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(71) 申请人 爱尔兰公司 (爱尔兰生物研究)

地址 爱尔兰都柏林

申请人 爱尔兰戈尔韦国立大学

(72) 发明人 托马斯·杰勒德·巴里

特伦斯·詹姆斯·史密斯

(74) 专利代理机构 中原信达知识产权代理有限

责任公司 11219

代理人 张颖 谢丽娜

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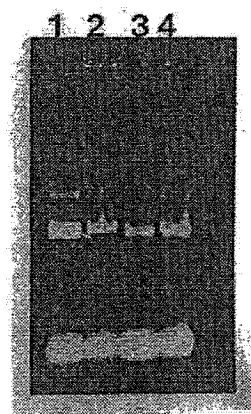
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(54) 发明名称

应用于原核生物和真核生物的基于核酸探针
的诊断检验

(57) 摘要

本发明涉及应用于原核生物和真核生物的基于核酸探针的诊断检验。具体地,本发明描述了能够作为核酸探针检验的靶点区来检测并鉴别原核生物和/或真核生物的 *ssrA* 基因或 *tmRNA* 即 *ssrA* 基因的 RNA 转录序列,或其片段。不同生物的 *tmRNA* 序列的核酸排列对比可用于鉴别序列内的同源区和非同源区,这些区域又可以用来设计属特异性和种特异性的寡聚核苷酸探针。这些新鉴定的同源和非同源区提供了在分子水平鉴别和检测生物体的基础。以此方式鉴别出的这种寡核苷酸探针可用于检测样品中的 *tmRNA*,由此能够指示不同样品类型中存在的非病毒生物的生存能力。



1. 微阵列基因芯片系统,所述微阵列基因芯片系统包含 ssrA 基因探针或 tmRNA 转录序列探针。

2. 权利要求 1 的微阵列基因芯片系统,其中 ssrA 基因探针来自于以下 ssrA 序列或其互补序列,所述 ssrA 序列选自:SEQ ID NO:47、49、51、53、55、57、59、61、65、67、71、99、159、161、163、165、167、176、178、180、182、184、186、188、190、192、194、196、198、200、202、204、206、208、210、212、214 和 216。

3. 权利要求 1 的微阵列基因芯片系统,其中 tmRNA 转录序列探针来自于以下 tmRNA 序列或其互补序列,所述 tmRNA 序列选自:SEQ ID NO:48、50、52、54、56、58、60、62、66、68、72、98、160、162、164、168、177、179、181、183、185、187、189、191、193、195、197、199、201、203、205、207、209、211、213、215 和 217。

4. 权利要求 1 的微阵列基因芯片系统,所述探针选自:SEQ ID NO:169、174、175、218-223 和 228。

5. ssrA 序列,其选自:SEQ ID NO:47、49、51、53、55、57、59、61、65、67、71、99、159、161、163、165、167、176、178、180、182、184、186、188、190、192、194、196、198、200、202、204、206、208、210、212、214 和 216。

6. tmRNA 序列,其选自:SEQ ID NO:48、50、52、54、56、58、60、62、66、68、72、98、160、162、164、168、177、179、181、183、185、187、189、191、193、195、197、199、201、203、205、207、209、211、213、215 和 217。

7. 寡核苷酸探针,其选自:SEQ ID NO:169、174、175、218-223 和 228。

8. 寡核苷酸引物,其选自:SEQ ID NO:170-173 和 224-227。

应用于原核生物和真核生物的基于核酸探针的诊断检验

[0001] 本申请是申请日为 2000 年 5 月 15 日、中国国家申请号为 00807503.4、发明名称为“应用于原核生物和真核生物的基于核酸探针的诊断检验”申请的分案申请。

技术领域

[0002] 本发明涉及用于原核生物和 / 或真核生物的检测和鉴定的核酸检验中靶序列的鉴定。

技术背景

[0003] *ssrA* 基因编码小而稳定的高拷贝数的转录 RNA 序列 (tmRNA), 该基因在所有的细菌中都存在, 并且近来证实这种基因还存在于叶绿体和硅藻体中。tmRNA 具有 tRNA 和 mRNA 分子的双重功能, 并且参与补救失去终止密码子的截短的 mRNA, 促进截短的多肽在蛋白酶进行降解之前完成通读翻译 (Keiler, K. C. et al. (1996), Science, 271, 990-993)。tmRNA 的这种特殊功能使得研究者开始对其分子的二级结构与功能之间的关系进行分析。这些研究集中在来自不同微生物的 tmRNA 的二级结构的保守性以及这种结构保守性在进化上的意义和功能相关性。Matveeva 等 (Matveeva. O et al (1998), Vol. 16, No. 13, 1374-1375) 用 tmRNA 作为含有二级结构的 RNA 的模型研究了寡核苷酸与 RNA 分子的结合。研究没有实现鉴定 tmRNA 上的位点以及设计用于治疗目的的反义寡核苷酸的目标。

[0004] 现在用于细菌诊断的核酸靶点 / 探针的数量非常有限。因此, 当前需要优先考虑鉴定出用于诊断目的的 DNA 和 RNA 靶点。用于发展探针的靶核苷酸序列例如可以是质粒, 核糖体 RNA 基因, 基因之间的序列, 编码毒力因子的基因或随机基因组 DNA 片段。此外许多 RNA 分子已被人描述为可以作为基于 RNA 的检测的靶点如核糖体 RNA 和 RNA 酶 P。

[0005] 任何基于核酸探针的检验都需要对当前所研究的真核生物和原核生物的核酸序列的特征有清楚的了解。对原核生物或真核生物进行可靠的检测, 所用核酸探针应该为高度特异性 (即, 和其它生物的核酸序列没有交叉反应) 和高度敏感性 (即, 该生物的所有或多数株系都应该与探针反应并被检测到)。所以, 优选的靶点序列应存在于目标生物体的所有的株系之中。该序列应具有显著的序列变异性以保证将目标物种与其它亲缘相近的物种能够区分开; 但另一方面, 应具有足够的序列保守性以保证能够检测出目标物种的所有株系。一般来说, 对一个核酸序列的精确鉴定是进行核酸探针检验的基础, 但精确鉴定是费时、困难和不确定的。到目前为止只有为数不多的几种方法能够用于发展核酸探针来进行较广范围的微生物检测。已经被证实可以作为开发探针中潜在可用的靶点的核酸序列包括如 rRNA 基因和 RNA 以及 rRNA 16S/23S 基因间序列。

[0006] 多数核酸探针 / 靶点检验都集中于用细菌的高拷贝核糖体 RNA (rRNA) 和 rRNA 16S/23S 间隔区序列 (欧洲专利 No. 0395 292) 来进行检测和鉴定。市场上已经有的很多成功的商品化细菌检测试剂盒是基于 rRNA 探针 / 靶点来检测多种微生物。这包括由 Genprobe Inc. (San Diego California) 出售的基于 16S rRNA 的一系列商品化探针诊断试剂盒, 以及由 Innogenetics N. V. (Ghent, Belgium) 出售的基于 16S/23S 间隔区序列的 DNA 探针。但

是大多数这种诊断试剂盒都有其局限性,包括由于靶点序列的低拷贝数造成的敏感性缺乏以及很多情况下由亲缘相近的生物体之间的序列一致性引起的特异性缺乏。

[0007] 能够直接应用于样品中指示其中存在的任何活的微生物的基于核酸的检测方法在食品、工业、环境和医学中的应用都有重大意义。

[0008] 基于 DNA 的检测方法的一个缺点是他们不能区分活的和死的生物体。一些研究致力于用 rRNA 和 mRNA 作为细胞存活的指示剂(Sheridan, G. E. C. et al. (1998) *Applied and Environmental Microbiology*, 64, 1313-1318)。但是这些序列并不是合适的靶点,因为 rRNA 和 mRNA 在细菌死后在其细胞中还会存在 48 小时。

[0009] 随着基于核酸的类似微阵列形式的能同时对多核酸靶点进行监测的技术的出现,现在需要鉴别和表征新核酸序列作为探针和 / 或靶点区域来检测和鉴别活的真核细胞和原核细胞。

[0010] 发明公开

[0011] 本发明提供 *ssrA* 基因或其片段作为对原核生物或真核生物的核酸探针检验中的靶点区域。

[0012] 因此,本发明适用于除病毒外的所有生物体。

[0013] 尚没有有关使用 *ssrA* 基因的区域作为靶点区来检测和鉴别原核生物和真核生物的其他核酸探针检验及其相应的优势的报道。

[0014] 根据本发明的一个实施方案, *ssrA* 基因分子中与从 DNA 分子 5' 末端起的高同源性区相对应的片段能够作为通用靶点区域。

[0015] 在本发明的另一个实施方案中, *ssrA* 基因分子中与从 DNA 分子 3' 末端起的高同源性区相对应的片段能够作为通用靶点区域。

[0016] 在本发明的一个进一步的实施方案中, *ssrA* 基因分子中与低同源性区域相对应的片段能够作为区分不同物种的核酸探针检验的靶点区。

[0017] 在本发明的另一个进一步的实施方案中, *ssrA* 基因分子中与低同源性区域相对应的片段能够作为用来产生属特异性探针的靶点区。

[0018] 如下文所描述,不同生物体的 *ssrA* 基因的核酸序列的对比表明这些分子的 5' 和 3' 区具有高度同源性,所以可以用为通用靶点序列区。在亲缘相近的生物体间, *ssrA* 基因比其它细菌高拷贝数 RNA 有更显著程度的序列变异性。这些变异区可作为区分不同物种的核酸检验的理想靶点。

[0019] 本发明还提供了 tmRNA 即 *ssrA* 基因的 RNA 转录序列或其片段用作为对原核生物或真核生物的核酸探针检验中的靶点区域。

[0020] 根据本发明这一方面的一个实施方案, tmRNA 分子中与从 tmRNA 5' 末端起的一段高同源性区相对应的片段能够作为通用靶点区。

[0021] 可替代地, tmRNA 中与从 tmRNA 3' 末端起的一段高同源性区相对应的片段能够作为通用靶点区。

[0022] 根据本发明这一方面的一个进一步实施方案, tmRNA 分子中与低同源性区相对应的片段能够作为区分不同物种的核酸探针检验的靶点区。

[0023] 根据本发明的另一个进一步的实施方案, tmRNA 分子中与低同源性区域相对应的片段能够作为用来产生属特异性探针的靶点区。

[0024] 根据本发明的核酸探针(DNA 或 RNA)典型地含有来自于 *ssrA* 基因或 tmRNA 转录序列或它们的互补序列的至少 10 个核苷酸,这些探针被用于真核生物或原核生物的核酸探针杂交检验。探针与它的互补序列的杂交典型地通过在核酸探针上标记上放射性或非放射性(如比色的或荧光的)标记物来揭示。

[0025] 在优选的实施方案中,所述的 *ssrA* 基因片段或 tmRNA 片段可作为用于扩增过程中所用的引物的基础。

[0026] 与 *ssrA* 基因或 tmRNA 序列的 5' 或 3' 区相对应的通用寡核苷酸引物可按照本发明使用,以便从广泛的细菌谱中扩增 *ssrA* 基因或它所编码的 tmRNA,有助于实现大范围生物体的同时扩增,同时能使特异性的核酸探针发生杂交并进行检测。

[0027] 优选地,扩增过程的产物可以作为核酸探针检验中的靶点区。

[0028] 更加优选地,tmRNA 分子的 cDNA 转录序列被作为探针用于核酸杂交检验。

[0029] 这种检测可以在体外完成或在原位完成。

[0030] 这里所定义的靶点区能够作为区分活的和死的原核生物或真核生物的检测的基础。

[0031] 与细菌死后存在于其细胞中的 rRNA 和 mRNA 不同,tmRNA 在死亡的生物体中迅速降解。因此,tmRNA 能够作为有用的靶点来区分死的和活的原核生物或真核生物,即,通过核酸探针直接与分离的细菌 RNA 杂交或者通过将 RNA 扩增并将扩增产物和核酸探针杂交来将死的和活的原核生物或真核生物进行区分。

[0032] 优选地,靶点区以多种探针形式使用,以大范围地检测和 / 或鉴定原核生物或真核生物。

[0033] 根据本发明的 *ssrA* 基因探针或 tmRNA 转录序列探针可以被连接到微阵列基因芯片系统上,以大范围地对原核生物或真核生物进行高通量的检测和鉴定。

[0034] 根据本发明的靶点区能够作为试验中的探针来检测目标样品中的原核生物或真核生物。

[0035] 上述目标样品包括生物样品例如呼吸道的组织样品,泌尿生殖道的组织样品或胃肠道的组织样品,或者体液如血液和血液组分,唾液或脑脊液。

[0036] 根据本发明的检验还可以在其它样品中完成,如食品样品,环境样品包括空气、水、海洋和土壤样品,以及植物和动物来源的样品。

[0037] 根据本发明,*ssrA* 基因或 tmRNA 转录序列的片段可被用于获得原核生物或真核生物物的 DNA 图谱的检验中,并因此能够区分同一物种的不同株系。

[0038] 核酸序列的对比表明在每一物种之内都会在 *ssrA* 基因和 tmRNA 转录序列内发生序列变异。种内序列变异性能被用来区分同一物种的不同株系来研究流行病学、追踪例如爆发时的感染媒介,或者进行种群研究。

