val Val Gly Ala  Pro Gly Val Pro Gly  Ala Pro Gly
    2750                2755                2760
```

```
Glu Arg  Gly Glu Gln Gly Arg  Pro Gly Pro Ala Gly  Pro Arg Gly
    2765                2770                2775

Glu Lys  Gly Glu Ala Ala Leu  Thr Glu Asp Asp Ile  Arg Gly Phe
    2780                2785                2790

Val Arg  Gln Glu Met Ser Gln  His Cys Ala Cys Gln  Gly Gln Phe
    2795                2800                2805

Ile Ala  Ser Gly Ser Arg Pro  Leu Pro Ser Tyr Ala  Ala Asp Thr
    2810                2815                2820

Ala Gly  Ser Gln Leu His Ala  Val Pro Val Leu Arg  Val Ser His
    2825                2830                2835

Ala Glu  Glu Glu Glu Arg Val  Pro Pro Glu Asp Asp  Glu Tyr Ser
    2840                2845                2850

Glu Tyr  Ser Glu Tyr Ser Val  Glu Glu Tyr Gln Asp  Pro Glu Ala
    2855                2860                2865

Pro Trp  Asp Ser Asp Asp Pro  Cys Ser Leu Pro Leu  Asp Glu Gly
    2870                2875                2880

Ser Cys  Thr Ala Tyr Thr Leu  Arg Trp Tyr His Arg  Ala Val Thr
    2885                2890                2895

Gly Ser  Thr Glu Ala Cys His  Pro Phe Val Tyr Gly  Gly Cys Gly
    2900                2905                2910

Gly Asn  Ala Asn Arg Phe Gly  Thr Arg Glu Ala Cys  Glu Arg Arg
    2915                2920                2925

Cys Pro  Pro Arg Val Val Gln  Ser Gln Gly Thr Gly  Thr Ala Gln
    2930                2935                2940

Asp
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<210> 3
<211> 53
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
primer

