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<110> Prolacta Bioscience Inc.

<120> COMPOSITIONS AND METHODS FOR TREATMENT OF INFLAMMATORY AND IMMUNE DISEASES

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<150> US 62/905,256

<151> 2019-09-24

<150> US 63/027,739

<151> 2019-05-20

<150> US 63/028,743

<151> 2019-05-22

<150> US 63/053,224

<151> 2019-07-17

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<170> PatentIn version 3.5

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1464

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<211> 1520

<212> DNA

<213> Lactobacillus antri

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 <212> DNA
 <213> Lactobacillus brevis

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 <212> DNA
 <213> Lactobacillus casei

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<210> 21
 <211> 1564
 <212> DNA
 <213> Lactobacillus coleohominis

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 <211> 1518
 <212> DNA
 <213> *Lactobacillus crispatus*

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<210> 23
 <211> 1734
 <212> DNA
 <213> *Lactobacillus curvatus*

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<210> 24
 <211> 1515
 <212> DNA
 <213> Lactobacillus delbrueckii

<400> 24	
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<210> 25

<211> 1502

<212> DNA

<213> Lactobacillus fermentum

<400> 25

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<210> 26
 <211> 1573
 <212> DNA
 <213> Lactobacillus gasseri

<400> 26

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 <211> 1487
 <212> DNA
 <213> *Lactobacillus johnsonii*

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 <211> 1507
 <212> DNA
 <213> *Lactobacillus harbinensis*

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<210> 29
 <211> 1568
 <212> DNA
 <213> *Lactobacillus mucosae*

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 <212> DNA
 <213> Lactobacillus pentosus

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<211> 1517

<212> DNA

<213> Lactobacillus plantarum

<400> 31

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<210> 32
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 <212> DNA
 <213> Lactobacillus reuteri

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<210> 33
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 <213> Lactobacillus rhamnosus

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<212> DNA
<213> Lactobacillus sake

<400> 34

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 <211> 1542
 <212> DNA
 <213> Lactobacillus salivarius

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<210> 36

<211> 1972

<212> DNA

<213> Lactobacillus paracasei

<400> 36

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<210> 37

<211> 1565

<212> DNA

<213> Lactobacillus kisonensis

<400> 37

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<210> 38
 <211> 1522
 <212> DNA
 <213> *Lactobacillus paralimentarius*

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<210> 39
 <211> 1554
 <212> DNA
 <213> Lactobacillus perolens

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<210> 40

<211> 1428

<212> DNA

<213> Lactobacillus apis

<400> 40

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<210> 41

<211> 1460

<212> DNA

<213> Lactobacillus ghanensis

<400> 41

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<210> 42
 <211> 1464
 <212> DNA

<213> Lactobacillus dextrinicus

<220>

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<223> n is a, c, g, or t

<220>

<221> misc_feature

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

<400> 42

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 <212> DNA
 <213> Lactobacillus lactis

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<210> 44

<211> 1510

<212> DNA

<213> Bacteroides vulgatus

<400> 44

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<210> 45
 <211> 1529
 <212> DNA
 <213> Bacteroides fragilis

<400> 45	
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gatagcataa tgattccgca tggtttcatt attaaaggat tccggtaaag gatggggatg	240
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ttgtgaaagt ttgcggctca accgtaaaat tgcagttgat actgtcagtc ttgagtacag	660
tagaggtggg cggaattcgt ggtgtagcgg tgaaatgctt agatatcacg aagaactccg	720

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<210> 46
 <211> 1462
 <212> DNA
 <213> *Faecalibacterium prausnitzii*

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<210> 47
 <211> 1521
 <212> DNA
 <213> Eubacterium rectale

<400> 47	
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<210> 48
 <211> 1539
 <212> DNA
 <213> Streptococcus thermophilus

<400> 48	
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cgttgattata gctagtaggt gaggtaatgg ctcacctagg cgacgataca tagccgacct	300
gagaggggtga tcggccacac tgggactgag acacggccca gactcctacg ggaggcagca	360

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<210> 49
 <211> 1436
 <212> DNA
 <213> *Pediococcus parvulus*

<220>
 <221> misc_feature
 <222> (1345)..(1345)
 <223> n is a, c, g, or t

<400> 49

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gggataacac ctggaaacag atgctaatac cgcataacaa agtaaaccgc atggtttact	180
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tgggactgag acacggccca gactcctacg ggaggcagca gtagggaatc ttccacaatg	360
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<210> 50

