

P6030245PCT_20110921-112436_Sequence Listing
SEQUENCE LISTING

<110> Stichting Katholieke Universiteit Radboud University
Nijmegen Medical Centre
Stichting Katholieke Universiteit

<120> Novel method for diagnosing Lyme disease using a cellular
immunological test

<130> P6030245PCT

<150> EP 10178060.9
<151> 2010-09-21

<150> US 61/384,820
<151> 2010-09-21

<160> 10

<170> PatentIn version 3.3

<210> 1
<211> 14020
<212> DNA
<213> Homo sapiens

<400> 1
gtagaataca gcaacgacag acattttggg agagaagcat tttatcatag cttttagaag 60
agaagtattt ttcagcatca taagcacaca attccaagga cagatacctt caagggattg 120
cttttgacag ttatgacaaa gtcttaaaga agaataaaag gacaaaggaa atcctccagc 180
aacaagctg ccacttatag atgagaaagt gaatgggaat aaggaagaaa ctcagaaaag 240
ggaagagaga tcactaaaaa ccctgatttg gaaagtccca gtactaccct gagaggagaa 300
agaaacaaat tcacacagca cgtcaccgcc agaagaagaa aggaggggaag acaagggaac 360
agagaggatc tcaatcctaa aaggacaatg tggaaacatt taggggacag aggtgaatct 420
gccaggccaa tgtagtttag aatgtcactc aatcactgag aatgagaaag gagtctgccg 480
atgggcacca tgtggacagg agatgaggca ataaacatat gtaacaatta aaagtgagaa 540
ataaagatct ggttttgggt cagttaacct atatttgagt cgtagtcca gcatttactg 600
tttgtgcggt cttaaataat ttattgtctc aacctcagtt tctgcatagg tcaaatgggt 660
caatattatc tactttaaag gttattatga agagttaata agataatgag ggaaaaaaag 720
gtacctggca cttagtaggt gctcaataaa ggacggcttt ttttttttaa gtattgcttc 780
taaatttgta tgtaagaaaa aatgatataa tacaatgata taagacaggg gaccgcagga 840
caagtccagc cacaccatt ctttatgta ttatctgact gcttttctga aatgatgcaa 900
ggttgagtag ttgtacctga aacatttatt atctggccct ttacagaaaa tgtttccaga 960
ccctggataa gtggtaccag agccccctct gtttgtggtc ccctctctta taccactag 1020
gtgtgagaaa agacatagag taggagagcc ctgccatcca tcttaccac ccaggggctt 1080
tttctgatgg atccaaagga aggacaaggt cttattggtc tcccagaact gacataacaa 1140
ctccgacatc agggaaaagc cattggagac tacatagctc gccagcccca gccacctgct 1200
catatatcta agccctcctt gttctagacc agggaggaga atggaatgtc ccttggactc 1260

P6030245PCT_20110921-112436_Sequence Listing

tgcatgtccc	caatctgaga	acctggatcc	aagagggaga	agaagcccat	tgagatgat	1320
gccataaagg	aagtggaagc	gatatgataa	aaatcatagt	gcccattccc	aaataatccc	1380
agaagcagaa	gggaaaggag	agaaatatcc	acaagacag	gtgtgggtac	acacaacatt	1440
tttcatactt	taagatccca	gagggactca	tggaatgat	acaagaaaat	gactcataag	1500
aacaaatatt	aggaagccag	tgccaagaat	gagatgggaa	attggggaaa	atgttggggg	1560
cagattgctt	agttctgttc	taagcaagag	ggtgaacaag	gaaggaacag	ctcactacaa	1620
agaacagaca	tactgcatg	tacacacaat	aatataagaa	ctaaccatg	attattttgc	1680
ttgtcttctt	gttcaaaatg	attgaagacc	aatgagatga	gatcaacctt	gataactggc	1740
tgcgaaagccc	atgattagac	acaagatggg	atcagggcac	ttgctgcttt	gaataaatgt	1800
cagtctcctg	tcttgaaga	atgacctgac	agggtaaaga	ggaacttgca	gctgagaaag	1860
gcttttagtga	ctcaagagct	gaataattcc	ccaaaagctg	gagcatcctg	gcattttccag	1920
ctccccatct	ctgcttgctt	cacttccttg	gggctacatc	accatctaca	tcatcatcac	1980
tcttccactc	cctcccttag	tgccaactat	gtttatagcg	agatattttc	tgctcattgg	2040
ggatcggaag	gaagtgtgtg	ggcctgagcg	gtctccttgg	gaagacagga	tctgatacat	2100
acgttgacac	acctatttga	cataagaggt	ttcacttcct	gagatggatg	ggatggtagc	2160
agatttgggt	ccagggttaca	gggccaggat	gagacatggc	agaactgtgg	agactgttac	2220
gtcagggggc	attgccccat	ggctccaaaa	ttccctcgga	gcgaaagcat	caggggctca	2280
tgcaacctgg	atactagtgc	tgcttcaacc	acactgtgct	attggatgag	tcacttcac	2340
cctcctagcc	ttgatttctt	cgtctgctgt	tcacattcaa	atagctattc	atgtcttcac	2400
ctctgtggtc	ccaccatata	ccaccagaca	atcattaggg	ctcctcttag	ctggcagatt	2460
ctgaggtcct	ggatgttaca	attggaagat	ggagaagtag	aagctcaagg	tttctgacct	2520
gtatcccaag	tcccagaagc	agaatggact	aactcagagc	tgatgctcgg	gtcccttgca	2580
tatctccctt	cctgtcactg	gctttgatcc	tccttcgttc	agcttgtaat	cacatcaaca	2640
gaccaaagac	atctctgtgt	tctgtcagga	gagttcacag	agccaccaac	cctccagacc	2700
ctgctgggtg	ccgcataaag	actctgagga	agggtttgag	gctgctgtga	tcatgcaatg	2760
aatgcatgat	tgtaccactg	cactccagcc	tgggggataa	aggtagatcc	tgtctaggag	2820
agagagagag	agaaagagaa	agagagagag	aagggaggga	gagacaaaga	aaaagagaga	2880
gagggaggga	gaaagaaaga	gagaaagaaa	agagaaaaga	aagaaaaaga	aagaaagaga	2940
gagagggagg	gagggagaga	gaaagaaaga	aagaaagaga	aagagagaaa	gagagaaaga	3000
gaaagaaagg	aagaaagaaa	gaaagaaaga	aagaaagaaa	gaaagaaaga	aagaaaagaa	3060
aagaaagaaa	gagagagaga	aagaaaaaga	aagaggaagg	aaggaaggaa	ggaagaaaga	3120
caggctctga	ggaaggtggc	agttcctaca	acgggagaa	cagtgggtta	tttgcaaagt	3180
ggatcctgtg	gaggcaaaac	agaggagtcc	cctaggccac	ccagacaggg	cttttagcta	3240
tctgcaggac	cagacaccaa	atttcaggag	ggctcagtgt	taggaatgga	ttatggctta	3300
tcaaattcac	aggaaactaa	catgttgaac	agctttttaga	tttcctgtgg	aaaatataac	3360