<400> 3
cgacttgtgt tgggactggc tagcgccacc atgacgctgc ggcttctggt ggc
53

<210> 4
<211> 22
<212> DNA
<213> Artificial Sequence

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

<400> 4
gggcttagct acactgtgcg gg
22

<210> 5
<211> 24
<212> DNA
<213> Artificial Sequence

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

<400> 5
cctgcccagt gtattgtcca aagg
24

<210> 6
<211> 21
<212> DNA
<213> Artificial Sequence

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

<400> 6
ctgctggcat caaggcatct g
21

<210> 7
<211> 22
<212> DNA
<213> Artificial Sequence

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

<400> 7
cccgcacagt gtagctaagc cc
22

<210> 8
<211> 24
<212> DNA
<213> Artificial Sequence

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

<400> 8
cctttggaca atacactggg cagg
24

<210> 9
<211> 21
<212> DNA
<213> Artificial Sequence

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

<400> 9
cagatgcctt gatgccagca g
21

<210> 10
<211> 53
<212> DNA
<213> Artificial Sequence

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

<400> 10
cgtgatttca tttgctacac gtaatcgatt cagtcctggg cagtacctgt ccc
53

<210> 11
<211> 341
<212> DNA
<213> Artificial Sequence

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

<400> 11

cgctcccaga acatcaccta ccactgcaag aacagcgtgg cctacatgga ccagcagact
60

ggcaacctca agaaggccct gctcctccag ggctccaacg agatcgagat ccgcgccgag
120

ggcaacagcc gcttcaccta cagcgtcact gtcgatggct gcacgagtca caccggagcc
180

tggggcaaga cagtgattga atacaaaacc accaagacct cccgcctgcg catcatcgat
240

gtggcccccc tggacgttgg tgccccagac caggaattcg gcttcgacgt tggccatgtc
300

tgcttcctgt aaatcgatta cgtgtagcaa atgaaatcac g
341

<210> 12
<211> 730
<212> DNA
<213> Artificial Sequence

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

<400> 12
ttcaaatttt cgggggatcg cattagttat taatagtaat caattacggg gtcattagtt
60

catagcccat atatggagtt ccgcgttaca taacttacgg taaatggccc gcctggttga
120

ccgcccaacg acccccgccc attgacgtca ataatgacgt atgttcccat agtaacgcca
180

atagggactt tccattgacg tcaatgggtg gagtatttac ggtaaactgc ccacttggta
240

gtacatcaag tgtatcatac gccaagtacg ccccctattg acgtcaatga cggtaaatgg
300

cccgcctggt attatgccca gtacatgacc ttatgggact ttcctacttg gcagtacatc
360

tgcgtattag tcatcgctat taccatggtg atgcggtttt ggcagtacat caatgggcgt
420

ggatagcggt ttgactcacg gggatttcca agtctccacc ccattgacgt caatgggagt
480

ttgttttggc accaaaatca acgggacttt ccaaaatgtc gtaacaactc cgccccattg
540

acgcaaatgg gcggtaggcg tgtacggtgg gaggtctata taagcagagc tggtttagtg
600

aaccgtcaga tccgctagca ttgtgtgctt ttcgggccac catgacgctg cggcttctgg
660

tggccgcgct ctgcgccggg atcctggcag aggcgccccg agtgcgagcc cagcacaggg
720

agagagtgac
730

<210> 13
<211> 740
<212> DNA
<213> Artificial Sequence

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

<400> 13
agtgcgagcc cagcacaggg agagagtgac ctgcacgcgc ctttacgccg ctgacattgt
60

gttcttactg gatggctcct catccattgg ccgcagcaat ttccgcgagg tccgcagctt
120

tctcgaaggg ctggtgctgc ctttctctgg agcagccagt gcacagggtg tgcgctttgc
180

cacagtgcag tacagcgatg acccacggac agagttcggc ctggatgcac ttggctctgg
240

gggtgatgtg atccgcgcca tccgtgagct tagctacaag gggggcaaca ctcgcacagg
300

ggctgcaatt ctccatgtgg ctgaccatgt cttcctgccc cagctggccc gacctggtgt
360

ccccaaggtc tgcatcctga tcacgtctct catgcagagg aggaagagcg ggtaccccct
420

gaggatgatg agtactctga atactccgag tattctgtgg aggagtacca ggaccctgaa
480

gctccttggg atagtgatga cccctgttcc ctgccactgg atgagggctc ctgcactgcc
540

tacaccctgc gctggtacca tcgggctgtg acaggcagca cagaggcctg tcacccttt
600

gtctatggtg gctgtggagg gaatgccaac cgttttggga cccgtgaggc ctgcgagcgc
660

cgctgcccac cccgggtggt ccagagccag gggacaggta ctgcccagga ctgagtacct
720

ttaagaccaa tgacttacaa
740

<210> 14
<211> 20
<212> DNA
<213> Artificial Sequence

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

<400> 14
atggaaaaac gccagcaacg
20

<210> 15
<211> 20
<212> DNA
<213> Artificial Sequence

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

<400> 15
ctgtcaccct tttgtctatg
20

<210> 16
<211> 24
<212> DNA
<213> Artificial Sequence