<211> 1540

<212> DNA

<213> *Pediococcus lolii*

<400> 50

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<210> 51
<211> 1540
<212> DNA
<213> *Pediococcus acidilactici*

<400> 51
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<210> 52
 <211> 1492
 <212> DNA
 <213> *Pediococcus argentinicus*

<400> 52	
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<210> 53
 <211> 1472
 <212> DNA
 <213> *Pediococcus clausenii*

<400> 53	
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aacaatgaaa tgagtggcga acgggtgagt aacacgtggg taacctgccc agaagagggg	120
gataacactt ggaaacaggt gctaataccg cataataaag aaaaccgcat ggttttcctt	180
taaaagatgg tttcggctat cacttctgga tggacccgcg gcgtattagc tagttggtaa	240
ggtaaaggct taccaaggca gtgatacgta cccgacctga gagggtaatc ggccacattg	300
ggactgacac acggcccata ctctacggg aggcagcaat agggaatctt ccacagtgga	360
cgaaagtctg atggagcaac gccgcgtgag tgaagaaggg tttcggctcg taaaactctg	420
ttgttaaaga agaacgtggg tgagagtaac tgttcaccca gtgacggtat ttaaccagaa	480
agccacggct aactacgtgc cagcagccgc ggtaatacgt aggtggcaag cgttatccgg	540
atttattggg cgtaaagcga gcgcaggcgg tcttttaagt ctaatgtgaa agccttcggc	600
tcaaccgaag aagtgcattg gaaactggga gacttgagtg cagaagagga cagtggaact	660
ccatgtgtag cggtgaaatg cgtagatata tggaagaaca ccagtggcga aggcggctgt	720
ctggtctgta actgacgctg aggctcgaag gcatgggtag cgaacaggat tagataccct	780
ggtagtccat gccgtaaacg atgaatacta agtgttggag ggtttccgcc cttcagtgt	840
gcagctaacg cattaagtat tccgcctggg gactacgacc gcaaggttga aactcaaaag	900
aattgacggg ggcccgaca agcgggtggag catgtggttt aattcgaagc tacgcgaaga	960
accttaccag gtcttgacat cttctgacat tctaagagat tagaagttcc cttcggggac	1020
agaatgacag gtggtgcatg gttgtcgtca gctcgtgtcg tgagatgttg ggttaagtcc	1080
cgcaacgagc gcaaccctta ttactagttg ccagcattaa gttgggcact ctagtgagac	1140
tgccggtgac aaaccggagg aaggtgggga cgacgtcaaa tcatcatgcc ctttatgacc	1200

tgggctacac acgtgctaca atggatggta caacgagtcg cgaaaccgcg aggttttagct	1260
aatctcttaa agccattctc agttcggact gtaggctgca actcgcctac acgaagtcgg	1320
aatcgctagt aatcgcggat cagcatgccg cggtgaatac gttcccgggc cttgtacaca	1380
ccgcccgtca caccatgaga gtttgtaaca cccaaagccg gtggggtaac cttttaggag	1440
ctagccgtct aaggtgggac agatgattag gg	1472

<210> 54
 <211> 1569
 <212> DNA
 <213> *Pediococcus pentosaceus*

<220>
 <221> misc_feature
 <222> (120)..(120)
 <223> n is a, c, g, or t

<400> 54	
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gaacttccgt taattgatta tgacgtactt gtactgattg agattttaac acgaagtagn	120
tggcgaacgg gtgagtaaca cgtgggtaac ctgcccagaa gtaggggata acacctggaa	180
acagatgcta ataccgtata acagagaaaa ccgcatggtt ttcttttaaa agatggctct	240
gctatcactt ctggatggac ccgcggcgta ttagctagtt ggtgaggtaa aggcccacca	300
aggcagtgat acgtagccga cctgagaggg taatcggccca cattgggact gagacacggc	360
ccagactcct acgggaggca gcagtaggga atcttcaca atggacgcaa gtctgatgga	420
gcaacgccgc gtgagtgaag aagggtttcg gctcgtaaag ctctgttggt aaagaagaac	480
gtgggtaaga gtaactgttt acccagtac ggtatttaac cagaaagcca cggctaacta	540
cgtgccagca gccgcggtaa tacgtaggtg gcaagcgtaa tccggattta ttgggcgtaa	600
agcgagcgca ggcggtcttt taagtcta atgtgaaagcct tcggctcaac cgaagaagtg	660
cattggaaac tgggagactt gtagtcagaa gaggacagtg gaactccatg ttagcgggtg	720
aaatgcgtag atatattgaa gaacaccagt ggcgaaggcg gctgtctggt ctgcaactga	780
cgctgaggct cgaaagcatg gtagcgaac aggattagat accctggtag tccatgccgt	840
aaacgatgat tactaagtgt tggagggttt ccgcccttca gtgctgcagc taacgcatta	900
agtaatccgc ctggggagta cgaccgcaag gttgaaactc aaaagaattg acggggggccc	960