[0039] 本发明的其它应用包括用 *ssrA* 基因,tmRNA 转录序列或与其互补的 DNA 序列或其片段来设计用于治疗目的的试剂来对抗感染性的原核生物或真核生物。

[0040] 这些试剂可包括反义 mRNA 或寡核苷酸、核酶和拮抗性多肽并且可以任何药学上适用的形式来使用。

[0041] 因此,本发明通过使用 tmRNA 靶点能被用于只检测生物样品中存活的生物体。因此,在任何抗感染药物治疗期间和之后,tmRNA 靶点都能够用于监测对于这些特异性感染媒

介(如抗微生物和 / 或抗寄生虫治疗)的治疗效率。

[0042] 在一个实施方案中,靶点区被用来监测药物对感染媒介的治疗效率。

[0043] 在另一个实施方案中,靶点区被用来监测胃肠道中促进健康的微生物的存活率和水平。

[0044] 本发明的这一方面涉及,例如,将包含于如酸乳酪或其它促进健康的食品中的促进健康(益生的)的微生物菌群引入肠道。能够持续监测这些微生物的存在及水平对于保证它们持续促进健康的功能是有必要的。tmRNA 区能够作为检测存活的微生物,例如在粪便中的微生物的靶点,以监测促进健康的生物体的存在。

[0045] 在一个进一步的实施方案中,检验被用于对原核生物或真核生物进行定量分析。

[0046] 当使用探针杂交和 / 或体外扩增来检测样品中的微生物时,可以通过信号强度来测定所存在的微生物的数量。实时体外扩增的方法能被用来对样品中的生物体进行定量分析。因此,对样品中的生物体进行定量分析的能力对于治疗目的的临床情况是非常重要的,如监测抗生素治疗或其它治疗手段或治疗效率。

[0047] 本发明的另一个进一步的应用是使用 *ssrA* 基因序列的数据库来鉴定原核生物或真核生物。

[0048] 本发明提供一系列用于 *ssrA* 基因和 tmRNA 序列 5' 和 3' 端的同源区和变异区的探针,这些探针来自于这些序列或这些序列的互补序列。下面为代表性的序列:

[0049] 伴放线菌素放线杆菌(*Actinobacillus actinomycetemcomitans*) *ssrA*

[0050] GGGGCTGATTCTGGATTCGACGGGATTAGCGAAGCCGAAGTGCACGTCGAGGTGCGGTAGGCCTCGTA
AATAAACCGCAAAAAAATAGTCGCAACGACGAACAATACGCTTTAGCAGCTTAATAACCTGCCTTTAGCCTTCGCT
CCCCAGCTTCCGCTCGTAAGACGGGGATAAAGCGGAGTCAAACCAAAACGAGATCGTGTGGAAGCCACCGTTTGAGG
ATCGAAGCATTAAATTAATCAAAGTAGCTTAATTGTTCGCGTGTCCGTCAGCAGGATTAAGTGAATTTAAAGACCGG
ACTAAACGTGTAGTGCTAACGGCAGAGGAATTTTCGGACGGGGGTTCAACTCCCCCAGCTCCACCA SEQ ID NO:1

[0051] 伴放线菌素放线杆菌(*Actinobacillus actinomycetemcomitans*) tmRNA

[0052] GGGGCUGAUUCUGGAUUCGACGGGAUUAGCGAAGCCGAAGUGCAGCUGCAGGUGCGGUAGGCCUCGUA
AAUAAAACCGCAAAAAAUAGUCGCAACGACGAACAAUACGCUUUAGCAGCUUAAUAACCGCCUUUAGCCUUCGCU
CCCCAGCUUCCGUCUGUAAGACGGGGAUAAAGCGGAGUCAAAACCAAAACGAGAUUCGUGUGGAAGCCACCGUUUGAGG
AUCGAAGCAUUAUUUUAAAUCAAAGUAGCUUAAUUGUCGCGUGUCCGUCAGCAGGAUUAAGUGAAUUUUAAAGACCGG
ACUAAAACGUGUAGUGCUAACGGCAGAGGAUUUUCGGACGGGGGUUCAACUCCCCCAGCUCCACCA SEQ ID NO:2

[0053] 杀鲑气单胞菌(*Aeromonas salmonicida*) *ssrA*, 内部部分

[0054] AAGATTACGAAACCCAAGGTGCATGCCGAGGTGCGGTAGGCCTCGTTAACAAACCGCAAAAAAATAG
TCGCAACGACGAAAACTACGCACTAGCAGCtTAATAACCTGCATAGAGCCCTTCTACCCTAGCTTGCCTGTGTCC
TAGGGAATCGGAAGGTCATCCTTCACAGGATCGTGTGGAAGTCCTGCTCGGGGCGGAAGCATTAAAACCAATCGA
GCTAGTCAATTCTGTGGCGTGTCTCTCCGACGCGGTTGGCGAATGTAAAGAGTGACTAAGCATGTAGTACCGAGG
ATGTAGTAATTTTGGACGGGG SEQ ID NO:3

[0055] 杀鲑气单胞菌(*Aeromonas salmonicida*) tmRNA, 内部部分

[0056] AAGAUUCACGAAACCCAAGGUGCAUGCCGAGGUGCGGUAGGCCUCGUUAAACAAACCGCAAAAAAUAG
UCGCAACGACGAAAAACUACGCACUAGCAGCUUAAUAACCGCAUAGAGCCCUUCUACCCUAGCUUGCCUGUGUCC
UAGGGAAUCGGAAGGUCAUCCUUCACAGGAUCGUGUGGAAGUCCUGCUCGGGGCGGAAGCAUUAACCAUUCGA

GCUAGUCAAUUCGUGGCGUGUCUCUCCGCAGCGGGUUGGCGAAUGUAAAGAGUGACUAAGCAUGUAGUACCGAGG
AUGUAGUAAUUUGGACGGGG SEQ ID NO:4

[0057] 富养产碱菌 (*Alcaligenes eutrophus*) ssrA

[0058] TGGGCCGACCTGGTTTCGACGTGGTTACAAAAGCAGTGAGGCATACCGAGGACCCGTCACCTCGTTAATC
AATGGAATGCAATAACTGCTAACGACGAACGTTACGCACTCGCTTAATTGCGGCCGTCCTCGCACTGGCTCGCTGAC
GGGCTAGGGTCGCAAGACCACGCGAGGTATTTACGTCAGATAAGCTCCGGAAGGGTCACGAAGCCGGGGACGAAAAC
CTAGTGA CTGCGCGTCGTAGAGCGTGTTTCGTCCGATGCGCCGGTTAAATCAAATGACAGAACTAAGTATGTAGAACT
CTCTGTGGAGGGCTTACGGACGCGGGTTTCGATTCCCGCCGGCTCCACCA SEQ ID NO:5

[0059] 富养产碱菌 (*Alcaligenes eutrophus*) tmRNA

[0060] UGGGCCGACCUGGUUUCGACGUGGUUACAAAAGCAGUGAGGCAUACCGAGGACCCGUCACCUCGUUAAUC
AAUGGAAUGCAAUAACUGCUAACGACGAACGUUACGCACUCGCUUAAUUGCGGCCGUCCUCGCACUGGCUCGCUGAC
GGGCUAGGGUCGCAAGACCACGCGAGGUUUUACGUCAGAUAAAGCUCCGGAAGGGUCACGAAGCCGGGGACGAAAAC
CUAGUGACUCGCGGUCGUAGAGCGUGUUCGUCCGAUGCGCCGGUAAAUCAAAUGACAGAACUAAGUAUGUAGAACU
CUCUGUGGAGGGCUUACGGACGCGGGUUCGAUCCCCGCCGGCUCCACCA SEQ ID NO:6

[0061] 产液菌 (*Aquifex aeolicus*) ssrA

[0062] GGGGGCGAAAGGATTTCGACGGGGACAGGCGGTCCCCGAGGAGCAGGCCGGGTGGCTCCCGTAACAGCC
GCTAAACAGCTCCCGAAGCTGAACTCGCTCTCGTGCCTAATTAACGGCAGCGCGTCCCCGGTAGGTTTGCGGGT
GGCCTACCGGAGGGCGTCAGAGACACCCGCTCGGGCTACTCGGTGCGACGGGGCTGAGTAGCTGACACCTAACCCGT
GCTACCCTCGGGGAGCTTGCCCGTGGGCGACCCGAGGGGAAATCCTGAACACGGGCTAAGCCTGTAGAGCCTCGGAT
GTGGCCGCCGTCTCGGACGCGGGTTTCGATTCCCGCCGCCTCCACCASEQ ID NO:7

[0063] 产液菌 (*Aquifex aeolicus*) tmRNA

[0064] GGGGGCGAAAGGAUUCGACGGGGACAGGCGGUCCCCGAGGAGCAGGCCGGGUGGCUCCCGUAACAGCC
GCUAAAACAGCUCCCGAAGCUGAACUCGCUCUCGUGCCUAAUUAACGGCAGCGCGUCCCCGGUAGGUUUGCGGGU
GGCCUACCGGAGGGCGUCAGAGACACCCGCUCGGGCUACUCGGUUCGCACGGGGCUGAGUAGCUGACACCUAACCCGU
GCUACCCUCGGGGAGCUUGCCCGUGGGCGACCCGAGGGGAAAUCCUGAACACGGGCUAAGCCUGUAGAGCCUCGGAU
GUGGCCGCCGUCCUCGGACGCGGGUUCGAUCCCCGCCGCCUCCACCA SEQ ID NO:8

[0065] 巨大芽孢杆菌 (*Bacillus megaterium*) ssrA, 内部部分

[0066] AGGGTAGTTCGAGCTTAGGTTGCGAGTCGAGGAGATGGCCTCGTTAAAACATCAACGCCAATAATAAC
TGGCAAATCTAACAATAACTTCGCTTTAGCTGCATAATAGTAGCTTAGCGTTCCTCCCTCCATCGCCCATGTGGTA
GGGTAAGGGACTCACTTTAAGTGGGCTACGCCGAGTTCGCCGTCTGAGGACGAAGGAAGAGAATAATCAGACTA
GCGACTGGGACGCCTGTTGGTAGGCAGAACAGCTCGCGAATGATCAATATGCCAACTACACTCGTAGACGCTTAA
GTGGCCATATTTCTGGACGTGG SEQ ID NO:9

[0067] 巨大芽孢杆菌 (*Bacillus megaterium*) tmRNA, 内部部分

[0068] AGGGUAGUUCGAGCUUAGGUUGCGAGUCGAGGAGAUGGCCUCGUUAAAAUCAACGCCAAUAAUAAAC
UGGCAAAUCUAAACAAUAAUCUUCGUUUAGCUGCAUAAUAGUAGCUUAGCGUUCUCCCUCCAUCGCCAUGUGGUA
GGGUAAGGGACUCACUUUAAGUGGGCUACGCCGAGUUCGCCGUCUGAGGACGAAGGAAGAGAAUAAUCAGACUA
GCGACUGGGACGCCUGUUGGUAGGCAGAACAGCUCGCGAAUGAUCAAUAUGCCAACUACACUCGUAGACGCUUAA
GUGGCCAUUUUCUGGACGUGG SEQ ID NO:10

[0069] 枯草芽孢杆菌 (*Bacillus subtilis*) ssrA

[0070] GGGGACGTTACGGATTTCGACAGGGATGGATCGAGCTTGAGCTGCGAGCCGAGAGGCGATCTCGTAAACA
CGCACTTAAATATAACTGGCAAACTAACAGTTTAAACCAAAACGTAGCATTAGCTGCCTAATAAGCGCAGCGAGCT
CTTCCTGACATTGCCTATGTGTCTGTGAAGAGCACATCCAAGTAGGCTACGCTTGCCTTCCCGTCTGAGAACGTAAG
AAGAGATGAACAGACTAGCTCTCGGAAGGCCCGCCCGCAGGCAAGAAGATGAGTGAAACCATAAATATGCAGGCTAC
GCTCGTAGACGCTTAAGTAATCGATGTTTCTGGACGTGGGTTCGACTCCCACCGTCTCCACCA SEQ ID NO:11

[0071] 枯草芽孢杆菌 (*Bacillus subtilis*) tmRNA

[0072] GGGGACGUUACGGAUUCGACAGGGAUGGAUCGAGCUUGAGCUGCGAGCCGAGAGGCGAUCUCGUAAACA
CGCACUAAAAUAUAACUGGCAAAACUAACAGUUUUAACCAAAACGUAGCAUUAGCUGCCUAAUAAGCGCAGCGAGCU
CUUCCUGACAUUGCCUAUGUGUCUGUGAAGAGCACAUCCAAGUAGGCUACGCUUGCGUUCGGUCUGAGAACGUAAG
AAGAGAUGAACAGACUAGCUCUCGGAAGGCCCGCCCGCAGGCAAGAAGAUGAGUGAAACCAUAAAAUAGCAGGCUAC
GCUCGUAGACGCUUAAAGUAAUCGAUGUUUCUGGACGUGGGUUCGACUCCACCGUCUCCACCA SEQ ID NO:12