P6030245PCT_20110921-112436_Sequence Listing

ttactaaaga	tggagttctt	gtgactgact	cctgatatca	agatactggg	agccaaatta	3420
aaaatcagaa	ggctgcttgg	agagcaagtc	catgaaatgc	tctttttccc	acagtagaac	3480
ctatttccct	cgtgtctcaa	atacttgcac	agaggctcac	tcccttggat	aatgcagagc	3540
gagcacgata	cctggcacat	actaatttga	ataaaaatgc	tgtcaaattc	ccattcaccc	3600
attcaagcag	caaactctac	cacctgaatg	tacatgccag	gcactgtgct	agacttggct	3660
caaaaagatt	tcagtttcct	ggaggaacca	ggaggagcaa	ggtttcaact	cagtgtctata	3720
agaagtgtta	caggctggac	acggtggctc	acgcctgtaa	tcccaacact	ttgggaggcc	3780
gaggcgggca	gatcacaagg	tcaggagatc	gagaccatcc	tggctaacat	ggtgaaaccc	3840
tgtctctact	aaaaatacaa	aaaattagcc	gggcgtggcg	gcagggtgcct	gtagtcccag	3900
ctgctgggga	ggctgaggca	ggagaatggg	gtgaacccgg	gaggcggaac	ttgcaggggg	3960
ccgagatcgt	gccactgcac	tccagcctgg	gcgacagagt	gagactctgt	ctcaaaaaaa	4020
aaaaaaaaagt	gttatgatgc	agacctgtca	aagaggcaaa	ggaggggtgtt	cctacactcc	4080
aggcactgtt	cataacctgg	actctcattc	attctacaaa	tggagggctc	ccctgggcag	4140
taccctggag	caggcacttt	gctggtgtct	cggttaaaga	gaaactgata	actcttggtt	4200
ggtattacca	agagatagag	tctcagatgg	atattcttac	agaaacaata	ttccactttt	4260
cagagttcac	caaaaaatca	ttttaggcag	agctcatctg	gcattgatct	ggttcattcca	4320
tgagattggc	tagggtaaca	gcacctggtc	ttgcagggtt	gtgtgagctt	atctccaggg	4380
ttgccccaac	tccgtcagga	gcctgaaccc	tgcataccgt	atgttctctg	ccccagccaa	4440
gaaagggtcaa	ttttctcctc	agaggctcct	gcaattgaca	gagagctcct	gaggcagaga	4500
acagcaccca	aggtagagac	ccacaccctc	aatacagaca	gggagggcta	ttggcccttc	4560
attgtaccca	tttatccatc	tgtaagtggg	aagattccta	aacttaagta	caaagaagtg	4620
aatgaagaaa	agtatgtgca	tgtataaatc	tgtgtgtctt	ccactttgtc	ccacatatac	4680
taaatttaaa	cattcttcta	acgtgggaaa	atccagtatt	ttaatgtgga	catcaactgc	4740
acaacgattg	tcaggaaaac	aatgcatatt	tgcatggtga	tacatttgca	aaatgtgtca	4800
tagtttgcta	ctccttgccc	ttccatgaac	cagagaatta	tctcagttta	ttagtcccct	4860
cccctaagaa	gcttcacca	atactctttt	cccctttcct	ttaacttgat	tgtgaaatca	4920
ggtattcaac	agagaaattt	ctcagcctcc	tacttctgct	tttgaaagcc	ataaaaacag	4980
cgagggagaa	actggcagat	accaaacctc	ttcgaggcac	aaggcacaac	aggctgctct	5040
gggattctct	tcagccaatc	ttcattgctc	aagtatgact	ttaatcttcc	ttacaactag	5100
gtgctaaggg	agtctctctg	tctctctgcc	tctttgtgtg	tatgcatatt	ctctctctct	5160
ctctctttct	ttctctgtct	ctccctctcc	ttccctctct	gcctccctct	ctcagctttt	5220
tgcaaaaatg	ccagggtgtaa	tataatgctt	atgactcggg	aaatattctg	ggaatggata	5280
ctgcttatct	aacagctgac	accctaaagg	ttagtgtcaa	agcctctgct	ccagctctcc	5340
tagccaatac	attgctagtt	ggggtttggt	ttagcaaatg	cttttctcta	gacccaaagg	5400