gcacaagcgg tggagcatgt ggtttaattc gaagctacgc gaagaacctt accaggtctt	1020
gacatcttct gacagtctaa gagattagag gttcccttcg gggacagaat gacaggtggt	1080
gcatggttgt cgtcagctcg tgtcgtgaga tggtgggtta agtcccgcaa cgagcgcaac	1140
ccttattact agttgccagc attaagttgg gcactctagt gagactgccg gtgacaaacc	1200
ggaggaaggt ggggacgacg tcaaatacatc atgcccctta tgacctgggc tacacacgtg	1260
ctacaatgga tggatcaacg agtcgagaga ccgcgaggtt aagctaattc cttaaaacca	1320
ttctcagttc ggactgtagg ctgcaactcg cctacacgaa gtcggaatcg ctagtaatcg	1380
cggatcagca tgccgcggtg aatacgttcc cgggccttgt acacaccgcc cgtcacacca	1440
tgagagtttg taacacccaa agccggtggg gtaacctttt aggagctagc cgtctaaggt	1500
gggacagatg attaggtgga agtcgtaaca aggtagccgt aggagaacct gcggctggat	1560
cacctcctt	1569

<210> 55
 <211> 1529
 <212> DNA
 <213> *Pediococcus stilesii*

<400> 55	
gatgaacgct ggcggcgtgc ctaatacatg caagtcgaac gaacttccgt taattgatta	60
agcgggtactt gtaccaattg agattttaac acgaagttag tggcgaacgg gtgagtaaca	120
cgtgggtaay ctgccagaa gtaggggata acacctggaa acagatgcta ataccgtata	180
atagagaaaa ccgcatggtt ttcttttgaa agatggctct gctatcactt ctggatggac	240
ccgcggcgca ttagctagtt ggtaaggtaa aggcttacca aggcagtgat gcgtagccga	300
cctgagaggg taatcggccca cattgggact gagacacggc ccagactcct acgggaggca	360
gcagtaggga atcttcaca atggacgcaa gtctgatgga gcaacgccgc gtgagtgaag	420
aagggtttcg gctcgtaaag ctctgttggt aaagaagaac gtgggtgaga gtaactgttc	480
accagtgac ggtatttaac cagaaagcca cggctaacta cgtgccagca gccgcggtaa	540
tacgtaggtg gcaagcgtaa tccggattta ttgggcgtaa agcgagcgca ggcggtcttt	600
taagtctaata gtgaaagcct tcggctcaac cgaagaagtg cattggaaac tgggagactt	660
gagtgcagaa gaggacagtg gaactccatg tgtagcgggtg aaatgcgtag atatatggaa	720

gaacaccagt ggcgaaggcg gctgtctggt ctgcaactga cgctgaggct cgaaagcatg	780
ggtagcgaac aggattagat accctggtag tccatgccgt aaacgatgaa tgctaagtgt	840
tggaggggttt ccgcccttca gtgctgcagc taacgcatta agcattccgc ctggggagta	900
cgaccgcaag gttgaaactc aaaagaattg acggggggccc gcacaagcgg tggagcatgt	960
ggtttaattc gaagctacgc gaagaacctt accaggtctt gacatcttct gacagtctaa	1020
gagattagag gttcccttcg gggacagaat gacaggtggt gcatggttgt cgtcagctcg	1080
tgtcgtgaga tgttgggtta agtcccgcaa cgagcgcaac cttattact agttgccagc	1140
atttagttgg gcactctagt gagactgccg gtgacaaacc ggaggaaggt ggggacgacg	1200
tcaaatcatc atgcccctta tgacctgggc tacacacgtg ctacaatgga tgatacaacg	1260
agtcgcgaaa ccgcgagggt tagctaattc cttaaaatca ttctcagttc ggactgtagg	1320
ctgcaactcg ccyacacgaa gtcggaatcg ctagtaatcg cggatcagca tgccgcggtg	1380
aatacgttcc cgggccttgt acacaccgcc cgtcacacca tgagagtttg taacacccaa	1440
agccggtggg gtaacctttt aggagctagc cgtctaaggt gggacagatg attagggtga	1500
agtcgtaaca aggtagccgt aagaaaacc	1529