[0073] 百日咳鲍特氏菌 (*Bordetella pertussis*) ssrA

[0074] GGGGCCGATCCGGATTTCGACGTGGGTTCATGAAACAGCTCAGGGCATGCCGAGCACCAGTAAGCTCGTTA
ATCCACTGGAACACTACAAACGCCAACGACGAGCGTCTCGCTCTCGCCGCTTAAGCGGTGAGCCGCTGCACTGATCT
GTCCTTGGGTGAGGCGGGGAAGGCAACTTCACAGGGGGCAACCCCGAACCGCAGCAGCGACATTACAAAGGAATCG
GCCACCGCTGGGGTCACACGGCGTTGGTTTAAATTACGTGAATCGCCCTGGTCCGGCCCGTCGATCGGCTAAGTCCA
GGGTAAATCCAAATAGATCGACTAAGCATGTAGAACTGGTTGCGGAGGGCTTGCGGACGGGGTTCAATTCCCCC
GGCTCCACCASEQ ID NO:13

[0075] 百日咳鲍特氏菌 (*Bordetella pertussis*) tmRNA

[0076] GGGGCCGAUCCGGAUUCGACGUGGGUCAUGAAACAGCUCAGGGCAUGCCGAGCACCAGUAAGCUCGUUA
AUCCACUGGAACACUACAAACGCCAACGACGAGCGUCUCGUCUCGCCGUUAAGCGGUGAGCCGUGCACUGAUUC
GUCCUUGGGUCAGGCGGGGAAGGCAACUUCACAGGGGGCAACCCCGAACCGCAGCAGCGACAUUCACAAGGAAUCG
GCCACCGCUGGGGUCACACGGCGUUGGUUUAAAAUACGUGAAUCGCCUGGUCCGGCCCGUCGAUCGGCUAAGUCCA
GGGUUAAAUCCAAUAGAUUCGACUAAAGCAUGUAGAACUGGUUGCGGAGGGCUUGCGGACGGGGGUCAAUUCXXXXX
GGCUCCACCASEQ ID NO:14

[0077] 布氏疏螺旋体 (*Borrelia burgdorferi*) ssrA

[0078] GGGGATGTTTTGGATTTGACTGAAAATGTTAATATTGTAAGTTGCAGGCAGAGGGAATCTCTTAAACT
TCTAAATAAATGCAAAAAATAAATACTTTACAAGCTCAAATCTTGTAATGGCTGCTTAAGTTAGCAGAGGGTTTTG
TTGAATTTGGCTTTGAGGTTCACTTATACTCTTTTCGACATCAAAGCTTGCTTAAAAATGTTTTCAAGTTGATTTTT
AGGGACTTTTATACTTGAGAGCAATTTGGTGGTTTGCTAGTATTTCCAAACCATATTGCTTAATAAAATACTAGATA
AGCTTGTAGAAGCTTATAGTATTATTTTTAGGACGCGGGTTCAATTCGCCCATCTCCACCA SEQ ID NO:15

[0079] 布氏疏螺旋体 (*Borrelia burgdorferi*) tmRNA

[0080] GGGGAUGUUUGGAUUUGACUGAAAAUGUUAAUUAUGUAAGUUGCAGGCAGAGGGAUCUCUAAAAACU
UCUAAAAUAAUGCAAAAAUAAUAAACUUUACAAGCUCAAAUCUUGUAAUGGCUGCUUAAGUUAGCAGAGGGUUUG
UUGAAUUUGGCUUUGAGGUUCACUUUACUCUUUUGGACAUCAAAGCUUGCUUAAAAUUGUUUCAAGUUGAUUUU
AGGGACUUUUUAUCUUGAGAGCAUUUUGGUGGUUUGCUAGUAAUUCCAAACCAUUAUUGCUUAAUAAAAUACUAGAU
AGCUUGUAGAAGCUUUAUAGUAAUUAUUUAGGACGCGGGUCAAUUCGCCCAUCUCCACCA SEQ ID NO:16

[0081] 空肠弯曲杆菌 (*Campylobacter jejuni*) ssrA

[0082] GGGAGCGACTTGGCTTCGACAGGAGTAAGTCTGCTTAGATGGCATGTCGCTTTGGGCAAAGCGTAAAAA

GCCCCAATAAAATTAAACGCAAAACAACGTTAAATTCGCTCCTGCTTACGCTAAAGCTGCGTAAGTTCAGTTGAGCCT
GAAATTTAAGTCATACTATCTAGCTTAATTTTCGGTCATTTTGTAGTAGCCTTGCGTTTGACAAGCGTTGAGG
TGAAATAAAGTCTTAGCCTTGCTTTTGAGTTTTGGAAGATGAGCGAAGTAGGGTGAAGTAGTCATCTTTGCTAAGCA
TG TAGAGGTCTTTGTGGGATTATTTTGGACAGGGGTTTCGATTCCTCCCTCGCTTCCACCASEQ ID NO:17

[0083] 空肠弯曲杆菌 (*Campylobacter jejuni*) tmRNA

[0084] GGGAGCGACUUGGCUUCGACAGGAGUAAGUCUGCUUAGAUGGCAUGUCGUUUGGGCAAAGCGUAAAA
GCCCCAAUAAAAUUAACGCAAAACAACGUAAAAUUCGCUCCUGCUUACGCUAAAGCUGCGUAAGUUCAGUUGAGCCU
GAAAUUAAGUCAUACUAUCUAGCUUAAUUUUCGUGCAUUUUUGAUAGUGUAGCCUUGCGUUUGACAAGCGUUGAGG
UGAAAUAAAGUCUUAGCCUUGCUUUUGAGUUUUGGAAGAUGAGCGAAGUAGGGUGAAGUAGUCAUCUUUGCUAAGCA
UGUAGAGGUCUUUGUGGGAUUAUUUUUGGACAGGGGUUCGAUUCCTCCGCUUCCACCA SEQ ID NO:18

[0085] 沙眼衣原体 (*Chlamydia trachomatis* (D/UW-3/CX)) ssrA

[0086] GGGGTGTAAAGGTTTCGACTTAGAAATGAAGCGTTAATTGCATGCGGAGGGCGTTGGCTGGCCTCCTA
AAAAGCCGACAAAACAATAAATGCCGAACCTAAGGCTGAATGCGAAATTATCAGCTTCGCTGATCTCGAAGATCTAA
GAGTAGCTGCTTAATTAGCAAAGTTGTTACCTAAATACGGGTGACCCGGTGTTCGCGAGCTCCACCAGAGGTTTTCG
AAACACCGTCATGTATCTGGTTAGAACTTAGGTCCTTTAATTCTCGAGGAAATGAGTTTGAAATTTAATGAGAGTCG
TTAGTCTCTATAGGGTTTCTAGCTGAGGAGACATAACGTATAGTACCTAGGAACTAAGCATGTAGAGGTTAGCGGG
GAGTTTACTAAGGACGAGAGTTTCGACTCTCTCCACCTCCACCA SEQ ID NO:19

[0087] 沙眼衣原体 (*Chlamydia trachomatis* (D/UW-3/CX)) tmRNA

[0088] GGGGUGUAAAAGGUUUCGACUUAGAAAUGAAGCGUAAUUGCAUGCGGAGGGCGUUGGCUGGCCUCCUA
AAAAGCCGACAAAACAATAAUGCCGAACCUAAGGCUGAAUGCGAAAUUAUCAGCUUCGCUGAUCUCGAAGAUCUAA
GAGUAGCUGCUUAAUUAGCAAAGUUGUUACCUAAAUACGGGUGACCCGGUGUUCGCGAGCUCCACCAGAGGUUUUCG
AAACACCGUCAUGUAUCUGGUUAGAACUUAGGUCCUUUAAUUCUCGAGGAAAUGAGUUUGAAUUUAAUGAGAGUCG
UUAGUCUCUAUAGGGGUUUCUAGCUGAGGAGACUAACGUUAGUACCUAGGAACUAAGCAUGUAGAGGUUAGCGGG
GAGUUUACUAAGGACGAGAGUUCGACUCUCUCCACCUCUCCACCASEQ ID NO:20

[0089] 沙眼衣原体 (鼠肺炎) (*Chlamydia trachomatis* (mouse pneumonitis)) ssrA

[0090] GGGGTGTAAAGGTTTCGACTTAGAAATGAAGCGTTAATTGCATGCGGAGGGCGTTGGCTGGCCTCCTA
AAAAGCCGACAAAACAATAAATGCCGAACCTAAGGCTGAATGCGAAATTATCAGCTTCGCTGATCTTAATGATCTAA
GAGTTGCTGCTTAATTAGCAAAGTTGTTACCTAAGTACTGGTAACCCGGTGTTCGCGAGCTCCACCAGAGGTTTTCG
AAACGCCGTCATTTATCTGGTTAGAAATAGGGCCTTTTAACTCTCAAGGGAACATAATTTGAATTTTAATGAGAGTCG
TTGGTCTCTATAGAGGTTTCTAGCTGAGGAGATATAACGTAAAATATTCTAGAACTAAGCATGTAGAGGTTAGCGG
GGAGTTTACTAAGGACGAGAGTTTGAATCTCTCCACCTCCACCA SEQ ID NO:21

[0091] 沙眼衣原体 (鼠肺炎) (*Chlamydia trachomatis* (mouse pneumonitis)) tmRNA

[0092] GGGGUGUAAAAGGUUUCGACUUAGAAAUGAAGCGUAAUUGCAUGCGGAGGGCGUUGGCUGGCCUCCUA
AAAAGCCGACAAAACAATAAUGCCGAACCUAAGGCUGAAUGCGAAAUUAUCAGCUUCGCUGAUCUAAUGAUCUAA
GAGUUGCUGCUUAAUUAGCAAAGUUGUUACCUAAGUACUGGUAAACCCGGUGUUCGCGAGCUCCACCAGAGGUUUUCG
AAACGCCGUCUUUUAUCUGGUUAGAAUUAGGGCCUUUUAACUCUCAAGGGAACUAAUUUGAAUUUAAUGAGAGUCG
UUGGUCUCUAUAGAGGUUUCUAGCUGAGGAGAUUAACGUAAAAUUAUCUAGAAACUAAGCAUGUAGAGGUUAGCGG
GGAGUUUACUAAGGACGAGAGUUCGAAUCUCUCCACCUCUCCACCASEQ ID NO:22

[0093] 微温杆状绿菌 (*Chlorobium tepidum*) ssrA

[0094] GGGGATGACAGGCTATCGACAGGATAGGTGTGAGATGTCGTTGCACTCCGAGTTTCAGCATGGACGGAC
TCGTTAAACAAGTCTATGTACCAATAGATGCAGACGATTATTCGTATGCAATGGCTGCCTGATTAGCACAAGTTAAT
TCAGAAGCCATCGTCCTGCGGTGAATGCGCTTACTCTGAAGCCGCCGATGGCATAACCCGCGCTTGAGCCTACGGG
TTCGCGCAAGTAAGCTCCGTACATTCATGCCCGAGGGGGTGTGCGGGTAACCAATCGGGATAAGGGGACGAACGCTG
CTGGCGGTGTAATCGGACCACGAAAAACCAACCACCAGAGATGAGTGTGGTAACTGCATCGAGCAGTGTCTTGACG
CGGGTTCAAGTCCCGCCATCTCCACCA SEQ ID NO:23

[0095] 微温杆状绿菌 (*Chlorobium tepidum*) tmRNA

[0096] GGGGAUGACAGGCUAUCGACAGGAUAGGUGUGAGAUGUCGUUGCACUCCGAGUUUCAGCAUGGACGGAC
UCGUUAAACAAGUCUAUGUACCAUAGAUGCAGACGAUUUUCGUAUGCAAUGGCUGCCUGAUUAGCACAAGUUAU
UCAGAAGCCAUCGUCCUGCGGUGAAUGCGCUUACUCUGAAGCCGCCGAUGGCAUAACCCGCGCUUGAGCCUACGGG
UUCGCGCAAGUAAGCUCCGUACAUAUGCCCGAGGGGGUGUGCGGGUAACCAUUCGGGAUAAGGGGACGAACGCUG
CUGGCGGUGUAAUCGGACCACGAAAAACCAACCACCAGAGAUGAGUGUGGUAACUGCAUCGAGCAGUGUCCUGGACG
CGGGUUAAGUCCCGCCAUCUCCACCA SEQ ID NO:24

[0097] *Cyanophora paradoxa* (藻类) 蓝色小体 ssrA

[0098] GGGGCTGTTTAGGTTTCGACGTTTTTTTCTAATTATGTTTGTAAAGCAAGTCGAGGATTTGTTCTATCT
CGAAAATCAAGAACTCTCAAAATTTAAACGCAACTAATATTGTACGTTTTTAACCGTAAAGCAGCTTTCGCTGTTTAA
TAATTACTTTTAATTTAAAAACCTAATTTTTTTTAGGAATTTATTTATTTATTGTTTATCCTGCTTAATGAATTA
AAAGCTATACTTGTGAATAAACGCATAATTTAAAAAACGGACGTGGGTTCAAATCCCACCAGCTCCACCA SEQ ID
NO:25

[0099] *Cyanophora paradoxa* (藻类) 蓝色小体 tmRNA

[0100] GGGGCUGUUUAGGUUUCGACGUUUUUUUCUAAUUUUGUUUGUUAAGCAAGUCGAGGAUUUGUUCUAUCU
CGAAAAUCAAGAACUCUCAAAAAUUUAAACGCAACUAAUUAUUGUACGUUUUUAACCGUAAAGCAGCUUUCGUGUUUAA
UAAUUACUUUAAUUUAAAAACCUAAUUUUUUUAGGAUUUUUUUUUUUUUUUUAUUGUUUUAUCCUGCUUAAUGAAUUAAAA
AAAGCUAUACUUGUGAAUAAACGCAUAAUUUAAAAAACGGACGUGGGUUCAAAUCCCACCAGCUCCACCASEQ ID
NO:26