P6030245PCT_20110921-112436_Sequence Listing

acttctcttt	cacacattca	ttcattttact	cagagatcat	ttctttgcat	gactgccatg	5460
cactggatgc	tgagagaaat	cacacatgaa	cgtagccgtc	atggggaagt	cactcatttt	5520
ctccttttta	cacaggtgtc	tgaagcagcc	atggcagaag	tacctgagct	cgccagtgaa	5580
atgatggctt	attacaggtc	agtggagacg	ctgagaccag	taacatgagc	aggtctcctc	5640
tttcaagagt	agagtgttat	ctgtgcttgg	agaccagatt	tttcccctaa	attgcctctt	5700
tcagtggcaa	acaggggtgc	aagtaaactc	gatttaaaga	ctactttccc	attacaagtc	5760
cctccagcct	tgggacctgg	aggctatcca	gatgtgttgt	tgcaagggct	tcctgcagag	5820
gcaaatgggg	agaaaagact	ccaagcccac	aatacaagga	atccctttgc	aaagtgtggc	5880
ttggagggag	agggagagct	cagattttag	ctgactctgc	tgggctagag	gttaggcctc	5940
aagatccaac	agggagcacc	cagggtgccc	acctgccagg	cctagaatct	gccttctgga	6000
ctgttctgcg	catatcactg	tgaaacttgc	caggtgtttc	aggcagcttt	gagaggcagg	6060
ctgtttgcag	tttcttatga	acagtcaagt	cttgtacaca	gggaaggaaa	aataaacctg	6120
tttagaagac	ataattgaga	catgtccctg	tttttattac	agtggcaatg	aggatgactt	6180
gttctttgaa	gctgatggcc	ctaaacagat	gaaggtaaga	ctatggggtt	aactcccaac	6240
ccaaggaagg	gctctaacac	agggaaagct	caaagaaggg	agttctgggc	cactttgatg	6300
ccatgggtatt	ttgtttttaga	aagactttta	cctctttccag	tgagacacag	gctgcaccac	6360
ttgctgacct	ggccacttgg	tcatcatatc	accacagtca	ctcactaacg	ttggtggtgg	6420
tggccacact	tgggtggtgac	aggggaggag	tagtgataat	gtttcccatt	tcatagtagg	6480
aagacaacca	agtcttcaac	ataaatttga	ttatcctttt	aagagatgga	ttcagcctat	6540
gccaatcact	tgagttaaac	tctgaaacca	agagatgatc	ttgagaacta	acatatgtct	6600
accccttttg	agtagaatag	ttttttgcta	cctgggggtga	agcttataac	aacaagacat	6660
agatgatata	aacaaaaaga	tgaattgaga	cttgaaagaa	aaccattcac	ttgctgtttg	6720
accttgacaa	gtcattttac	ccgcttttga	cctcatctga	aaaataaagg	gctgagctgg	6780
atgatctctg	agattccagc	atcctgcaac	ctccagttct	gaaatatatt	cagttgtagc	6840
taagggcatt	tgggcagcaa	atggtcattt	ttcagactca	tccttacaaa	gagccatggt	6900
atattcctgc	tgtccccttct	gttttatatg	atgctcagta	gccttcctag	gtggcccagc	6960
catcagccta	gctaggtcag	ttgtgcaggt	tgggaggcag	ccacttttct	ctggctttat	7020
tttattccag	tttgtgatag	cctcccctag	cctcataatc	cagtcctcaa	tcttgttaaa	7080
aacatatttc	tttagaagtt	ttaagactgg	cataacttgt	tggctgcagc	tgtgggagga	7140
gcccattggc	ttgtctgcct	ggccttttgc	cccattgcct	cttcagcag	cttggctctg	7200
ctccaggcag	gaaatttctc	cctgctcaac	tttcttttgt	gcacttacag	gtctctttta	7260
ctgtctttca	agcctttgaa	ccattatcat	gccttaaggc	aacctcagt	aagccttaat	7320
acggagcttc	tctgaataag	aggaaagtgg	taacatttca	caaaaagtac	tctcacagga	7380
tttgcagaat	gcctatgaga	cagtgttatg	aaaaaggaaa	aaaaagaaca	gtgtagaaaa	7440
attgaatact	tgctgagtga	gcataggtga	atggaaaatg	ttatgggtcat	ctgcatgaaa	7500