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

<400> 16
gttgccggac acttcttgtc ctct
24

<210> 17
<211> 22
<212> DNA
<213> Artificial Sequence

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

<400> 17
cccgcacagt gtagctaagc cc
22

<210> 18
<211> 20
<212> DNA
<213> Artificial Sequence

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

<400> 18
agaggccccg aaggacttca
20

<210> 19
<211> 467
<212> DNA
<213> Artificial Sequence

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

<400> 19
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60

tcattaagac tcggccttag aaccccagta tcagcagaac cgcgtctctc atgcagagga
120

ggaagagcgg gtacccccctg aggatgatga gtactctgaa tactccgagt attctgtgga
180

ggagtaccag gaccctgaag ctccttggga tagtgatgac ccctgttccc tgccactgga
240

tgagggctcc tgcactgcct acaccctgcg ctggtaccat cgggctgtga caggcagcac
300

agaggcctgt cacccttttg tctatggtgg ctgtggaggg aatgccaacc gttttgggac
360

ccgtgaggcc tgcgagcgcc gctgcccacc ccgggtggtc cagagccagg ggacaggtac
420

tgcccaggac tgatcgatac cgtcgacctc gagacctaga aaaacat
467

<210> 20
<211> 21
<212> DNA
<213> Artificial Sequence

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

primer

<400> 20
gtagacataa tagcaacaga c
21

<210> 21
<211> 21
<212> DNA
<213> Artificial Sequence

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

<400> 21
tattgctact tgtgattgct c
21

<210> 22
<211> 20
<212> DNA
<213> Artificial Sequence

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

<400> 22
agaggccccg aaggacttca
20

<210> 23
<211> 8832
<212> DNA
<213> Artificial Sequence

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

<400> 23
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60

gtgcgagccc agcacaggga gagagtgacc tgcacgcgcc tttacgccgc tgacattgtg
120

ttcttactgg atggctcctc atccattggc cgcagcaatt tccgcgaggt ccgcagcttt
180

ctcgaagggc tggtgctgcc tttctctgga gcagccagtg cacagggtgt gcgctttgcc
240

acagtgcagt acagcgatga cccacggaca gagttcggcc tggatgcact tggctctggg
300

ggtgatgtga tccgcgccat ccgtgagctt agctacaagg ggggcaacac tcgcacaggg
360

gctgcaattc tccatgtggc tgaccatgtc ttcctgcccc agctggcccg acctggtgtc
420

cccaaggtct gcatcctgat cacagacggg aagtcccagg acctggtgga cacagctgcc
480

caaaggctga aggggcaggg ggtcaagcta tttgctgtgg ggatcaagaa tgctgaccct
540

gaggagctga agcgagttgc ctcacagccc accagtgact tcttcttctt cgtcaatgac
600

ttcagcatct tgaggacact actgcccctc gtttcccgga gagtgtgcac gactgctggt
660

ggcgtgcctg tgacccgacc tccggatgac tcgacctctg ctccacgaga cctggtgctg
720

tctgagccaa gcagccaatc cttgagagta cagtggacag cggccagtgg ccctgtgact
780

ggctacaagg tccagtacac tcctctgacg gggctgggac agccactgcc gagtgagcgg
840

caggaggtga acgtcccagc tggtgagacc agtgtgcggc tgcggggtct ccggccactg
900

accgagtacc aagtgactgt gattgccctc tacgccaaca gcatcgggga ggctgtgagc
960

gggacagctc ggaccactgc cctagaaggg ccggaactga ccatccagaa taccacagcc
1020

cacagcctcc tggtggcctg gcggagtgtg ccaggtgcca ctggctaccg tgtgacatgg
1080

cgggtcctca gtggtgggcc cacacagcag caggagctgg gccctgggca gggttcagtg
1140

ttgctgcgtg acttggagcc tggcacggac tatgaggtga ccgtgagcac cctatttggc
1200

cgcagtgtgg ggcccgccac ttccctgatg gctcgcactg acgcttctgt tgagcagacc
1260

ctgcgcccgg tcatcctggg ccccacatcc atcctccttt cctggaactt ggtgcctgag
1320

gcccgtggct accggttgga atggcggcgt gagactggct tggagccacc gcagaaggtg
1380

gtactgccct ctgatgtgac ccgctaccag ttggatgggc tgcagccggg cactgagtac
1440

cgcctcacac tctacactct gctggagggc cacgaggtgg ccacccctgc aaccgtggtt
1500

cccactggac cagagctgcc tgtgagccct gtaacagacc tgcaagccac cgagctgccc
1560

gggcagcggg tgcgagtgtc ctggagccca gtccctggtg ccacccagta ccgcatcatt
1620

gtgcgcagca cccagggggt tgagcggacc ctggtgcttc ctgggagtca gacagcattc
1680

gacttggatg acgttcaggc tgggcttagc tacactgtgc gggtgtctgc tcgagtgggt
1740

ccccgtgagg gcagtgccag tgtcctcact gtccgccggg agccggaaac tccacttgct
1800

gttccagggc tgcgggttgt ggtgtcagat gcaacgcgag tgagggtggc ctggggaccc
1860

gtccctggag ccagtggatt tcggattagc tggagcacag gcagtggtcc ggagtccagc
1920

cagacactgc ccccagactc tactgccaca gacatcacag ggctgcagcc tggaaccacc
1980

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