<210> 56
 <211> 20
 <212> DNA
 <213> Bifidobacterium longum subsp. infantis

<400> 56	
atacagcaga accttggcct	20

<210> 57
 <211> 20
 <212> DNA
 <213> Bifidobacterium longum subsp. infantis

<400> 57	
gcgatcacat ggacgagaac	20

<210> 58
 <211> 27
 <212> DNA
 <213> Bifidobacterium longum subsp. infantis

<220>

<221> misc_feature
<222> (1)..(1)
<223> FAM dye

<220>
<221> misc_feature
<222> (10)..(10)
<223> n = ZEN quencher

<220>
<221> misc_feature
<222> (11)..(11)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (25)..(25)
<223> n = IABkFQ quencher

<220>
<221> misc_feature
<222> (27)..(27)
<223> n is a, c, g, or t

<400> 58
ntttcacgga ntcaccggac catacgn

27

<210> 59
<211> 1113
<212> DNA
<213> Bifidobacterium longum subsp. infantis

<400> 59
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ggaaatacag atcagctgct attcgacgag gaatttaatg catggtttgt gttcaatgtg 120
cgtaaccttc atactttgat aagagatgag cggctcaaag ccaacactaa aactgtcata 180
gataaactcc ctctgaagat agaaactata cggacattaa agaattttta ttccaactgg 240
gttatgttca ccgacggaga gtctcataaa cagcttcgtc gcctagtggg aacaatcatt 300
aatactcgtt atcacgcat aaattacaca tggccgcaa tcaataaaaa ttgtgacttc 360
actacagagt atgcaaggcc ttatgtgtac ggtatccttg ctcaactggt ggggtgtctct 420
gtagaagaca tttcaagaat ggtctcggca tcggaaacca ttaactcgtt cttactgcgc 480
gaacggctta cgctagacga tatcgaaca gtcgcgcat caatcgaata cgcgtatcag 540
gttgtcaaag aaatcgaaga taagcatgta ggggagccgc tgtacatagg caacgaattg 600

cttgacttgc ctcaggagac acgatatccc ctcatcatta atctagtaac cgatggtttt	660
gccccattcg tagctgcgct tgatttcctg gcgttcaatc tgttgactca cccatattta	720
gaggaagagc tcaatgcaaa agcagggcaa atatcccttg aaagtcttcg gttgttcct	780
ccattcacga caataagcag gacatgcgtg catgaaatac cttttaagga aaaaattatt	840
agaccaaggc agttggtaat ttttgattta tacagcatta atcgcgaccc ggaagttttt	900
cccgatccgg aaaaatttaa ccttgagaac actgcaagag catactcctt tggggctgcg	960
cagcatctat gtcggaagaaa ccgctgggtg agaaaagccc tggaacaagt aacgcgcaa	1020
agcgaatcac tatataaata caagatacag tcttattgct tcaaaaattc atacggtttt	1080
accgacatga atttgtctat tgaattaaaa taa	1113

<210> 60
 <211> 333
 <212> DNA
 <213> Bifidobacterium longum subsp. infantis

<400> 60	
atggaacca tcaaagactg gctgaccggc ctcgaccgag aatccaaact gcagatcctc	60
gccgccgtcg aagtcctgaa agaacaagga cccaacctca gacgaccact ggtaggcaaa	120
atcgaaggct ccaaaatcaa atcgatgaag gaactccgac ccggctccgc aggcaaaagc	180
gaaatacgaa tactgttcgt gttcgaccgc aaccggcagg cgataatgct cgtcggcgga	240
gacaagcaaa acaaatggtc gaaatggtag aaaacggcca taccggaagc ggaagaccgg	300
tatgaggcgt ggcttaaaca gaacaacaaa tga	333

<210> 61
 <211> 1101
 <212> DNA
 <213> Bifidobacterium longum subsp. infantis

<400> 61	
atggacgatg cgagctacat gggactcgcg atcgagctgg cgaagcgagg ggccggatac	60
gtgaaccca atcccatggt cggcgcggtg atcgtcaagg acgatcggat catcgggcag	120
gggtatcacg agatgttcgg cggattgcac gccgagagga acgcgttgcg gcattgcacg	180
cagtcacccg ccggggcgac gttgtacgtc acgcttgagc cgtgctgcca ttacggcaaa	240
acgccgcat gcacggaggc gatcgtggaa agcggcatcg caagggtcgt cgtcgggaacc	300