[0101] 丙酮丁醇梭菌 (*Clostridium acetobutylicum*) ssrA, 3' 部分

[0102] AATCTGGCGTCGAGAGCGGGGAAACGAGCCTTACAAAGCTTTGAGTAAGGAACGGAATTTATGAAGCTA
CTGAAGTGAAGCTTGTGTTGTAGGCGTTTCATGGAGGGAATGTTAAAATACAACTGCACTCGGAGATGCTTAATG
AAACCATTTTCGGACAGGGGTTTCGATTCCTCCCTCGCCTCCACCA SEQ ID NO:27

[0103] 丙酮丁醇梭菌 (*Clostridium acetobutylicum*) tmRNA, 3' 部分

[0104] AAUCUGGCGUCGAGAGCGGGGAAACGAGCCUUAACAAAGCUUUGAGUAAGGAACGGAUUUAUGAAGCUA
CUGAAGUGAAAAGCUUGUUUGUAGGCGUUUCAUGGAGGGAAUGUUAAAAUACAAACUGCACUCGGAGAUGCUUAAUG
AAACCAUUUUCGGACAGGGGUUCGAUUCUUUUUUGCCUCCACCA SEQ ID NO:28

[0105] 放射异常球菌模式种 (*Deinococcus radiodurans*) ssrA

[0106] GGGGGTGACCCGGTTTCGACAGGGGAACTGAAGGTGATGTTGCGTGTGAGGTGCCGTTGGCCTCGTAA
ACAAACGGCAAAGCCATTTAACTGGCAACCAGAACTACGCTCTCGCTGCTTAAGTGAGATGACGACCGTGACGCCCCG
GCCTTTGGCGTCGCGGAAGTCACTAAAAAAGAAGGCTAGCCCAGGCGATTCTCCATAGCCGACGGCGAACTTTATG
GAGCTACGGCCTGCGAGAACCTGCCCACTGGTGAGCGCCGGCCCCGACAATCAAACAGTGGGATACACACGTAGACGC
ACGCTGGACGGACCTTTGGACGGCGGTTTCGACTCCGCCACCTCCACCASEQ ID NO:29

[0107] 放射异常球菌模式种 (*Deinococcus radiodurans*) tmRNA

[0108] GGGGGUGACCCGGUUUCGACAGGGGAACUGAAGGUGAUGUUGCGUGUCGAGGUGCCGUUGGCCUCGUAA
ACAAACGGCAAAGCCAUUUAAACUGGCAACCAGAACUACGCUCUCGCGUCUUAAGUGAGAUGACGACCGUGCAGCCCC
GCCUUUGGCGUCGCGGAAGUCACUAAAAAAGAAGGCUAGCCCAGGCGAUUCUCCAUAGCCGACGGCGAAACUUUAUG
GAGCUACGGCCUGCGAGAACCUGCCCACUGGUGAGCGCCGGCCCCGACAAUCAAACAGUGGGAUACACACGUAGACGC
ACGCUGGACGGACCUUUGGACGGCGGUUCGACUCCGCCACCUCACCA SEQ ID NO:30

[0109] 脱硫脱硫弧菌模式种 (*Desulfovibrio desulfuricans*) ssrA, 内部部分

[0110] GGGACTGGAACCGTAGCGGCAGGTCGAGGCGCCGCTGGCCTCGTAAAAAGCGGCACAAAAGTAATTGCC
AACACGATTACGACTACGCTTACGCTGCCTAATAACAGCGAGGCAATGACCGTTTAACGGTCGCGCCGATCAGGGC
CATGCCTGATAACCCTGATTGGCGACACTTATCAGGCTGGCGAAAACCGGCTCTCGCCGGGGTTTTTCGCGAGGAGT
TTACCGGCGGGATTGCTGCGTTGTGCCTGGTCAGGGGCCAACAGCGCGGTGAAATACATACTTGACCTAAACCTGTA
ATGCTTCGTGTGGAATGTTCTCGGACGGGG SEQ ID NO:31

[0111] 脱硫脱硫弧菌模式种 (*Desulfovibrio desulfuricans*) tmRNA, 内部部分

[0112] GGGACUGGAACCGUAGCGGCAGGUCGAGGCGCCGUGGCCUCGUAAAAAGCGGCACAAAAGUAAUUGCC
AACACGAUUACGACUACGCUUACGCGCCUAAUACAGCGAGGCAAUGACCGUUUACGGUCGCGCCGAUCAGGGC
CAUGCCUGAUAAACCUGAUUGGCGACACUUAUCAGGCUUGGCGAAAACCGGCUCUCGCGGGGUUUUUCGCGAGGAGU
UUACCGGCGGGAUUGCUGCGUUGUGCCUGGUCAGGGGCCAACAGCGCGGUGAAAUACAUACUUGACCUAACCUGUA
AUGCUUCGUGUGGAAUGUUCUGGACGGGG SEQ ID NO:32

[0113] 节瘤腐蹄杆菌 (*Dichelobacter nodosus*) ssrA, 3' 部分

[0114] CTCGAGGTGCATGTCGAGAATGAGAGAATCTCGTTAAATACTTTCAAACTTATAGTTGCAAACGACG
ACAACTACGCTTTAGCGGCTTAATTCCCGCTTTCGCTTACCTAGATTTGTCTGTGGGTTTACCGTAAGCGACATTA
ACACAGAATCGCTGGTTAACGCGTCCGCTGTTAATCGGTAAATTAAGCGGAATCGCTTGTAATATGCCTGAGCG
TTGGCTGTTTATGAGTTAAACCTAATTAAGTCTCTAAACATGTAGTACCAAAAGTTAAGGATTCGCGGACGGGG
GTTCAATCCCCCGCCTCCACCA SEQ ID NO:33

[0115] 节瘤腐蹄杆菌 (*Dichelobacter nodosus*) tmRNA, 3' 部分

[0116] CUCGAGGUGCAUGUCGAGAAUGAGAGAAUCUCGUUAAAAUACUUUCAAACUUUAGUUGCAAACGACG
ACAACUACGCUUUAGCGGCUUAAUCCCCGCUUUCGCUUACCUAGAUUUUGUCUGUGGGUUUACCGUAAGCGACAUUA
ACACAGAAUCGCGUGGUUAAACGCGUCCGCGUUUAAUCGGUUAAAUUAAAGCGGAAUCGCUUGUAAAAUGCCUGAGCG
UUGGCUGUUUAGAGUUAAACCUAAUUAACUGCUCUAAACAUGUAGUACCAAAAGUUAAGGAUUCGCGGACGGGG
GUUCAAUCCCCCGCCUCCACCA SEQ ID NO:34

[0117] 肠球菌模式种 (*Enterococcus faecalis*) ssrA

[0118] GGGGGCGTTACGGATTCGACAGGCATAGTTGAGCTTGAATTGCGTTTCGTAGGTTACGGCTACGTTAA
AACGTTACAGTTAAATATAACTGCTAAAAACGAAAACAATTCTTTTCGCTTTAGCTGCCTAAAAACCAGCTAGCGAA
GATCCTCCCGGCATCGCCCATGTGCTCGGGTCAGGGTCCTAATCGAAGTGGGATACGCTAAATTTTTCCGTCTGTAA
AATTTAGAGGAGCTTACCAGACTAGCAATACAGAATGCCTGTCACTCGGCACGCTGTAAAGCGAACCTTTAAATGAG
TGTCTATGAACGTAGAGATTTAAGTGGCAATATGTTTGGACGCGGGTTCGACTCCCGCCGTCTCCACCA SEQ ID
NO:35

[0119] 肠球菌模式种 (*Enterococcus faecalis*) tmRNA

[0120] GGGGGCGUACGGAUUCGACAGGCAUAGUUGAGCUUGAAUUGCGUUUCGUAGGUUACGGCUACGUUAA

AACGUUACAGUUAUUAACUGCUAAAAACGAAAACAAUUCUUUCGCUUAGCUGCCUAAAAACCAGCUAGCGAA
GAUCCUCCCGGCAUCGCCCAUGUGCUCGGGUCAGGGUCCUAAUCCGAAGUGGGAUACGCUAAAAUUUCCGUCUGUAA
AAUUUAGAGGAGCUUACCAGACUAGCAAUACAGAAUGCCUGUCACUCGGCACGCUUAAAGCGAACCUUAAAUGAG
UGUCUAUGAACGUAGAGAUUUAAUGUGGCAAUAUGUUUGGACGCGGGUUCGACUCCCGCCGUCUCCACCA SEQ ID
NO:36

[0121] 大肠杆菌 (*Escherichia coli*) ssrA

[0122] GGGGCTGATTCTGGATTCGACGGGATTTGCGAAACCCAAGGTGCATGCCGAGGGGCGGTTGGCCTCGTA
AAAAGCCGCAAAAAATAGTCGCAACGACGAAAACTACGCTTTAGCAGCTTAATAACCTGCTTAGAGCCCTCTCTCC
CTAGCCTCCGCTCTTAGGACGGGGATCAAGAGAGGTCAAACCCAAAAGAGATCGCGTGGAAGCCCTGCCTGGGGTTG
AAGCGTTAAACTTAATCAGGCTAGTTTGTAGTGGCGTGTCCGTCCGCAGCTGGCAAGCGAATGTAAAGACTGACT
AAGCATGTAGTACCGAGGATGTAGGAATTTTCGGACGCGGGTTCAACTCCCGCCAGCTCCACCA SEQ ID NO:37

[0123] 大肠杆菌 (*Escherichia coli*) tmRNA

[0124] GGGGCGAUUCUGGAUUCGACGGGAUUUGCGAAACCCAAGGUGCAUGCCGAGGGGCGGUUGGCCUCGUA
AAAAGCCGCAAAAAAUAGUCGCAACGACGAAACUACGCUUAGCAGCUUAAUAACCUGCUUAGAGCCCUCUCUCC
CUAGCCUCCGCUCUUAGGACGGGGAUCAAGAGAGGUCAAACCCAAAAGAGAUCCGUGGAAGCCCUGCCUGGGGUUG
AAGCGUUAUAAACUUAUACAGGCUAGUUUGUUAGUGGCGUGUCCGUCGCGAGCUGGCAAGCGAAUGUAAAGACUGACU
AAGCAUGUAGUACCGAGGAUGUAGGAAUUUCGGACGCGGGUUAACUCCCGCCAGCUCCACCA SEQ ID NO:38

[0125] 流感嗜血杆菌 (*Haemophilus influenzae*) ssrA

[0126] GGGGCTGATTCTGGATTCGACGGGATTAGCGAAGCCCAAGGTGCACGTCGAGGTGCGGTAGGCCTCGT
AAATAAACCGCAAAAAAATAGTCGCAACGACGAACAATACGCTTTAGCAGCTTAATAACCTGCATTTAGCCTTCG
CGCTCCAGCTTCCGCTCGTAAGACGGGGATAACGCGGAGTCAAACCAAAACGAGATCGTGTGGAAGCCACCGTTTG
AGGATCGAAGCACTAAATTGAATCAAACTAGCTTAAGTTTAGCGTGTCTGTCCGCATGCTTAAGTGAAATTAAAGAC
GAGACTAAACGTGTAGTACTGAAGGTAGAGTAATTTTCGGACGGGGGTTCAACTCCCCCAGCTCCACCA SEQ ID
NO:39

[0127] 流感嗜血杆菌 (*Haemophilus influenzae*) tmRNA

[0128] GGGGCGAUUCUGGAUUCGACGGGAUUAGCGAAGCCCAAGGUGCACGUCGAGGUGCGGUAGGCCUCGU
AAAUAAACCGCAAAAAAUAGUCGCAACGACGAACAAUACGCUUAGCAGCUUAAUAACCUGCAUUUAGCCUUCG
CGCUCCAGCUUCCGCUCGUAAGACGGGGAUAACGCGGAGUCAAAACCAAAACGAGAUUGUGUGGAAGCCACCGUUUG
AGGAUCGAAGCACUAAAUUGAAUCAAACUAGCUUAAAGUUUAGCGUGUCUGUCCGCAUGCUUAAAGUGAAAUUAAAGAC
GAGACUAAACGUGUAGUACUGAAGGUAGAGUAAUUUCGGACGGGGGUUCAACUCCCCCAGCUCCACCA SEQ ID
NO:40

[0129] 幽门螺杆菌 (*Helicobacter pylori*) (ATCC43504) ssrA, 内部部分

[0130] AGATTTCTTGTCGCGCAGATAGCATGCCAAGCGCTGCTTGTAACAGCAACAAAAATAACTGTAAACA
ACACAGATTACGCTCCAGCTTACGCTAAAGCTGCGTGAGTTAATCTCCTTTTGGAGCTGGACTGATTAGAATTTCTA
GCGTTTTTAATCGCTCCATAACCTTAAGCTAGACGCTTTTAAAAGGTGGTTTCGCCTTTTAACTAAGAAACAAGAACT
CTTGAAACTATCTTAAGGTTTTAGAAAAGTTGGACCAGAGCTAGTTTTAAGGCTAAAACTAACCAATTTTCTAAGCA
TTGTAGAAGTTTGTGTTTAGGGCAAGATTTTTGGACTGGG SEQ ID NO:41