P6030245PCT_20110921-112436_Sequence Listing

aagcaaatca	tagtgtgaca	gcattagggg	tacaaaaaga	tatagagaag	gtatacatgt	7560
atggtgtagg	tggggcatgt	acaaaaaaga	tgaacaaagt	agaaatggga	tttattctaa	7620
aagaatagcc	tgtaagggtg	cagaaagccc	acattctagt	cttgagtctg	cctctaacct	7680
gctgtgtgcc	cttgagtaca	cacttaacct	ccttgagctt	cagagaggga	taatcttttt	7740
attttatttt	attttatttt	gttttgtttt	gttttgtttt	gttttatgag	acagagtctc	7800
actctgttgc	ccaggctgga	gtgcagtggg	acaatcttgg	cttactgcat	cctccacctc	7860
ctgagttcaa	gcgattctcc	ttcctcagtc	tcctgaatag	ctaggattac	aggtgcaccc	7920
caccacaccc	agctaatttt	tgtattttta	gtagagaagg	ggtttcgcca	tggtggccag	7980
gctggttttg	aagtcctgac	ctaaatgatt	catccacctc	ggcttcccaa	agtgtctggg	8040
ttacaggcat	gagccaccac	gcctggccca	gagagggatg	atcttttagaa	gctcgggatt	8100
ctttcaagcc	ctttcctcct	ctctgagctt	tctactctct	gatgtcaaag	catggttcct	8160
ggcaggacca	cctcaccagg	ctccctccct	cgctctctcc	gcagtgtctc	ttccaggacc	8220
tggacctctg	ccctctggat	ggcggcatcc	agctacgaat	ctccgaccac	cactacagca	8280
agggcttcag	gcaggccgcg	tcagttgttg	tggccatgga	caagctgagg	aagatgctgg	8340
ttccctgccc	acagaccttc	caggagaatg	acctgagcac	cttctttccc	ttcatctttg	8400
aagaaggtag	ttagccaaga	gcaggcagta	gatctccact	tgtgtcctct	tggaagtcac	8460
caagccccag	ccaactcaat	tccccagag	caaagccct	ttaaaggtag	aaggcccagc	8520
ggggagacaa	aacaaagaag	gctggaaacc	aaagcaatca	tctctttagt	ggaaactatt	8580
cttaaagaag	atcttgatgg	ctactgacat	ttgcaactcc	ctcactcttt	ctcaggggcc	8640
tttcacttac	attgtcacca	gaggttcgta	acctccctgt	gggctagtgt	tatgaccatc	8700
accattttac	ctaagtagct	ctgttgctcg	gccacagtga	gcagtaatag	acctgaagct	8760
ggaacccatg	tctaatagtg	tcagggtccag	tgttcttagc	cacccactc	ccagcttcat	8820
ccctactggg	gttgtcatca	gactttgacc	gtatatgctc	aggtgtcctc	caagaaatca	8880
aattttgccg	cctcgctca	cgaggcctgc	ccttctgatt	ttatacctaa	acaacatgtg	8940
ctccacattt	cagaacctat	cttcttcgac	acatgggata	acgaggctta	tgtgcacgat	9000
gcacctgtac	gatcactgaa	ctgcacgctc	cgggactcac	agcaaaaaag	cttggtgatg	9060
tctggtccat	atgaactgaa	agctctccac	ctccagggac	aggatatgga	gcaacaaggt	9120
aaatggaaac	atcctggttt	ccctgcctgg	cctcctggca	gcttgctaata	tctccatggt	9180
ttaaacaaag	tagaaagtta	atttaaggca	aatgatcaac	acaagtgaag	aaaaatatta	9240
aaaaggaata	tacaaacttt	ggtcctagaa	atggcacatt	tgattgcact	ggccagtgca	9300
tttgtaaca	ggagtgtgac	cctgagaaat	tagacggctc	aagcactccc	aggaccatgt	9360
ccaccaaggt	ctcttgggca	tagtgcaatg	tcaattcttc	cacaatatgg	ggtcatttga	9420
tggacatggc	ctaactgcct	gtgggttctc	tcttcctggt	gttgaggctg	aaacaagagt	9480
gctggagcga	taatgtgtcc	atccccctcc	ccagtcttcc	ccccttgccc	caacatccgt	9540

P6030245PCT_20110921-112436_Sequence Listing

cccacccaat gccaggtggt tccttgtagg gaaattttac cgcccagcag gaacttatat	9600
ctctccgctg taacgggcaa aagtttcaag tgcggtgaac ccatcattag ctgtggtgat	9660
ctgcctggca tcgtgccaca gtagccaaag cctctgcaca ggagtgtggg caactaaggc	9720
tgctgacttt gaaggacagc ctcaactcagg gggaagctat ttgctctcag ccaggccaag	9780
aaaatcctgt ttctttggaa tcgggtagta agagtgatcc cagggcctcc aattgacact	9840
gctgtgactg aggaagatca aaatgagtgt ctctctttgg agccactttc ccagctcagc	9900
ctctcctctc ccagtttctt cccatgggct actctctgtt cctgaaacag ttctggtgcc	9960
tgatttctgg cagaagtaca gcttcacctc tttcctttcc ttccacattg atcaagttgt	10020
tccgctcctg tggatgggca cattgccagc cagtgcacaca atggcttcct tccttccttc	10080
cttcagcatt taaaatgtag accctctttc attctccgtt cctactgcta tgaggctctg	10140
agaaaccctc aggcctttga ggggaaaccc taaatcaaca aaatgaccct gctattgtct	10200
gtgagaagtc aagttatcct gtgtcttagg ccaaggaacc tcaactgtggg ttcccacaga	10260
ggctaccaa ttacatgtat cctactcatg gggcctaggg gttgggggtga ccctgcactg	10320
ctgtgtccct aaccacaaga ccccttctt tcttcagtgg tgttctccat gtcctttgta	10380
caaggagaag aaagtaatga caaaatacct gtggccttgg gcctcaagga aaagaatctg	10440
tacctgtcct gcgtgttgaa agatgataag cccactctac agctggaggt aagtgaatgc	10500
tatggaatga agcccttctc agcctcctgc taccacttat tcccagacaa ccaccttctc	10560
cccgcccca tccctaggaa aagctgggaa caggtctatt tgacaatttt gcattaatgt	10620
aaataaattt aacataattt ttaactgctg gcaaccttca atcctgctgc agaaaattaa	10680
atcattttgc cgatgttatt atgtcctacc atagttacaa ccccaacaga ttatatattg	10740
ttagggctgc tctcatttga tagacacctt gggaaataga tgacttaaag ggtcccatta	10800
tcatgtccac tccactccca aaattaccac cactatcacc tccagctttc tcagcaaaag	10860
cttcatttcc aagttgatgt cattctagga ccataaggaa aaatacaata aaaagcccct	10920
ggaaactagg tacttcaaga agctctagct taattttcac cccccaaaa aaaaaaatt	10980
ctcacctaca ttatgtcct cagcatttgg cactaagttt tagaaaagaa gaagggtctt	11040
tttaataatc acacggaaag ttgggggccc agttacaact caggagtctg gctcctgac	11100
atgtgacctg ctgctcagtt tcctttctgg ccaacccaaa gaacatcttt cccatagcat	11160
ctttgtccct tgccccacaa aaattcttct ttctctttcg ctgcagagtg tagatcccaa	11220
aaattacca aagaagaaga tggaaaagcg atttgtcttc aacaagatag aaatcaataa	11280
caagctggaa tttgagtctg cccagttccc caactggtac atcagcacct ctcaagcaga	11340
aaacatgccc gtcttcctgg gagggaccaa aggcggccag gatataactg acttcaccat	11400
gcaatttgtg tcttcctaaa gagagctgta cccagagagt cctgtgctga atgtggactc	11460
aatccctagg gctggcagaa agggaacaga aaggtttttg agtacggcta tagcctggac	11520
tttctgttg tctacacaa tgcccaactg cctgccttag ggtagtgcta agaggatctc	11580
ctgtccatca gccaggacag tcagctctct ctttctaggg ccaatcccca gcccttttgt	11640