ttggactgca atccccgtggt gtccggcaag ggcgtgcgca tgctcgaaga ccacggcata	360
cgggtcgatg tgggggtgct ggccgacgag tgccggcatc tgatacgggt gttcagcaaa	420
tacatcacca cgcatacgcc gtatgtcatc atgaaatacg ccatgacgat ggacgggaag	480
atagcgaccc ataccaatca atcacggtgg atcagcggcg aggagtcgag gcgtcgggtc	540
catcagctcc gtcgatccgt cgcggcggtc atggtggggg tgaacacggt gatcaggac	600
gacccgttgc tgacatgccg catggcacac ggaaggaacc cggttcgcgt cgtctcgat	660
acgcgattga ggacgcccct cacctcgcgg atcgtgcaga cggcgaatga cgtcaggacc	720
tatatcgcca ccgcctgcga tgacgaacgc aaggcggagg actaccggcg gcacggctgc	780
gaaatactcg ccgtcgggaag gaagggcgac cacgtcgatc tggcggacgt ggtgcggcgc	840
ctgggggata tgcagatgga cagcgtgctg ctggaaggcg ggagcgcgat gaattggagc	900
gccctcgaac agcggatcgt cgatgaggcg cacgtgtaca tcgcgccgaa gatattcggc	960
ggcaccgca aaagcccgtt gggcggccaa ggggtcgccc tgccttcga gccgcatg	1020
ctccggcccc gcgcctgctc ccgagtggga gaggattatc tgggtgaaaag cgaggtggtg	1080
tattcatgtt cacgggaata g	1101

<210> 62
 <211> 1638
 <212> DNA
 <213> Bifidobacterium longum subsp. infantis

<400> 62	
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gcggcagcga tggccgcaac atgcgcgttt gcaccggtag cgaatgcgga gccgtttct	120
ccgacacagg aaaccataca atcgaccggt cgccatttca tgggtgtacta ccgcgcgtgg	180
cgtgatgtca cgatgaaggg tgtcaacacc gaccttcag acgataactg gatttcgatg	240
tacgatattc cgtacggcgt cgacgtggtc aatatattca gctatgttcc atcgggacag	300
gaagaacagg cgcaaccgtt ctacgataag ctcaaacttg attatgcacc gtacttgcatt	360
tcgcgtggca tcaagctggt tcggggcatt gattacaccg gcgtggcggg caatggtttt	420
cgtactttca tgaaagagca gaacaaaacc gagagcgagg cgaccgaagc tgattatgat	480
gcctatgcta agcaagtaat cgataaatac atgatctccg ttggcttgga tggcttgat	540
atcgacatgg aggcgcaccc gaatgatgcc gatgtgaaga tctccgacaa tgtgattcgt	600

gcactgtcca aacacatcgg tcccaaattcc gccaaagccgg ataccacgat gttcctttat	660
gacacgaatg gatccttatct caatccgttc aagaatgtgg cggaatgctt tgactacgtg	720
gcataccagc agtacggttc ttcctccgat cgcaccgcta gggccgccgc cgattatcag	780
ccttatatcg gcaacgagtt tgtgccgggc ctgacgttcc ccgaagaagg ggacatgaac	840
aatcgctggg atgatgccac cgagccgtat gaagaaagcc atttctatca agtggcgtca	900
tatgtgcgtg agcataatct tggcggcatg ttcgttttac cgctcgaccg agacggtcgc	960
aactatgatg aagacctgcg tcggattgta ccgtccaact tgctgtggac caagaccgcc	1020
attgcggaga gcgagggcat ggcgttggat acggcaaaga ctgcagcgaa ccattacctt	1080
gatcgcatgt cgttgctca ggtgattgac gacaacgccg catccgcgga taaggcgcgg	1140
gatatgggtgg ggaaggccgc taacctatac gagacaaata aagcagtcct tgggtggtgac	1200
tacggagaag gtttctcaa cacatatgat ccgacattgg aagctggatt attagggatt	1260
gacatctccg tgttgcaaca gcagattgat aaatccagtg agatcattgg tgccgatacg	1320
gcggaatcgg atgcaaaaac tgcactccgt atggcacgtg atgccgccat cgatggtttg	1380
accggcaaga tctacacagc ggaccaagta tcagcgtggg cgaggcatt gaaggcggcg	1440
cttgatgcca ccgtgccggg tccgacgcca gattccaccg atcagaatgg caaccgtgac	1500
aaggttacca atcacaaagt gcaaggccaa ccgaagcaac tgagtgcgac cggcatctcg	1560
acggatatta tcgttgccgt aggcgtgact cttgccatcg caggggtggc tctgtctcta	1620
tcacgtaagc tctcctga	1638