[0131] 幽门螺杆菌 (*Helicobacter pylori*) (ATCC43504) tmRNA, 内部部分

[0132] AGAUUUCUUGUCGCGCAGAUAGCAUGCCAAGCGCUGCUUGUAAAACAGCAACAAAAUAACUGUAAACA

ACACAGAUUACGCUCCAGCUUACGCUAAAAGCUGCGUGAGUUAUUCUCCUUUUGGAGCUGGACUGAUUAGAAUUUCUA
GCGUUUUAAUCGCUCCAUAACCUAAAGCUAGACGCUUUUAAAAGGUGGUUCGCCUUUUAAACUAAGAAACAAGAACU
CUUGAAACUAUCUUAAGGUUUUAGAAAGUUGGACCAGAGCUAGUUUUAAGGCUAAAAACUAACCAAUUUUCUAAGCA
UUGUAGAAGUUUGUGUUUAGGGCAAGAUUUUUGGACUGGGSEQ ID NO:42

[0133] 幽门螺杆菌 (*Helicobacter pylori*) (菌株 26695) *ssrA*

[0134] GGGGCTGACTTGGATTTCGACAGATTCTTGTGCGCACAGATAGCATGCCAAGCGCTGCTTGTAACACAG
CAACAAAAATAACTGTAAACAACACAGATTACGCTCCAGCTTACGCTAAAGCTGCGTGAGTTAATCTCCTTTTGAG
CTGGACTGATTAGAATTTCTAGCGTTTTAATCGCTCCATAACCTTAAGCTAGACGCTTTTAAAGGTGGTTTCGCCTT
TTAACTAAGAAACAAGAACTCTTGAACTATCTCAAGGTTTTAGAAAGTTGGACCAGAGCTAGTTTTAAGGCTAAA
AAACCAACCAATTTTCTAAGCATTGTAGAAGTTGTGTTTAGGGCAAGATTTTGGACTGGGGTTCGATTCGCCACA
GCTCCACCA SEQ ID NO:43

[0135] 幽门螺杆菌 (*Helicobacter pylori*) (菌株 26695) *tmRNA*

[0136] GGGGCUGACUUGGAUUUCGACAGAUUUCUUGUCGCACAGAUAGCAUGCCAAGCGCUGCUUGUAAAACAG
CAACAAAAUAAACUGUAAAACAACAGAUUACGCUCCAGCUUACGCUAAAAGCUGCGUGAGUUAUUCUCCUUUUGGAG
CUGGACUGAUUAGAAUUUCUAGCGUUUUAAUCGCUCCAUAACCUAAAGCUAGACGCUUUUAAAAGGUGGUUCGCCUU
UUAAACUAAGAAACAAGAACUCUUGAAACUAUCUCAAGGUUUUAGAAAGUUGGACCAGAGCUAGUUUUAAGGCUAAA
AAACCAACCAAUUUUCUAAGCAUUGUAGAAGUUUGUGUUUAGGGCAAGAUUUUUGGACUGGGGUUCGAUCCCCACA
GCUCCACCASEQ ID NO:44

[0137] 产气克雷伯氏菌 (*Klebsiella aerogenes*) (NCTC9528) *ssrA*, 内部部分

[0138] GGGATTGCGGAAACCCAAGGTGCATGCCGAGGGGCGGTTGGCCTCGTAAAAAGCCGCAAAAAATAGT
CGCAAACGACGAAAACCTACGCTTTAGCAGCTTAATAACCTGCTAAGAGCCCTCTCTCCCTAGCTTCCGCTCCTAAG
ACGGGGAATAAAGAGAGGTCAAACCCAAAAGAGATCGCGTGGAAGCCCTGCCTGGGGTTGAAGCGTTAAACTAA
TCAGGCTAGTTTGTCTAGTGGCGTGTCCTCCGACGCTGGCCAGCGAATGTAAAGACTGGACTAAGCATGTAGTGC
CGAGGATGTAGGAATTTT SEQ ID NO:45

[0139] 产气克雷伯氏菌 (*Klebsiella aerogenes*) (NCTC9528) *tmRNA*, 内部部分

[0140] GGGAUUCGCGAAACCCAAGGUGCAUGCCGAGGGGCGGUUGGCCUCGUAAAAAGCCGCAAAAAAUAGU
CGCAAACGACGAAAACUACGCUUUAGCAGCUUAAUAACCUGCUAAGAGCCCUUCUCCCUAGCUUCCGCUCCUAAG
ACGGGGAAUAAAGAGAGGUCAAACCCAAAAGAGAUUCGCGUGGAAGCCCUGCCUGGGGUUGAAGCGUUAAAACUAA
UCAGGCUAGUUUGUCAGUGGCGUGUCCGUCCGACGUGGCCAGCGAAUGUAAAGACUGGACUAAGCAUGUAGUGC
CGAGGAUGUAGGAUUUC SEQ ID NO:46

[0141] 乳杆菌模式种 (*Lactobacillus lactis*) (NCTC662) *ssrA*, 内部部分

[0142] AAGCACAGTTCGAGCTTGAATTGCGTTTCGTAGGTTACGTCTACGTAAAAACGTTACAGTTAAATATA
ACTGCTAAAAACGAAAACAACCTTTACGCTTTAGCTGCCTAAAAACAGTTAGCGTAGATCCTCTCGGCATCGCCCA
TGTGCTCGAGTAAGGGTCTCAAATTTAGTGGGATACGTTAACTTTTCCGTCTGTAAAGTTTAAAGAGATCATC
AGACTAGCGATACAGAATGCCTGTCACTCGGCAAGCTGTAAAGCGAAACCTCAAATGAGTTGACTATGAACGTAG
ATTTTTAAGTGTGATGTGTTT SEQ ID NO:47

[0143] 乳杆菌模式种 (*Lactobacillus lactis*) (NCTC662) *tmRNA*, 内部部分

[0144] AAGCACAGUUCGAGCUUGAAUUGCGUUUCGUAGGUUACGUCUACGUUAAAACGUUACAGUUAAAUUA
ACUGCUAAAAACGAAAACAACUCUACGCUUUAGCUGCCUAAAAACAGUUAGCGUAGAUCUCCUCUGGCAUCGCCCA

UGUGCUCGAGUAAGGGUCUCAAUUUAGUGGGAUACGUUAAACUUUCCGUCUGUAAAGUUUAAAAGAGAUCAUC
AGACUAGCGAUACAGAAUGCCUGUCACUCGGCAAGCUGUAAAGCGAAACCUCAAAUGAGUUGACUAUGAACGUAG
AUUUUUAAAGUGUCGAUGUGUUU SEQ ID NO:48

[0145] 嗜肺军团菌模式种 (*Legionella pneumophila*) ssrA, 内部部分

[0146] GTGGGTTGCAAAACCGGAAGTGCATGCCGAGAAGGAGATCTCTCGTAAATAAGACTCAATTAAATATAA
ATGCAAACGATGAAAACCTTTGCTGGTGGGGAAGCTATCGCTGCCTAATAAGCACTTTAGTTAAACCATCACTGTGTA
CTGGCCAATAAACCAGTATCCCGTTCGACCGAGCCCGCTTATCGGTATCGAATCAACGGTCATAAGAGATAAGCTA
GCGTCCTAATCTATCCCGGTTATGGCGCGAAACTCAGGGAATCGCTGTGTATCATCCTGCCCGTCGGAGGAGCCAC
AGTTAAATTCAAAGACAAGGCTATGCATGTAGAGCTAAAGGCAGAGGACTTGCGGACGCGG SEQ ID NO:49

[0147] 嗜肺军团菌模式种 (*Legionella pneumophila*) tmRNA, 内部部分

[0148] GUGGGUUGCAAAACCGGAAGUGCAUGCCGAGAAGGAGAUUCUCUGUAAAUAAAGACUCAUUUAAUUAUAA
AUGCAAACGAUGAAAACUUUGCUGGUGGGGAAGCUAUCGCGUGCCUAAUAAGCACUUUAGUUAACCAUCACUGUGUA
CUGGCCAAUAAACCAGUAUCCCGUUCGACCGAGCCCGCUUAUCGGUAUCGAAUCAACGGUCAUAAGAGAUAAAGCUA
GCGUCCUAAUCUAUCCCGGUUAUGGCGCGAAACUCAGGGAUUCGUGUGUAUCAUCCUGCCCGUCGGAGGAGCCAC
AGUUAUUUCAAAGACAAGGCUAUGCAUGUAGAGCUAAAGGCAGAGGACUUGCGGACGCGG SEQ ID NO:50

[0149] 格氏李斯特氏菌 (*Listeria grayi*) ssrA, 内部部分

[0150] ACAGGGATAGGTCGAGCTTGAGTTGCGAGCCGGGGGATCGGCCCGTCATCAACGTCAAAGCCAATAA
TAACTGGCAAACAAAACAACAATTTAGCTTTCGCTGCCTAATAGCAGTCTGAATAGCTGATCCTCCGTGCATCACC
CATGTGCTACGGTAAGGTCTCACTTTTAAGTGGGTTACGCTGGCTTATCTCCGTCTGGGGCAAACGAGAAGAGC
ATAATCAGACTAGCTAGATAGAGCCCTGACGCCGGGCAGACATCTATGCGAAATCCAAATACGGCAACTACGCTC
GTAGATGCTCAAGTGCCGATATTTCTGG SEQ ID NO:51

[0151] 格氏李斯特氏菌 (*Listeria grayi*) tmRNA, 内部部分

[0152] ACAGGGAUAGGUCGAGCUUGAGUUGCGAGCCGGGGGAUCGGCCCGUCAUCAACGUCAAAGCCAAUAA
UAACUGGCAAACAAAACAACAAUUUAGCUUUCGCGUCCUAAUAGCAGUCUGAAUAGCUGAUCCUCCGUGCAUACCC
CAUGUGCUACGGUAAGGGUCUCACUUUAAAGUGGGUUAACGUGGCUUAUCUCCGUCUGGGGCAAACGAGAAGAGC
AUAUUCAGACUAGCUAGAUAGAGCCCUGACGCCGGGCAGACAUCUAUGCGAAAUCCAAAUACGGCAACUACGCUC
GUAGAUGCACAAGUGCCGAUAAUUCUGG SEQ ID NO:52

[0153] 无害李斯特氏菌 (*Listeria innocua*) ssrA, 内部部分

[0154] ACAGGGATAGTTCGAGCTTGAGTTGCGAGTCGGGGGGATCGTCCTCGTTATCAACGTCAAAGCCAATA
ATAACTGGCAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGCTGATCCTCCGTGCATCGC
CCATGTGCTACGGTAAGGTCTCACTCTAAGTGGGCTACACTAGTTAATCTCCGTCTGAGGTTAAATAGAAGAGC
TTAATCAGACTAGCTGAATGGAAGCCTGTTACCGGGCTGATGTTTATGCGAAATGCTAATACGGTGACTACGCTC
GTAGATATTCAAGTGCCGATATTTCTGG SEQ ID NO:53

[0155] 无害李斯特氏菌 (*Listeria innocua*) tmRNA, 内部部分

[0156] ACAGGGAUAGUUCGAGCUUGAGUUGCGAGUCGGGGGAUCGUCCUCGUUAUCAACGUCAAAGCCAAUA
AUAACUGGCAAAGAAAAACAAAACCUAGCUUUCGCGUCCUAAUAAAGCAGUAGCAUAGCUGAUCCUCCGUGCAUCGC
CCAUGUGCUACGGUAAGGGUCUCACUCUAAAGUGGGCUACACUAGUUAUUCUCCGUCUGAGGUUAAAUAGAAGAGC
UUAUUCAGACUAGCUGAAUGGAAGCCUGUUAACCGGGCUGAUGUUUUAUGCGAAAUGCUAAUACGGUGACUACGCUC
GUAGAUAUUAAGUGCCGAUAAUUCUGG SEQ ID NO:54

[0157] 单核细胞增多性李斯特氏菌 (*Listeria monocytogenes*) (NCTC7973) *ssrA*, 内部部分

[0158] ACAGGGATAGTTCGAGCTTGAGTTGCGAGTCGGGGGGATCGTCCTCGTTATCAACGTCAAAGCCAATAATAACTGGCAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGCTGATCCTCCGTGCATCGCCATGTGCTACGGTAAGGGTCTCACTCTAAGTGGGCTACACTAGTTAATCTCCGTCTGGGGTTAAATAGAAGAGCTTAATCAGACTAGCTGAATGGAAGCCTGTTACCGGGCCGATGTTTATGCGAAATGCTAATACGGTGACTACGCTGTAGATATTTAAGTGCCGATATTTCTGG SEQ ID NO:55

[0159] 单核细胞增多性李斯特氏菌 (*Listeria monocytogenes*) (NCTC7973) *tmRNA*, 内部部分

[0160] ACAGGGAUAGUUCGAGCUUGAGUUGCGAGUCGGGGGAUCGUCCUCGUUAUCAACGUCAAAGCCAAUAUAACUGGCAAAGAAAAACAAAACCUAGCUUUCGUGCCUAAUAAGCAGUAGCAUAGCUGAUCCUCCGUGCAUCGCCAUGUGCUACGGUAAGGGUCUCACUCUAAGUGGGCUACACUAGUUAUUCUCCGUCUGGGGUUAAUAGAAGAGCUUUAUCAGACUAGCUGAAUGGAAGCCUGUUACCGGGCCGAUGUUUAUGCGAAAUGCUAAUACGGUGACUACGCUCGUAGAUUUUAAGUGCCGAUUAUUCUGG SEQ ID NO:56