P6030245PCT_20110921-112436_Sequence Listing

tgagccaggc	ctctctcacc	tctcctactc	acttaaagcc	cgcttgacag	aaaccacggc	11700
cacatttgggt	tctaagaaac	cctctgtcat	tcgctccac	attctgatga	gcaaccgctt	11760
ccctattttat	ttattttattt	gtttgtttgt	tttattcatt	ggtctaattt	attcaaaggg	11820
ggcaagaagt	agcagtgtct	gtaaaagagc	ctagttttta	atagctatgg	aatcaattca	11880
atttggactg	gtgtgctctc	tttaaataca	gtcctttaat	taagactgaa	aatatataag	11940
ctcagattat	ttaaattggga	atattttataa	atgagcaaat	atcatactgt	tcaatggttc	12000
tgaaataaac	ttcactgaag	aaaaaaaaag	ggtctttcct	gatcattgac	ttgtcttgga	12060
tttgacactg	aacagtaaag	acaaacaggg	ctgtgagagt	tcttggggga	ctaaagccca	12120
ctcctcattg	ctgagtgtg	caaagtacct	agaaatatcc	ttggccaccg	aagactatcc	12180
tcctcaccca	tcccttttat	ttctgtttgt	caacagaagg	atattcagtg	cacatttgga	12240
acaggatcag	ctgaagcact	gcagggagtc	aggactggta	gtaacagcta	ccagtgattt	12300
atctatcaat	gcaccaaaca	tctgttgagc	aagcgctatg	tactaggagc	tgggagtaca	12360
gagatgagaa	cagtcacaag	tccctcctca	gataggagag	gcagctagtt	ataagcagaa	12420
acaaggtaac	atgacaagta	gagtaagata	aagaacaaga	ggagtagcca	ggaaggaggg	12480
aggagaacga	cataagaatc	aagcctaaag	ggataaacag	aagattttcca	cacatgggct	12540
gggcatgggtg	gcttacgcct	gtaatcccag	cactttgggt	ggcaggggca	gaaagatcgc	12600
ttgagcccag	gagttcaaga	ccagcctggg	caacatagtg	agactcccat	ctctacaaaa	12660
aataaataaaa	taaataaaaac	aatcagccag	gcatgctggc	atgcacctgt	agtcctagct	12720
acttgggaag	ctgacactgg	aggattgctt	gagcccagaa	gttcaagact	gcagtgaact	12780
gtgatcgcac	cattgcactc	cagcctgggt	gacagagtga	gaccctgtct	ctaaaaaatg	12840
ttcccagata	gaaaagaaaa	gaaaagccc	tcaggtagag	gaaccagtgt	gaacaagagc	12900
atgggtgtat	aagaatgaat	gatgcaaaaa	gtacactttc	agaattgcgg	gaatcaccag	12960
aagcaaagtc	aaagcgcaaa	acaagccaga	ggaaaagtag	ttgtaactca	caccccagat	13020
aaagagataa	cttgtttcac	atgtaaagaa	ctgcctcaaa	acatttgaaa	aaaaagaaca	13080
aaaatccagc	aaaacaagag	gcaagggatc	ttaacagtct	gttcacagaa	aagaaaatac	13140
tatttgatct	tgggcagagt	aaaatgatgc	ttaacattgt	aataagaaaag	tcaaattaaa	13200
agcactttga	gatactagta	ttttcccatc	agattgacaa	aatcaaaaag	tttaacaaca	13260
gaccttgttg	gtcaaactgt	cgggaaatcc	ccactgttaa	atattacgcg	tgggactata	13320
aattgatatg	acccttatag	aacaaaattt	gctaactatg	aaaatcacao	gtgcactttc	13380
cctttgatcc	agcaatttca	ctcctggaga	tttatccac	agatggacat	aacccatgtg	13440
aaatggaaaa	tgatcaaaat	tattcattgc	acatcatttg	taataggaaa	aattggaagt	13500
aacccaagtg	tctatcaaca	agagactgcc	taaatgaagt	aaaggacata	gaatactagg	13560
cagctataga	aaagaatgag	aaagcactct	ggtattgttt	ggttctgtgt	cccagcccaa	13620
atctcatgtc	aaattgtaat	ccccgatgtt	ggaggtgggg	cctggtgtgg	ggtgattgga	13680