<210> 63

<211> 876

<212> DNA

<213> Bifidobacterium longum subsp. infantis

<400> 63

atgcagtacg ttaagggcac caatcaggaa ctattgacca catcaccgca gttccctgcc	60
ctgggtcatcg cacatcaggg attcgacaaa gccaggttgc attggcatga aggcttcgag	120
gtggtatacg tccgacgctg tcggggccaca gtgatgaaag gcaccaacg ttcgatgcat	180
catgccggtg atgtagtact gattcctcca cgctgcctgc atagcatcga acttattcag	240
gatcttcggc aaccatcagc tgtaccgag gcgctttccg taacgatctc gccacggag	300

ttgctaccgt catatccgta tattacccaa atccaacaac agctggatta cgactacatt	360
ggcgaaaaag atcatcaaca attgctgaaa tgctgcgaac aaatgtttgc ggcactgac	420
agtggcaagc agacacgggt ccttgaagcg aattcctggt tctacaccat gcttaccaat	480
gtttttgact acgccaaacc attggctgca gcgaaccaag aagacaccga ggatgaaacc	540
atactccagg atggacgagt cattagacga atacgccact acgtgcaacg tcattatcgc	600
gagcccctat ccaccgcaca ggtgtcgcag aaattcggat attcacgaga gcatttttca	660
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ctggcggcct gcgatttgct caccaacacg gatatgcaa tcaatcaaat cgtccgggaa	780
tccggattcc ccagttctca aaccatgcga ggatcgtttg accgcgaatt cgcatgcacg	840
cccagcgaat atcgctctcg ttcgatggaa gaataa	876

<210> 64
 <211> 696
 <212> DNA
 <213> Bifidobacterium longum subsp. infantis

<400> 64	
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gtcagctgtc aagcatatcc cggcgagcca atgcggcatc ccgaaaccat ggcccaagtc	120
gctcaatcag tagtaatcgg cggcgctgcc gccattcgat gccaaggtct tgccgatatc	180
agcgccatca aaggccaagt aaaagttcca gtcacggca tatggaagga aggcgataac	240
ggcgtataca tcacgccaac gttacgccac gccagagcct gcattatggc gggagccgac	300
attgtggcac tcgatgctac agatcggcct cggccagacg gtctaactct gcagcagacc	360
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tccgatgcag ccgtggatgc aggattcgac atcatctcca ccacgtggc tggatacacc	480
gattcccgcg ccaaaacaga aggaccggat tacgagctcc tcgctcaaat gctggagcgg	540
cacccccacg taccggtgat atgcgagggt aggatacata ctccgtccga tgcggccaaa	600
gccatagaaa tgggtgcctg ggcagccgta gtcggtaccg ccatcaccca ccccatgacg	660
ataacgtcat ggttcgccga tgcagtaagg tcctga	696

<210> 65
 <211> 1020

<212> DNA
<213> Bifidobacterium longum subsp. infantis

<400> 65
atgagttttg caagcataat ccatcagcat acggtgatat ccgtggacat cggcggcacc 60
aaaatcgccg ctggtctcat gtgcgtagac ctcgacgaac aaggaagacc gcgggacatg 120
ccagcgttga ttcgacggta cgtcataccg acgaaagcac gtctcggcgg cacctccgta 180
ttgcaacgcg tcgttcaagc cattcgccag tgtctggacg atggtgagat tcctttccca 240
ctattgggga tcggtgtagc gagcgcagga gtcattgacg gcaacggttc ggtggtatca 300
gccacttcgt tgattcccgg ttgggccggt attcaactgc aagccgaatt atcggcaacg 360
ttcaacgtgc ctgccatcgt catcggagat gttcaggcac acgcccttgg tgaagcgcac 420
tggggatgcg gacgacaata ccaatcacta ctggtcgccg ccatcggcac cggtatcgga 480
ggcgcgataa tcatcgacgg gaaactggta cgcggcgtcc acggagcctg tggccatatc 540
ggccatctgc cgcatcccga cgccattggt atatcctgct catgtggatg tgagggccat 600
gtggagtcaa tcgcctcagg taccggcatt gccgataatt atcgacgtgc tctgcaacag 660
aacggacaca atactctccc caccgacatc aatggacgcg ctatcgccga actggccagt 720
caaggtagta cggaagccgt aaccagtatc actctggccg gcacgagtct cggcgatggt 780
cttggcggac taatcaatgc ccttgatccc gatgccgtga tcctttccgg ctccgtagtc 840
cattctggag agctatggat gaaatctgtg aaacaaggca tccaaagaca gaccttgggc 900
attctttccc gaacaccggt tttagacagga acactcggcg gcagagcccc tctcatcgga 960
gcaacatcag ctctgtgcgc cgacctcaga tcaaataagg agcagaaata tgaataactaa 1020