[0161] 单核细胞增多性李斯特氏菌 (*Listeria monocytogenes*) (NCTC11994) *ssrA*, 内部部分

[0162] CAAAGCCAATAATAACTGGCAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGCTGATCCTCCGTGCATCGCCATGTGCTACGGTAAGGGTCTCACTCTAAGTGGGCTACACTAGTTAATCTCCGTCTGGGTTAAATAGAAGAGCTTAATCAGACTAGCTGAATGGAAGCCTGTTACCGGGCCGATGTTTATGCGAAATGCTAATACGGTGACTACGCTCGTAGATATTT SEQ ID NO:57

[0163] 单核细胞增多性李斯特氏菌 (*Listeria monocytogenes*) (NCTC11994) *tmRNA*, 内部部分

[0164] CAAAGCCAUAUAUAACUGGCAAAGAAAAACAAAACCUAGCUUUCGUGCCUAAUAAGCAGUAGCAUAGCUGAUCCUCCGUGCAUCGCCAUGUGCUACGGUAAGGGUCUCACUCUAAGUGGGCUACACUAGUUAUUCUCCGUCUGGGUUAAUAGAAGAGCUUUAUCAGACUAGCUGAAUGGAAGCCUGUUACCGGGCCGAUGUUUAUGCGAAAUGCUAAUACGGUGACUACGCUCGUAGAUUUUSEQ ID NO:58

[0165] 墨氏李斯特氏菌 (*Listeria murrayi*) *ssrA*, 内部部分

[0166] ACAGGGATAGTTCGAGCTTGAGTTGCGAGTCGGGGGGATCGTCCTCGTTATCAACGTCAAAGCCAATAATAACTGGCAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGCTGATCCTCCGTGCATCGCCATGTGCTACGGTAAGGGTCTCACTCTAAGTGGGCTACACTAGTTAATCTCCGTCTGAGGTAAATAGAAGAGCTTAATGAGACTAGCTGAATGGAAGCCTGTTACCGGGCTGATGTTTATGCGAAATGCTAATACGGTGACTACGCTGTAGATATTCAAGTGCCGATATTTCTGG SEQ ID NO:59

[0167] 墨氏李斯特氏菌 (*Listeria murrayi*) *tmRNA*, 内部部分

[0168] ACAGGGAUAGUUCGAGCUUGAGUUGCGAGUCGGGGGAUCGUCCUCGUUAUCAACGUCAAAGCCAAUAUAACUGGCAAAGAAAAACAAAACCUAGCUUUCGUGCCUAAUAAGCAGUAGCAUAGCUGAUCCUCCGUGCAUCGCCAUGUGCUACGGUAAGGGUCUCACUCUAAGUGGGCUACACUAGUUAUUCUCCGUCUGAGGUUAAUAGAAGAGCUUUAUGAGACUAGCUGAAUGGAAGCCUGUUACCGGGCUGAUGUUUAUGCGAAAUGCUAAUACGGUGACUACGCUCGUAGAUUUAAGUGCCGAUUAUUCUGG SEQ ID NO:60

[0169] 威氏李斯特氏菌 (*Listeria welshimeri*) *ssrA*, 内部部分

[0170] ACAGGGATAGTTCGAGCTTGAGTTGCGAGTCGGGGGATCGTCCTCGTTATCAACGTCAAAGCCAATA
ATAACTGGCAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGCTGATCCTCCGTGCATCGC
CCATGTGCTACGGTAAGGGTCTCACTCTAAGTGGGCTACACTGGCTAATCTCCGTCTGAGGTTAGTTGGAAGAGC
TTAATCAGACTAGCTGAATGGAAGCCTGTTACCGGGCCGATGTTTATGCGAAATGCTAATACGGTGACTACGCTC
GTAGATATTTAAGTGCCGATATTTCTGG SEQ ID NO:61

[0171] 威氏李斯特氏菌 (*Listeria welshimeri*) tmRNA, 内部部分

[0172] ACAGGGAUAGUUCGAGCUUGAGUUGCGAGUCGGGGGAUCGUCCUCGUUAUCAACGUCAAAGCCAAUA
AUAACUGGCAAAGAAAAACAAAACCUAGCUUUCGUGCCUAAUAAGCAGUAGCAUAGCUGAUCCUCCGUGCAUCGC
CCAUGUGCUACGGUAAGGGUCUCACUCUAAGUGGGCUACACUGGCUAAUCUCCGUCUGAGGUUAGUUGGAAGAGC
UUAUACAGACUAGCUGAAUGGAAGCCUGUUACCGGGCCGAUGUUUAUGCGAAAUGCUAAUACGGUGACUACGCUC
GUAGAUUUUAAGUGCCGAUUAUUUCUGG SEQ ID NO:62

[0173] 除烃海杆菌 (*Marinobacter hydrocarbonoclasticus*) ssrA, 内部部分

[0174] GCCGGTGACGAACCCCTTGGGTGCATGCCGAGATGGCAGCGAATCTCGTAAATCCAAAGCTGCAACGTA
ATAGTCGCAAACGACGAAAACTACGCACTGGCGGCGTAAGCCGTTCCAGTCGTCCTGGCTGAGGCGCCTATAACTC
AGTAGCAACATCCCAGGACGTCATCGCTTATAGGCTGCTCCGTTACACAGAGCTCACTGGTGTTCGGCTAAGATT
AAAGAGCTCGCCTCTTGACCCCTGACCTTCGGGTCGCTTGAGGTTAAATCAATAGAAGGACACTAAGCATGTAGA
CCTCAAGGCCTAGTGCTGGCGGACGCGG SEQ ID NO:63

[0175] 除烃海杆菌 (*Marinobacter hydrocarbonoclasticus*) tmRNA, 内部部分

[0176] GCCGGUGACGAACCCUUGGGUGCAUGCCGAGAUGGCAGCGAAUCUCGUAAAUCCAAAGCUGCAACGUA
AUAGUCGCAAACGACGAAAAACUACGCACUGGCGGCGUAAGCCGUUCCAGUCGUCCUGGCGAGGCGCCUAAUACUC
AGUAGCAACAUCCAGGACGUAUCGCUUAUAGGCGUCUCCGUUACACAGAGCUCACUGGUGUUCGGCUAAGAUA
AAAGAGCUCGCCUCUUGCACCCUGACCUUCGGGUCGCUUGAGGUUAAAUCAAUAGAAGGACACUAAGCAUGUAGA
CCUCAAGGCCUAGUGCUGGCGGACGCGG SEQ ID NO:64

[0177] 鸟分枝杆菌 (*Mycobacterium avium*) ssrA, 内部部分

[0178] TTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAAGGCAACTGACCACCGTAAGCGTCGTTGCAAATAG
ATAAGCGCCGATTACATCAGCGCGACTTACCTCTCGCTGCCTAAGCGACAGCTAGTCCGTGAGCCCGGGAACGCCC
TCGACCCGGAGCCTGGCGTCAGCTAGAGGGATCCACCGATGAGTTCCGGTCGCGGGACTCATCGGGACACCAACAGCG
ACTGGGATCGTCATCCTGGCTTGTTTCGCGTGACCAGGAGATCCGAGTAGAGGCATAGCGAACTGCGCACGGAGAAGC
CTTGAGGGGAATGCCGTAGAACCCGGGTTTCGATTCCCAA SEQ ID NO:65

[0179] 鸟分枝杆菌 (*Mycobacterium avium*) tmRNA, 内部部分

[0180] UUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAACUGACCACCGUAAGCGUCGUUGCAAAUAG
AUAAGCGCCGAUUCACAUCAGCGCGACUUACCUCUCGUGCCUAAAGCGACAGCUAGUCCGUCAGCCCGGGAACGCCC
UCGACCCGGAGCCUGGCGUCAGCUAGAGGGAUCCACCGAUGAGUUCGGUCGCGGGACUCAUCGGGACACCAACAGCG
ACUGGGAUCGUCAUCCUGGCUUGUUCGCGUGACCAGGAGAUCCGAGUAGAGGCAUAGCGAACUGCGCACGGAGAAGC
CUUGAGGGGAUUGCCGUAGAACCCGGGUUCGAUUCCTAAASEQ ID NO:66

[0181] 牛分枝杆菌 (*Mycobacterium bovis*) ssrA, 内部部分

[0182] TTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAAGGCAAGAGACCACCGTAAGCGTCGTTGCGACCA
AATAAGCGCCGATTACATCAGCGCGACTACGTCTCGCTGCCTAAGCGACGGCTAGTCTGTCAGACCCGGGAACGCC
CTCGGCCCGGACCCTGGCATCAGCTAGAGGGATCCACCGATGAGTCCGGTCGCGGGACTCCTCGGGACAACCACA

GCGACTGGGATCGTCATCTCGGCTAGTTCGCGTGACCGGGAGATCCGAGCAGAGGCATAGCGAACTGCGCACGGA
GAAGCCTTGAGGGAATGCCGTAGG SEQ ID NO:67

[0183] 牛分枝杆菌 (*Mycobacterium bovis*) tmRNA, 内部部分

[0184] UUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCGUAAGCGUCGUUGCGACCA
AAUAAGCGCCGAUUCACAUCAGCGCGACUACGUCUCGCUGCCUAAGCGACGGCUAGUCUGUCAGACCGGGAACGCC
CUCGGCCCGGACCCUGGCAUCAGCUAGAGGGAUCCACCGAUGAGUCCGGUUCGCGGGACUCCUCGGGACAACCACA
GCGACUGGGAUCGUCAUCUGGCUAGUUCGCGUGACCGGGAGAUCCGAGCAGAGGCAUAGCGAACUGCGCACGGA
GAAGCCUUGAGGGAUUGCCGUAGG SEQ ID NO:68

[0185] 麻风分枝杆菌 (*Mycobacterium leprae*) ssrA

[0186] GGGGCTGAAAGTTTCGACTTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAAGCAAGAGACCACCG
TAAGCGTCGTTGCAGCAATATAAGCGCCGATTCATATCAGCGCGACTATGCTCTCGCTGCCTAAGCGATGGCTAGTC
TGTCAGACCGGGAACGCCCTCGTCCCGGAGCCTGGCATCAGCTAGAGGGATCTACCGATGGGTTCGGTCGCGGGACT
CGTCGGGACACCAACCGCGACTGGGATCGTCATCCTGGCTAGTTCGCGTGATCAGGAGATCCGAGTAGAGGCATAGC
GAACTACGCACGGAGAAGCCTTGAGGGAAATGCCGTAGGACCCGGGTTCGATTCCCGGCAGCTCCACCA SEQ ID
NO:69

[0187] 麻风分枝杆菌 (*Mycobacterium leprae*) tmRNA

[0188] GGGGCTGAAAGTTTCGACTTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAAGCAAGAGACCACCG
UAAGCGUCGUUGCAGCAAUAUAAGCGCCGAUUCAUUACAGCGCGACUAGCUCUCGCUGCCUAAGCGAUGGCUAGUC
UGUCAGACCGGGAACGCCCTCGTCCCGGAGCCTGGCATCAGCTAGAGGGAUUACCGAUGGGUUCGGUCGCGGGACU
CGUCGGGACACCAACCGCGACUGGGAUCGUCAUCCUGGCUAGUUCGCGUGAUCAGGAGAUCCGAGUAGAGGCAUAGC
GAACUACGCACGGAGAAGCCUUGAGGGAAAUGCCGUAGGACCCGGGUUCGAUUCGGGCAGCUCCACCA SEQ ID
NO:70

[0189] 鸟分枝杆菌 (副结核亚种) (*Mycobacterium paratuberculosis*) ssrA, 内部部分

[0190] TTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAAGCAAGAGACCACCGTAAGCGTCGTTGCAAATAG
ATAAGCGCCGATTACATCAGCGCGACTTACCTCTCGCTGCCTAAGCGACAGCTAGTCCGTCAGCCCGGGAACGCCC
TCGACCCGGAGCCTGGCGTCAGCTAGAGGGATCCACCGATGAGTTCGGTCGCGGGACTCATCGGGACACCAACAGCG
ACTGGGATCGTCATCCTGGCTTGTTGCGGTGACCAGGAGATCCGAGTAGAGGCATAGCGAACTGCGCACGGAGAAGC
CTTGAGGGAATGCCGTAGAACCCGGGTTCGATTCCCAA SEQ ID NO:71

[0191] 鸟分枝杆菌 (副结核亚种) (*Mycobacterium paratuberculosis*) tmRNA, 内部部分

[0192] UUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAACUGACCACCGUAAGCGUCGUUGCAAUAG
AUAAGCGCCGAUUCACAUCAGCGCGACUUAACUUCUCGCUGCCUAAGCGACAGCUAGUCCGUCAGCCCGGGAACGCCC
UCGACCCGGAGCCUGGCGUCAGCUAGAGGGAUCCACCGAUGAGUUCGGUUCGCGGGACUCAUCGGGACACCAACAGCG
ACUGGGAUCGUCAUCCUGGCUUGUUCGCGUGACCAGGAGAUCCGAGUAGAGGCAUAGCGAACUGCGCACGGAGAAGC
CUUGAGGGAAUGCCGUAGAACCCGGGUUCGAUUCCTCAASEQ ID NO:72