P6030245PCT_20110921-112436_Sequence Listing

tcatgggggt	ggagttctta	tgaatggttt	agcactatcc	ctttggtgct	gttctcgtga	13740
cagagttccc	acaagatctg	gttgtttaaa	agtatgtggc	atcctttctc	tctctctctc	13800
tctctctcag	tcctgctcct	gccatataag	acatccactc	ccgctttgtc	ttctgcatga	13860
gtaaaagctt	cctaaggcct	ccccagaagc	agatgctgcc	atgcttcctg	tggaacagcc	13920
tgcgaagctg	tgagccaatt	aaacctcttt	tctttataaa	ttatgcagtc	tcagggtattt	13980
ccttatagca	atgcaaggac	tgactaatac	atgctgtctg			14020

<210> 2
 <211> 1240
 <212> DNA
 <213> Homo sapiens

<400> 2	
cacattgttc	tgatcatctg aagatcagct attagaagag aaagatcagt taagtccttt 60
ggacctgatc	agcttgatac aagaactact gatttcaact tctttggctt aattctctcg 120
gaaacgatga	aatatacaag ttatatcttg gcttttcagc tctgcatcgt tttgggttct 180
cttggctgtt	actgccagga cccatatgta aaagaagcag aaaaccttaa gaaatatttt 240
aatgcaggtc	attcagatgt agcggataat ggaactcttt tcttaggcatt tttgaagaat 300
tggaaagagg	agagtgcag aaaaataatg cagagccaaa ttgtctcctt ttacttcaaa 360
ctttttaaaa	acttttaaaga tgaccagagc atccaaaaga gtgtggagac catcaaggaa 420
gacatgaatg	tcaagttttt caatagcaac aaaaagaaac gagatgactt cgaaaagctg 480
actaattatt	cggttaactga cttgaatgtc caacgcaaag caatacatga actcatccaa 540
gtgatggctg	aactgtcgcc agcagctaaa acagggaagc gaaaaaggag tcagatgctg 600
tttcgaggtc	gaagagcatc ccagtaatgg ttgtcctgcc tgcaatattt gaattttaaa 660
tctaaatcta	tttattaata tttaacatta tttatatggg gaatatattt ttagactcat 720
caatcaaata	agtatttata atagcaactt ttgtgtaatg aaaatgaata tctattaata 780
tatgtattat	ttataattcc tatatcctgt gactgtctca cttaatcctt tgttttctga 840
ctaattaggc	aaggctatgt gattacaagg ctttatctca ggggccaaact aggcagccaa 900
cctaagcaag	atcccatggg ttgtgtgttt atttcacttg atgatacaat gaacacttat 960
aagtgaagtg	atactatcca gttactgccg gtttgaaaat atgcctgcaa tctgagccag 1020
tgctttaatg	gcatgtcaga cagaacttga atgtgtcagg tgaccctgat gaaaacatag 1080
catctcagga	gatttcatgc ctggtgcttc caaatattgt tgacaactgt gactgtaccc 1140
aaatggaaa	g taactcattt gttaaaatta tcaatatcta atatatatga ataaagtgtg 1200
agttcacac	ac aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1240

<210> 3
 <211> 1201
 <212> DNA
 <213> Homo sapiens

<400> 3	
aatattagag	tctcaacccc caataaatat aggactggag atgtctgagg ctcattctgc 60

P6030245PCT_20110921-112436_Sequence Listing

cctcgagccc accggaacg aaagagaagc tctatctccc ctccaggagc ccagctatga	120
actccttctc cacaagcgcc ttccgtccag ttgccttctc cctggggctg ctctgtgtgt	180
tgcctgctgc cttccctgcc ccagtacccc caggagaaga ttccaaagat gtagccgccc	240
cacacagaca gccactcacc tcttcagaac gaattgacaa acaaattcgg tacatcctcg	300
acggcatctc agccctgaga aaggagacat gtaacaagag taacatgtgt gaaagcagca	360
aagaggcact ggcagaaaac aacctgaacc ttccaaagat ggctgaaaaa gatggatgct	420
tccaatctgg attcaatgag gagacttgcc tggtgaaaat catcactggg tttttggagt	480
ttgaggata cctagagtac ctccagaaca gatttgagag tagtgaggaa caagccagag	540
ctgtgcagat gagtacaaaa gtcctgatcc agttcctgca gaaaaaggca aagaatctag	600
atgcaataac caccctgac ccaaccacaa atgccagcct gctgacgaag ctgcaggcac	660
agaaccagtg gctgcaggac atgacaactc atctcattct gcgcagcttt aaggagtcc	720
tgagtcag cctgagggt cttcggcaaa ttagcatgg gcacctcaga ttgttgtgt	780
taatgggcat tccttcttct ggtcagaaac ctgtccactg ggcacagaac ttatgttgtt	840
ctctatggag aactaaaagt atgagcggtta ggacactatt ttaattattt ttaatttatt	900
aatattttaa tatgtgaagc tgagttaatt tatgtaagtc atatttatat ttttaagaag	960
taccacttga aacattttat gtattagttt tgaaataata atggaaagtg gctatgcagt	1020
ttgaatatcc tttgtttcag agccagatca tttcttgga agtgtaggct tacctcaaat	1080
aaatggctaa cttatacata tttttaaaga aatatttata ttgtatttat ataatgtata	1140
aatggttttt ataccaataa atggcatttt aaaaaattca gcaaaaaaaaa aaaaaaaaaa	1200
a	1201