<210> 66
<211> 948
<212> DNA
<213> Bifidobacterium longum subsp. infantis

<400> 66
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aaatctcatc gtcaggtcg atattccgcc gagcggcagc cccatgcgtg gctgttgctg 120
ttcccgccct tggcgtgat caccgtgttc aatctgcttc ccctggtgcg tatcttcatc 180
atgtcgctgc agggcgggac gttgaccggt caacggtttg tgggaatgcg taattttggt 240
ttcgtgttcg cggatcccga attccgcaag gccatcgcca atacggcgct gttcgcattc 300

gtcgtggtgt cggtcgggct ggtgctgtcg atggcggtgg ccgtggccat caatggaaag	360
cttcgcggag gcaggggtctt cgaaatcctg ttcttcatcc cctatctgac ctcggtgatc	420
gccatcggca tgggtgttccg gtatctgttc aacggcgatt acggtcttgt caattacgtg	480
ttgggtctgt gcggccttgg accctatgat tttctcaacg atccgaagtt caatatgccc	540
acgctcatca tcttcggcat atggtcgtcc ctggcgttca acatcatcat tctgttgtcg	600
ggcctgcgcg gcatagacaa ggaatattac aaggtggccg acatgttcgg cgccacggcc	660
tgggagaagt tccgccggat cacgttgccg cagatgggtgc cgattctgac gttcctgtcc	720
atcgtggatt tcatcaattc cttcaaggtg tatacggagg tgtacgcctt gttcaacggg	780
aaggccggta tcggcgatag cgccacgacg gcggtgttct acgtgttcaa caagttctac	840
gtggacaaca agtatgggca gggcatggcc gcggcggtgg tgctgttcct ggtgattctg	900
gctttcacca tcatccaagg catcgtattg aggaggctgg cgaagtga	948

<210> 67

<211> 1185

<212> DNA

<213> Bifidobacterium longum subsp. infantis

<400> 67

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gccgaggcgc ccaacggctg gatcctcgcg gcgttcgacg cgcgggccca taactgccag	180
gatgccccgc aagccaattc gatcgtgcag cgtatctcca aagacggcgg ccggtcattc	240
gagccgcagc atgttgtggc cgccgggcat gatggcgtcg acaaatacgg gtattccgat	300
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gacgccggtt tcggaacctc ccaggcgggc gtcgatccct ctgcgcgtga ggtgcttcaa	420
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gccgacatca cgaacagcga atcatggatt tcacggttcg cttcttccgg tgccggcatc	540
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aataataaca ttatgtacac ccgtatctcg ctcgactggc tcaacggcca gctgaacgtc	1140
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<210> 68
 <211> 438
 <212> DNA
 <213> Bifidobacterium longum subsp. infantis

<400> 68	
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cagctgatac cgctggacca atacacggaa caccggtgc tgctgatgga caaggttccc	240
ggagacaccg tggacacccc gatatgggac cggtaccgtc aggtcatcga caggcacgag	300
cccggcaagc aagcgggcat cgggatgctg gaacggttcg ccttctacga ggaggccggc	360
aggtcctatt gcatcgtcgc caccggcgaa caatcgcagt atgcgaacat catcatcaga	420
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<210> 69
 <211> 705
 <212> DNA
 <213> Bifidobacterium longum subsp. infantis

<400> 69	
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ctgccgaatg ttcggttagc ttggaaggcg aataccggaa ccgatgctct ggaatatgcg	180
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catcgtctgg ttcgacttcc cgtgaataga atcgaaagat tgtcggaacg ggaaaaatat	540
gccatggaac tatattcaca gtcgtataag cccactcaga ttgcccggat gatggatggt	600
tcggcagggga cggtgaaaac ctatcttgac cgtgctcaga acaaactcca tcttacttcc	660
agagccgaac tgattgccta ttggtggagg cgggaacgat gctga	705