[0193] 结核分枝杆菌 (*Mycobacterium tuberculosis*) ssrA

[0194] GGGGCTGAACGTTTCGACTTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAAGCAAGAGACCACCG
TAAGCGTCGTTGCAGCAAATAAGCGCCGATTCATCAGCGCGACTACGCTCTCGCTGCCTAAGCGACGGCTAGTC
TGTCAGACCGGGAACGCCCTCGGCCCCGAGCCCTGGCATCAGCTAGAGGGATCCACCGATGAGTCCGGTCGCGGGACT
CCTCGGGACAACACAGCGACTGGGATCGTCATCTCGGCTAGTTCGCGTGACCGGGAGATCCGAGCAGAGGCATAG

CGAACTGCGCACGGAGAAGCCTTGAGGGAATGCCGTAGGACCCGGGTTTCGATTCCCGGCAGCTCCACCA SEQ ID NO:73

[0195] 结核分枝杆菌 (*Mycobacterium tuberculosis*) tmRNA

[0196] GGGGCUGAACGGUUUCGACUUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCG UAAGCGUCGUUGCGACCAAAUAAGCGCCGAUUCACAUCAGCGCGACUACGCUCUCGCUGCCUAAGCGACGGCUAGUC UGUCAGACCGGGAACGCCUCGCGCCCGGACCCUGGCAUCAGCUAGAGGGAUCCACCGAUGAGUCCGGUCGCGGGACU CCUCGGGACAACCACAGCGACUGGGAUCGUCAUCUCGGCUAGUUCGCGUGACCGGGAGAUCCGAGCAGAGGCAUAG CGAACUGCGCACGGAGAAGCCUUGAGGGAAUGCCGUAGGACCCGGGUUCGAUUCGCGCAGCUCCACCA SEQ ID NO:74

[0197] 山羊枝原体 (*Mycoplasma capricolum*) ssrA

[0198] GGGGATGTCATGGATTTGACAGGATATCTTTAGTACATATAAGCAGTAGTGTGTAGACTATAAATACT ACTAGGTTTAAAAAACGCAAAATAAAAAACGAAGAACTTTTGAATGCCAGCATTATGATGAATAATGCATCAGCT GGAGCAAACCTTTATGTTTGCTTAATACTACTAGTTTAGTTATAGTATTTACGAATTATAGATATTTTAAGCTTTA TTTATAACCGTATTACCAAGCTTAATAGAATATATGATTGCAATAAATATATTTGAAATCTAATTGCAAATGATAT TTAACCTTTAGTTAATTTTAGTTAAATATTTTAATTAGAAAATTAATAAACTGTAGAAAGTATGTATTAATATATC TTGGACGCGAGTTCGATTCTCGCCATCTCCACCA SEQ ID NO:75

[0199] 山羊枝原体 (*Mycoplasma capricolum*) tmRNA

[0200] GGGGAUGUCAUGGAUUUGACAGGAUAUCUUUAGUACAUUAAGCAGUAGUGUUGUAGACUAAAAUACU ACUAGGUUUAAAAAACGCAAAUAAAAACGAAGAAACUUUUGAAAUGCCAGCAUUUAUGAUGAAUAAUGCAUCAGCU GGAGCAAACUUUAUGUUUGCUAAUAAACUACUAGUUUAGUUUAUGAUUUUCACGAUUUAUGAUUUUUAAAGCUUUA UUUUAUACCGUAUUUACCAAGCUUAAUAGAAUUAUGAUUGCAAUAAUUAUUUGAAAUCUAAUUGCAAAUGAUUU UUAACCUUUAGUUAUUUUUAGUUAAAAUAAUUUUAAUUGAAAAUUAACUAAACUGUAGAAAGUAUGUAUUAAUUAUC UUGGACGCGAGUUCGAUUCUGCCAUCUCCACCA SEQ ID NO:76

[0201] 生殖道枝原体 (*Mycoplasma genitalium*) (ATTC33530, #1) ssrA

[0202] GGGGATGTTTTGGGTTTGACATAATGCTGATAGACAAACAGTAGCATTGGGGTATGCCCTTACAGCGC TAGGTTCAATAACCGACAAAGAAAAATAACGAAGTGTGGTAGAACCAAATTTGATCATTAACCAACAAGCAAGTGTT AACTTTGCTTTTGATAAGTAGATACTAAAGCTACAGCTGGTGAATAGTCATAGTTTGCTAGCTGTCATAGTTTATG ACTCGAGGTAAATCGTTCAATTTAACCTTTAAAAATAGAACTTGTGTGTTCCATGATTGTTTTGTGATCAATTGGA AACAGACAAAAATCCACAAAATAAAATGTAGAAGCTGTTTGTGTGTCCTTTATGGAAACGGGTTCGATTCCCGT CATCTCCACCA SEQ ID NO:77

[0203] 生殖道枝原体 (*Mycoplasma genitalium*) (ATTC33530, #1) tmRNA

[0204] GGGGAUGUUUUGGGUUUGACAUAAUGCUGAUAGACAAACAGUAGCAUUGGGGUUAGCCCCUACAGCGC UAGGUUCAUAAACCGACAAAGAAAAUAAACGAAGUGUUGGUAGAACCAAUUUGAUCAUUAACCAACAAGCAAGUGUU AACUUUGCUUUUGCAUAAAGUAGAUACUAAAGCUACAGCUGGUGAAUAGUCAUAGUUUGCUAGCUGUCAUAGUUUAUG ACUCGAGGUUAAAUCGUUCAUUUAAACCUUUAAAAUAGAACUUGUUGUUUCCAUGAUUGUUUUGUGAUCAAUUGGA AACAGACAAAAAUCCACAAAACUAAAAUGUAGAAGCUGUUUGUUGUGUCCUUUAUGGAAACGGGUUCGAUUCGCGU CAUCUCCACCA SEQ ID NO:78

[0205] 生殖道枝原体 (*Mycoplasma genitalium*) (ATTC33530, #2) tmRNA, 内部部分

[0206] ACATAATGCTGATAGACAAACAGTAGCATTGGGGTATGCCCTTACAGCGCTAGGTTCAATAACCGACA

AAGAAAATAACGAAGTGTGGTAGATCCAAATTTGATCATTAACCAACAAGCAAGTGTTAACTTTGCTTTTGCATAA
GTAGATACTAAAGCTACAGCTGGTGAATAGTCATAGTTTGCTAGCTGTCATAGTTTATGACTCGAGGTTAAATCGTT
CAATTTAACCTTTAAAAATAGAACTTGTGTTTCCATGATTGTTTTGTGATCAATTGGAAACAAGACAAAAATCCAC
AAAATAAAATGTAGAAGCTGTTTGTGTGTCCTTTATGGAAACGGGTTTSEQ ID NO:79

[0207] 生殖道枝原体 (*Mycoplasma genitalium*) (ATTC33530, #2) tmRNA, 内部部分

[0208] ACAUAAUGCUGAUAGACAAACAGUAGCAUUGGGGUUAGCCCCUACAGCGCUAGGUUCAAUAACCGACA
AAGAAAAUACGAAGUGUUGGUAGAUCAAAAUUUGAUCAUUAACCAACAAGCAAGUGUUAACUUUGCUUUUGCAUAA
GUAGAUACUAAAGCUACAGCUGGUGAAUAGUCAUAGUUUGCUAGCUGUCAUAGUUUAUGACUCGAGGUUAAAUCGUU
CAUUUUAACCUUUAUUUUAGAACUUGUUGUUUCCAUGAUUGUUUUGUGAUCAAUUGGAAACAAGACAAAAAUCCAC
AAAACUAAAUGUAGAAGCUGUUUGUUGUCCUUUAUGGAAACGGGUUC SEQ ID NO:80

[0209] 嗜肺枝原体 (*Mycoplasma pneumophila*) ssrA

[0210] GGGGATGTAGAGGTTTTGACATAATGTTGAAAGGAAAACAGTTGCAGTGGGGTATGCCCCTTACAGCTC
TAGGTATAATAACCGACAAAAATAACGACGAAGTTTTGGTAGATCCAATGTTGATCGCTAACCAACAAGCAAGTATC
AACTACGCTTTTCGCTTAGAACATACTAAAGCTACACGAATTGAATCGCCATAGTTTGGTTCGTGTACAGTTTATGG
CTCGGGGTAACTGGTTCAACTTAATCCTTAAATTATGAACTTATCGTTTACTTGTTTGTCTTATGATCTAAAGTAA
GCGAGACATTAAACATAAGACTAAACTGTAGAAGCTGTTTTACCAATCCTTTATGGAAACGGGTTCGATTCCCCTC
ATCTCCACCA SEQ ID NO:81

[0211] 嗜肺枝原体 (*Mycoplasma pneumophila*) tmRNA

[0212] GGGGAUGUAGAGGUUUUGACAUAUUGUUGAAAGGAAAACAGUUGCAGUGGGGUUAGCCCCUACAGCUC
UAGGUUAAUUAACCGACAAAAUAAACGACGAAGUUUUGGUAGAUCCAAUGUUGAUCGCUAACCAACAAGCAAGUAUC
AACUACGCUUUCGCUUAGAACAUAACUAAAGCUACACGAAUUGAAUCGCCAUAGUUUGGUUCGUGUCACAGUUUAUGG
CUCGGGGUUAACUGGUUCAACUUAUAAUCCUUAAAUAUGAACUUAUCGUUUACUUGUUUGUCUUAUGAUCUAAAGUAA
GCGAGACAUUAAAACAUAGACUAAACUGUAGAAGCUGUUUUACCAAUCCUUUAUGGAAACGGGUUCGAUUCCCGUC
AUCUCCACCA SEQ ID NO:82

[0213] 淋病奈瑟球菌 (*Neisseria gonorrhoeae*) (ATCC19424) ssrA, 内部部分

[0214] GGGGGTTGCGAAGCAGATGCGGGCATACCGGGTCTCAGATTCCCGTAAACACTGAATTCAAATAGT
CGCAAACGACGAAACTTACGCTTTAGCCGCTTAAGGCTAGCCGTTGCAGCAGTCGGTCAATGGGCTGTGTGGCGAA
AGCCACCGCAACGTCATCTTACATTGACTGGTTTCCAGCCGGGTACTTGGCAGGAAATAAGACTTAAGGTAAGT
GGTTTCCAAAAGGCCTGTTGGTTCGGCATGATGGAAATAAGATTTTCAAATAGACACAACCTAAGTATGTAGAACGC
TTTGTAGAGGACTTTTCGGACGGGG SEQ ID NO:83

[0215] 淋病奈瑟球菌 (*Neisseria gonorrhoeae*) (ATCC19424) tmRNA, 内部部分

[0216] GGGGGUUGCGAAGCAGAUAGCGGGCAUACCGGGGUCUCAGAUUCCCGUAAAACACUGAAUUCAAUAGU
CGCAAACGACGAAACUUAACGCUUUAGCCGCUUAAGGCUAGCCGUUGCAGCAGUCGGUCAAUGGGCUGUGUGCGAA
AGCCACCGCAACGUCAUCUUAUACAUUGACUGGUUUCAGCCGGGUUACUUGGCAGGAAAUAAAGACUUAAGGUAAACU
GGUUUCCAAAAGGCCUGUUGGUCGGCAUGAUGGAAAUAAAGAUUUUCAAUAGACACAACUAAAGUAUGUAGAACGC
UUUGUAGAGGACUUUCGGACGGGG SEQ ID NO:84

[0217] 淋病奈瑟球菌 (*Neisseria gonorrhoeae*) (FA 1090) ssrA

[0218] GGGGGCGACCTTGGTTTTCGACGGGGTTGCGAAGCAGATGCGGGCATACCGGGTCTCAGATTCCCGTA
AAACACTGAATTCAAATAGTCGAAACGACGAAACTTACGCTTTAGCCGCTTAAGGCTAGCCGTTGCAGCAGTCGGT

CAATGGGCTGTGTGGTGAAAGCCACCGCAACGTCATCTTACATTGACTGGTTTCCAGCCGGGTACTTGGCAGGAAA
TAAGACTTAAGGTAAGTGGTTTCCAAAAGGCCTGTTGGTCGGCATGATGGAATAAGATTTTCAAATAGACACAAC
AAGTATGTAGAACGCTTTGTAGAGGACTTTTCGGACGGGGTTTCGATTCCCCCGCCTCCACCA SEQ ID NO:85

[0219] 淋病奈瑟球菌 (*Neisseria gonorrhoeae*) (FA 1090) tmRNA

[0220] GGGGGCGACCUUGGUUUCGACGGGGGUUGCGAAGCAGAU GCGGGCAUACCGGGGUCUCAGAUUCCCGUA
AAACACUGAAUUCAAAUAGUCGCAAAACGACGAAACUUACGCUUUAGCCGCUUAAGGCUAGCCGUUGCAGCAGUCGGU
CAAUGGGCUGUGUGGUGAAAAGCCACCGCAACGUCUACUUAUUGACUGGUUUCAGCCGGGUUACUUGGCAGGAAA
UAAGACUUAAGGUAACUGGUUUCAAAAGGCCUGUUGGUCGGCAUGAUGGAAAUAAGAUUUUCAAUAGACACAACU
AAGUAUGUAGAACGCUUUGUAGAGGACUUUCGGACGGGGGUUCGAUUCGGGCUCCACCA SEQ ID NO:86