<210> 4
 <211> 1859
 <212> DNA
 <213> Homo sapiens

<400> 4	
gcaggcacia actcatccat cccagttga ttggaagaaa caacgatgac tcctgggaag	60
acctcattgg tgtcactgct actgctgctg agcctggagg ccatagtga ggcaggaatc	120
acaatcccac gaaatccagg atgcccaaat tctgaggaca agaacttccc ccggactgtg	180
atggtcaacc tgaacatcca taaccggaat accaatacca atcccaaaag gtcctcagat	240
tactacaacc gatccacctc accttggaat ctccaccgca atgaggacc tgagagatat	300
ccctctgtga tctgggaggc aaagtgccgc cacttgggct gcatcaacgc tgatgggaac	360
gtggactacc acatgaactc tgtcccatc cagcaagaga tcctgggtcct gcgcaggag	420
cctccacact gcccgaactc cttccggctg gagaagatac tgggtgtccgt gggctgcacc	480
tgtgtcacc cgattgtcca ccatgtggcc taagagctct ggggagcca cactcccaa	540
agcagttaga ctatggagag ccgaccagc ccctcaggaa ccctcatcct tcaaagacag	600
cctcatttcg gactaaactc attagagttc ttaaggcagt ttgtccaatt aaagcttcag	660

P6030245PCT_20110921-112436_Sequence Listing

```

aggtaacact tggccaagat atgagatctg aattaccttt ccctctttcc aagaaggaag      720
gtttgactga gtaccaattht gcttcttggt tactttttta agggctttta gttattttatg      780
tatttaatat gccctgagat aactttgggg tataagattc cattttaatg aattacctac      840
tttattttgt ttgtcttttt aaagaagata agattctggg cttgggaatt ttattattta      900
aaaggtaaaa cctgtattta tttgagctat ttaaggatct atttatgttt aagtatttag      960
aaaaagggtga aaaagcacta ttatcagttc tgcctaggta aatgtaagat agaattaaat     1020
ggcagtgcaa aattttctgag tctttacaac atacggatat agtatttcct cctctttgtt     1080
tttaaaagt ttatacatggc tgaaaagaaa gattaaacct actttcatat gtattaattt     1140
aaattttgca atttggtgag gttttacaag agatacagca agtctaactc tctgttccat     1200
taaaccctta taataaaatc cttctgtaat aataaagttt caaaagaaaa tgttttatttg     1260
ttctcattaa atgtatttta gcaaactcag ctcttcctta ttgggaagag ttatgcaaat     1320
tctcctataa gcaaaacaaa gcatgtcttt gagtaacaat gacctggaaa taccctaaat     1380
tccaagttct cgatttcaca tgccttcaag actgaacacc gactaagggt ttcatactat     1440
tagccaatgc tgtagacaga agcattttga taggaataga gcaaataaga taatggccct     1500
gaggaatggc atgtcattat taaagatcat atggggaaaa tgaaaccctc cccaaaatac     1560
aagaagttct gggaggagac attgtcttca gactacaatg tccagtttct cccctagact     1620
caggcttcct ttggagatta aggcccctca gagatcaaca gaccaacatt tttctcttcc     1680
tcaagcaaca ctctagggc ctggcttctg tctgatcaag gcaccacaca acccagaaag     1740
gagctgatgg ggcagaacga actttaagta tgagaaaagt tcagcccaag taaaataaaa     1800
actcaatcac attcaattcc agagtagttt caagtttcac atcgtaacca ttttcgccc     1859