<210> 70

<211> 1722

<212> DNA

<213> Bifidobacterium longum subsp. infantis

<400> 70

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gatgaattga aattcggcgg cggaaaatcc ttccgggacg gcatggggca gtcattccgtc	180
cagaaggact ccgaatcgcc ggacacggtc atcaccaacg cgctcgtcgt cgattacacc	240
ggcatctaca aagcggatat cggcatcaag gatgggaaga tcagcgcgat cggcaaggcc	300
ggcaacccgc agaccatgga cggggtgacc ccgggtcttg cagtcggcgc gtgcacggag	360
gcaatcgccg gtgaagggtc catcctcacc gccggcggca tcgacacca tattcatttc	420
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ggcaccgggc cggctgacgg caccaacgcc accacatgct cgccgggcgc gttccacatc	540
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caggtcaacc ccgagacgtt ccaagtgagc gtcgacggcg agccgattca cagcgaaccg	1680
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<210> 71
 <211> 963
 <212> DNA
 <213> Bifidobacterium longum subsp. infantis

<400> 71	
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gtggcgcggt cgttcttcga gagctcgatc ccggagagcc tgcatgacgc cgcgcagatc	600

gacggcctgg ggtatttcgg gtatttcctg cggatcgtgc tgccgttgag ctccgcgac	660
ctggcggtga tgacgttgta ttacttcgtg ggtcattgga acgacttctt cactggcttg	720
gtgtacatcc gcgacgcgga caagctgccg ttgcagaacg tgttgcggtc catcctgttg	780
tcgaaccaga cgaacatcac cggtcagagt tcgggtggca tggacgtggt gcagcagcgt	840
gatttcgcga accagatcaa gtacggcgtg atcatcgtgt cgacgttgcc gttgctggtg	900
ttgtatccgt tcctgcagaa gtatttcaac aagggcgtga tgatcgggtc cgtgaagggc	960
tga	963

<210> 72
 <211> 954
 <212> DNA
 <213> Bifidobacterium longum subsp. infantis

<400> 72	
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tactggatca gcgaggtgtg gcagcacatg ggttggaact gcatcatcta tctggcggcg	600
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atgaacatgg gttccgtgct caacgtgggc ttcgagaagg tgctgttgat gcagaacccg	780
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aaccagttca gctacacgac ggccataggc ctgttcaaca ccgtgggtcaa cttcttcttc	900
ctggtgctcg ccaacttcat ttcgaagagg gcgtcggaca ccagcatctt ctag	954

<210> 73
 <211> 1395
 <212> DNA
 <213> *Bifidobacterium longum* subsp. *infantis*

<400> 73
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 gcctgggtaca cggaacatgc gccggacacc gcgcagtggg gcatcgccgg tttcaccgga 180
 cgttctcgcc gaatggtcga caagctggcc cctcaggaca acgtctacac gctgatcacc 240
 tcggcaccgg aaggcgattc gttcgaagtc atctcttcga tttcatcgat gcatgagggc 300
 ggcgacatgg cggcactgca caagtacttc gcggatccga acgtgtccat cgtcacctcc 360
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 gacgtgtcgg aggacctcgc caaactgcgt aacgatgtga acgtgtccga acttgccacc 480
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 gtgaggaaac ttgccgtcaa cgatgacgtc accccagccg tgtcctacct ggacaaggat 1320
 cttggcgcca acgccacttt caccaacaag gtgagcgaac tcgtcaacga gctgtcttcg 1380
 gcgacagccg cgtga 1395

<210> 74
<211> 1431
<212> DNA
<213> Bifidobacterium longum subsp. infantis

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gcacgtcgac tgtacgaggc aatcaaggat cgtcccatca tctcccctca cggacacgtc 120
cctatcgact ggttcgcgga agacaagcat ttcaagaacc ccaccgatct attcatcact 180
cctgatcact acgtgaccg tatcatgcac ggacatagtg ttcctttcag cgagctgggt 240
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tactggtatg cctatgctgg cacgccgatg cgttactgga tggaggattc gctgtccaat 360
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atcgccattc gttccgtgga cggtcagcct tctgacgtgt tcaagctctg a 1431

<210> 75
 <211> 1536
 <212> DNA
 <213> *Bifidobacterium longum* subsp. *infantis*

<400> 75
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 aatctcgcgt tttccttgggt acgtgtggtg gccatggtcg cgcttttcgg gattctgccg 540
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<210> 76
 <211> 897
 <212> DNA
 <213> Bifidobacterium longum subsp. infantis

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gcatcaagg gcgcgggtcaa ggccaaggga ctacccatcg acacgtccgt ccacgagccc	840
gccgtgcagc tgaccgacga gcagtatcgc accatccgcg ccatcctgga caagtga	897

<210> 77
 <211> 1266
 <212> DNA
 <213> Bifidobacterium longum subsp. infantis

<400> 77	
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