```

<210> 5
 <211> 269
 <212> PRT
 <213> Homo sapiens

<400> 5

Met Ala Glu Val Pro Glu Leu Ala Ser Glu Met Met Ala Tyr Tyr Ser
 1 5 10 15

Gly Asn Glu Asp Asp Leu Phe Phe Glu Ala Asp Gly Pro Lys Gln Met
 20 25 30

Lys Cys Ser Phe Gln Asp Leu Asp Leu Cys Pro Leu Asp Gly Gly Ile
 35 40 45

Gln Leu Arg Ile Ser Asp His His Tyr Ser Lys Gly Phe Arg Gln Ala
 50 55 60

Ala Ser Val Val Val Ala Met Asp Lys Leu Arg Lys Met Leu Val Pro
 65 70 75 80

P6030245PCT_20110921-112436_Sequence Listing

Cys Pro Gln Thr Phe Gln Glu Asn Asp Leu Ser Thr Phe Phe Pro Phe
85 90 95

Ile Phe Glu Glu Glu Pro Ile Phe Phe Asp Thr Trp Asp Asn Glu Ala
100 105 110

Tyr Val His Asp Ala Pro Val Arg Ser Leu Asn Cys Thr Leu Arg Asp
115 120 125

Ser Gln Gln Lys Ser Leu Val Met Ser Gly Pro Tyr Glu Leu Lys Ala
130 135 140

Leu His Leu Gln Gly Gln Asp Met Glu Gln Gln Val Val Phe Ser Met
145 150 155 160

Ser Phe Val Gln Gly Glu Glu Ser Asn Asp Lys Ile Pro Val Ala Leu
165 170 175

Gly Leu Lys Glu Lys Asn Leu Tyr Leu Ser Cys Val Leu Lys Asp Asp
180 185 190

Lys Pro Thr Leu Gln Leu Glu Ser Val Asp Pro Lys Asn Tyr Pro Lys
195 200 205

Lys Lys Met Glu Lys Arg Phe Val Phe Asn Lys Ile Glu Ile Asn Asn
210 215 220

Lys Leu Glu Phe Glu Ser Ala Gln Phe Pro Asn Trp Tyr Ile Ser Thr
225 230 235 240

Ser Gln Ala Glu Asn Met Pro Val Phe Leu Gly Gly Thr Lys Gly Gly
245 250 255

Gln Asp Ile Thr Asp Phe Thr Met Gln Phe Val Ser Ser
260 265

<210> 6
<211> 166
<212> PRT
<213> Homo sapiens

<400> 6

Met Lys Tyr Thr Ser Tyr Ile Leu Ala Phe Gln Leu Cys Ile Val Leu
1 5 10 15

Gly Ser Leu Gly Cys Tyr Cys Gln Asp Pro Tyr Val Lys Glu Ala Glu
20 25 30

Asn Leu Lys Lys Tyr Phe Asn Ala Gly His Ser Asp Val Ala Asp Asn
35 40 45

Gly Thr Leu Phe Leu Gly Ile Leu Lys Asn Trp Lys Glu Glu Ser Asp
50 55 60

P6030245PCT_20110921-112436_Sequence Listing

Arg Lys Ile Met Gln Ser Gln Ile Val Ser Phe Tyr Phe Lys Leu Phe
65 70 75 80

Lys Asn Phe Lys Asp Asp Gln Ser Ile Gln Lys Ser Val Glu Thr Ile
85 90 95

Lys Glu Asp Met Asn Val Lys Phe Phe Asn Ser Asn Lys Lys Lys Arg
100 105 110

Asp Asp Phe Glu Lys Leu Thr Asn Tyr Ser Val Thr Asp Leu Asn Val
115 120 125

Gln Arg Lys Ala Ile His Glu Leu Ile Gln Val Met Ala Glu Leu Ser
130 135 140

Pro Ala Ala Lys Thr Gly Lys Arg Lys Arg Ser Gln Met Leu Phe Arg
145 150 155 160

Gly Arg Arg Ala Ser Gln
165

<210> 7
<211> 212
<212> PRT
<213> Homo sapiens

<400> 7

Met Asn Ser Phe Ser Thr Ser Ala Phe Gly Pro Val Ala Phe Ser Leu
1 5 10 15

Gly Leu Leu Leu Val Leu Pro Ala Ala Phe Pro Ala Pro Val Pro Pro
20 25 30

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

Ser Ser Glu Arg Ile Asp Lys Gln Ile Arg Tyr Ile Leu Asp Gly Ile
50 55 60

Ser Ala Leu Arg Lys Glu Thr Cys Asn Lys Ser Asn Met Cys Glu Ser
65 70 75 80

Ser Lys Glu Ala Leu Ala Glu Asn Asn Leu Asn Leu Pro Lys Met Ala
85 90 95

Glu Lys Asp Gly Cys Phe Gln Ser Gly Phe Asn Glu Glu Thr Cys Leu
100 105 110

Val Lys Ile Ile Thr Gly Leu Leu Glu Phe Glu Val Tyr Leu Glu Tyr
115 120 125

P6030245PCT_20110921-112436_Sequence Listing

Leu Gln Asn Arg Phe Glu Ser Ser Glu Glu Gln Ala Arg Ala Val Gln
130 135 140

Met Ser Thr Lys Val Leu Ile Gln Phe Leu Gln Lys Lys Ala Lys Asn
145 150 155 160

Leu Asp Ala Ile Thr Thr Pro Asp Pro Thr Thr Asn Ala Ser Leu Leu
165 170 175

Thr Lys Leu Gln Ala Gln Asn Gln Trp Leu Gln Asp Met Thr Thr His
180 185 190

Leu Ile Leu Arg Ser Phe Lys Glu Phe Leu Gln Ser Ser Leu Arg Ala
195 200 205

Leu Arg Gln Met
210

<210> 8
<211> 155
<212> PRT
<213> Homo sapiens

<400> 8

Met Thr Pro Gly Lys Thr Ser Leu Val Ser Leu Leu Leu Leu Leu Ser
1 5 10 15

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

Cys Pro Asn Ser Glu Asp Lys Asn Phe Pro Arg Thr Val Met Val Asn
35 40 45

Leu Asn Ile His Asn Arg Asn Thr Asn Thr Asn Pro Lys Arg Ser Ser
50 55 60

Asp Tyr Tyr Asn Arg Ser Thr Ser Pro Trp Asn Leu His Arg Asn Glu
65 70 75 80

Asp Pro Glu Arg Tyr Pro Ser Val Ile Trp Glu Ala Lys Cys Arg His
85 90 95

Leu Gly Cys Ile Asn Ala Asp Gly Asn Val Asp Tyr His Met Asn Ser
100 105 110

Val Pro Ile Gln Gln Glu Ile Leu Val Leu Arg Arg Glu Pro Pro His
115 120 125

Cys Pro Asn Ser Phe Arg Leu Glu Lys Ile Leu Val Ser Val Gly Cys
130 135 140

Thr Cys Val Thr Pro Ile Val His His Val Ala
145 150 155

P6030245PCT_20110921-112436_Sequence Listing

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

<220>
 <223> primer

<400> 9
 cagctacgaa tctccgacca c

21

<210> 10
 <211> 20
 <212> PRT
 <213> Artificial

<220>
 <223> primer

<400> 10

Gly Gly Cys Ala Gly Gly Gly Ala Ala Cys Cys Ala Gly Cys Ala Thr
 1 5 10 15

Cys Thr Thr Cys
 20