[0221] 脑膜炎奈瑟氏球菌 (*Neisseria meningitidis*) ssrA

[0222] GGGGGCGACCTTGGTTTCGACGGGGTTGCGAAGCAGATGCGGGCATACCGGGGTCTCAGATTCCCGTA
AAACACTGAATTCAAATAGTCGCAAAACGACGAAACTTACGCTTTAGCCGCTTAAGGCTAGCCGTTGCAGCAGTCGGT
CAATGGGCTGTGTGGCGAAAAGCCACCGCAACGTCATCTTACATTGACTGGTTTCTGCGGGTTATTTGGCAGGAAA
TGAGATTTAAGGTAAGTGGTTTCCAAAAGGCCTGTTGGTCGGCATGATGGAATAAGATTTTCAAATAGACACAAC
AAGTATGTAGAACGCTTTGTAGAGGACTTTTCGGACGGGGTTTCGATTCCCCCGCCTCCACCA SEQ ID NO:87

[0223] 脑膜炎奈瑟氏球菌 (*Neisseria meningitidis*) tmRNA

[0224] GGGGGCGACCUUGGUUUCGACGGGGGUUGCGAAGCAGAU GCGGGCAUACCGGGGUCUCAGAUUCCCGUA
AAACACUGAAUUCAAAUAGUCGCAAAACGACGAAACUUACGCUUUAGCCGCUUAAGGCUAGCCGUUGCAGCAGUCGGU
CAAUGGGCUGUGUGGCGAAAAGCCACCGCAACGUCUACUUAUUGACUGGUUUCUGCCGGGUUUAUUGGCAGGAAA
UGAGAUUUUAGGUAACUGGUUUCAAAAGGCCUGUUGGUCGGCAUGAUGGAAAUAAGAUUUUCAAUAGACACAACU
AAGUAUGUAGAACGCUUUGUAGAGGACUUUCGGACGGGGGUUCGAUUCGGGCUCCACCA SEQ ID NO:88

[0225] *Nostoc muscorum* PCC7120 ssrA

[0226] GGGTCCGTCGGTTTCGACAGGTTGGCGAACGCTACTCTGTGATTTCAGGTCGAGAGTGAGTCTCCTCTGC
AAATCAAGGCTCAAAACAAAAGTAAATGCGAATAACATCGTTAAATTTGCTCGTAAGGACGCTCTAGTAGCTGCCTA
AATAGCCTCTTTCAGGTTTCGAGCGTCTTCGGTTTGACTCCGTTAAGGACTGAAGACCAACCCCCAACGGATGCTCTA
GCAATGTTCTCTGTTGGCTTGCTAGCTAAGATTTAATCAGAGCATCCTACGTTCCGGGATAATGAACGATTCCCGCC
TTGAGGGTCAGAAAGGCTAAACCTGTGAATGAGCGGGGGTCAATACCCAATTTGGACAGCAGTTTCGACTCTGCTCG
ATCCACCA SEQ ID NO:89

[0227] *Nostoc muscorum* PCC7120 tmRNA

[0228] GGGUCCGUCGGUUUCGACAGGUUGGCGAACGCUACUCUGUGAUUCAGGUCGAGAGUGAGUCUCCUCUGC
AAAUCAAGGCUCAAAACAAAAGUAAAUGCGAAUAAACUAGUUUUUUGCUCGUAAGGACGCUCUAGUAGCUGCCUA
AAUAGCCUCUUUCAGGUUCGAGCGUCUUCGGUUUGACUCCGUUAAGGACUGAAGACCAACCCCCAACGGAUGCUCUA
GCAAUGUUCUCUGGUUGGCUUGCUAGCUAAGAUUUAAUCAGAGCAUCCUACGUUCGGGAUUAUGAACGAUUCGGCC
UUGAGGGUCAGAAAGGCUAAACUGUGAAUGAGCGGGGGGUCAAUACCCAAUUGGACAGCAGUUCGACUCUGCUCG
AUCCACCASEQ ID NO:90

[0229] *Odontella sinensis* (硅藻属) 叶绿体 ssrA

[0230] GGGGCTGACTTGGTTTCGACATTTAAAAATTGTTACAGTATGATGCAGGTCGAAGTTTCTAATCTTCGT
AAAAAAGAGAAATTTATAATAAATGCTAATAATTTAATTTCTTCTGTGTTTAAAAGTTTATCAACTAAGCAAAATA
GTTTAAATTTAAGTTTTGCTGTTTAAGTTTTATGCACATTTAATGATCTAGTAAATAAATTTGTTTCGCTATAATTTA

TATTTATAACTAGACTTTTGTCTTTTTTATAGTTTAGAATAACTTTATCATTTCAAACCTCGTTCATCTAGTTGAA
CTAAACCTGTGAACGAATACTATAATAAAATTTTTAGATGGACGTGGGTTTCGACTCCCATCAGCTCCACCA SEQ ID
NO:91

[0231] *Odontella sinensis*(硅藻属)叶绿体 tmRNA

[0232] GGGGCUGACUUGGUUUCGACAUUUAAAAAUUGUUACAGUAUGAUGCAGGUCGAAGUUUCUAAUCUUCGU
AAAAAAGAGAAUUUUAUAAUAAUUGCUAAUAAUUAUUUCUGUGUUUAAAAGUUUAUCAACUAAGCAAAUA
GUUUAAUUUAAGUUUUGCUGUUUAAGUUUAUGCACAUUUAAUGAUCUAGUAAAUAACUUUGUUCGCUAUAUUUA
UAUUUAUAACUAGACUUUUGUCUUUUUUAUAGUUUAGAAUAACUUUAUCAUUCAAACCUCGUUCCAUCUAGUUGAA
CUAAACCUGUGAACGAUACUAAUAAAAUUUUUAGAUGGACGUGGGUUCGACUCCCAUCAGCUCCACCASEQ ID
NO:92

[0233] 卟啉单胞菌 (*Porphyra purpureum*) (红藻) 叶绿体 ssrA

[0234] GGGGCTGCAAGGTTTCTACATTGTGAAAAACAAATATATGAAAGTAAACGAGCTCATTATTAGAGC
TTTTAGTTAAATAAATGCAGAAAATAATATTATTGCTTTTTCTCGAAAATTAGCTGTTGCATAAATAGTCTCAATT
TTTGTAATTCGAAGTGATAGACTCTTATACACTACGAATATTCTGTTAGAGTTGCTCTTAATAAAAGAAAAGTAA
AAAAATACAAATTCTTATGTTTTTTACCTGAATTGATTCAATTTAAGGTTAGTATTTTTTGATTTTTACAATGGA
CGTGGGTTCAAGTCCCACCAGCTCCACCA SEQ ID NO:93

[0235] 卟啉单胞菌 (*Porphyra purpureum*) (红藻) 叶绿体 tmRNA

[0236] GGGGCUGCAAGGUUUCUACAUUGUGAAAAACAAUUAUUGAAAGUAAAACGAGCUCAUUAUUAGAGC
UUUUAAGUAAAAUAAUAGCAGAAAAUAAUUAUUUUGCUUUUUCUGAAAAUUAGCUGUUGCAUAAUAGUCUCAUU
UUUGUAAUUCGAAGUGAUAGACUCUUAUACACUACGAAUAUUCUGUUAGAGUUGCUCUUAUAAAAGAAAAGUAA
AAAAAUACAAAUUCUUAUGUUUUUUACCUGAAUUGAUUCAAUUUAAGGUUAGUAAAAUUUGAUUUUUACAAUGGA
CGUGGGUUAAGUCCCACCAGCUCCACCA SEQ ID NO:94

[0237] 牙龈卟啉单胞菌 (*Porphyromonas gingivalis*) ssrA

[0238] GGGGCTGACCGGCTTTGACAGCGTGATGAAGCGGTATGTAAGCATGTAGTGCGTGGGTGGCTTGCACTA
TAATCTCAGACATCAAAAGTTTAATTGGCGAAAAATACTACGCTCTCGCTGCGTAATCGAAGAATAGTAGATTAGAC
GCTTCATCGCCGCCAAAGTGGCAGCGACGAGACATCGCCCGAGCAGCTTTTTCCCGAAGTAGCTCGATGGTGCGGTG
CTGACAAATCGGGAACCGCTACAGGATGCTTCTGCTGTGGTCAGATCGAACGGAAGATAAGGATCGTGCAATTGGG
TCGTTTCAGCCTCCGCTCGCTCACGAAAAATCCAACCTGAACTAAACATGTAGAAAGCATATTGATTCCATGTTTGG
ACGAGGGTTCAATTCCCTCCAGCTCCACCA SEQ ID NO:95

[0239] 牙龈卟啉单胞菌 (*Porphyromonas gingivalis*) tmRNA

[0240] GGGGCUGACCGGCUUUGACAGCGUGAUGAAGCGGUUAUGUAAGCAUGUAGUGCGUGGGUGGCUUGCACUA
UAAUCUCAGACAUCAAAAGUUUAAUUGGCGAAAAUACUACGCUCUCGUGCGUAAUCGAAGAAUAGUAGAUUAGAC
GCUUCAUCGCCGCCAAAGUGGCAGCGACGAGACUACGCCGAGCAGCUUUUCCCCGAAGUAGCUGCAUGGUGCGGUG
CUGACAAUUCGGAACCGCUACAGGAUGCUUCCUGCCUGUGGUCAGAUACGGAAGAUAAAGGAUCGUGCAUUGGG
UCGUUUCAGCCUCCGUCGUCACGAAAAUCCAACUGAAACUAAACAUGUAGAAAGCAUUAUUGAUUCCAUGUUUGG
ACGAGGGUUAUUAUCCCUCCAGCUCCACCA SEQ ID NO:96

[0241] 雷氏变性菌 (*Proteus rettgeri*) ssrA (NCTC 10975), 内部部分

[0242] GGGATTTGCGAAACCCAAGGTGCATGCCGAGGGGCGGTTGGCCTCGTAAAAAGCCGCAAAAAATAGT
CGCAAACGACGAAAACTACGCTTTAGCAGCTTAATAACCTGCTTAGAGCCCTCTCTCCCTAGCCTCCGCTCTTGA

CGGGGATCAAGAGAGGTCAAACCCAAAAGAGATCGCGTGGATGCCTTGCCTGGGGTTGAAGCGTTAACTTAATC
AGGATAGTTTGTGTGGTGGCGTGTCTGTCCGAGCTGGCAAATGAATTCAAAGACTAGACTAAGCATGTAGTACCG
AGGATGTAGAAATTTCTSEQ ID NO:97

[0243] 雷氏变性菌 (*Proteus rettgeri*) ssrA tmRNA (NCTC 10975), 内部部分

[0244] GGGAUUUUGCGAAACCCAAGGUGCAUGCCGAGGGGCGGUUGGCCUCGUAAAAAGCCGCAAAAAAUAGU
CGCAAACGACGAAAACUACGCUUUAGCAGCUUAAUAACCUGCUUAGAGCCCUUCUCCCUAGCCUCCGCUCUUGGA
CGGGGAUCAAGAGAGGUCAAACCCAAAAGAGAU CGCGUGGAUGCCUUGCCUGGGGUUGAAGCGUUAACUUAUC
AGGAUAGUUUGUUGGUGGCGUGUCUGUCCGAGCUGGCAAUGAAUCAAAGACUAGACUAAGCAUGUAGUACCG
AGGAUGUAGAAAUUUC SEQ ID NO:98

[0245] 游海假交替单胞菌 (*Pseudoalteromonas haloplanktoni*) ssrA, 内部部分

[0246] GGAATTCAAGAAGCCCGAGGTGCATGTGAGGTGCGGTTTGCCTCGTAAAAAGCCGCAATTTAAAGT
AATCGCAAACGACGATACTACTCTCTAGCAGCTTAGGCTGGCTAGCGCTCCTTCCATGTATTCTTGTGGACTGGA
TTTTGGAGTGTACCCCTAACACCTGATCGCGACGGAACCCCTGGCCGGGGTTGAAGCGTTAAACTAAGCGGCCT
CGCCTTTATCTACCGTGTGTGTCGGGATTTAAAGGTTAATTAAATGACAATACTAAACATGTAGTACCGACGGT
CGAGGCTTTTTCGGACGGGG SEQ ID NO:99

[0247] 游海假交替单胞菌 (*Pseudoalteromonas haloplanktoni*) tmRNA, 内部部分

[0248] GGAAUUCAAGAAGCCCGAGGUGCAUGUCGAGGUGCGGUUUGCCUCGUAAAAAGCCGCAUUUAAAGU
AAUCGCAAACGACGAUAAACUACUCUAGCAGCUUAGGCUGGCUAGCGCUCCUCCAUGUAUUCUUGUGGACUGGA
UUUUGGAGUGUCACCCUAAACACCUGAUCGCGACGGAACCCUGGCCGGGGUUGAAGCGUUAACUAAAGCGGCCU
CGCCUUUAUCUACCGUGUUUGUCCGGGAUUUAAAGGUUAAUUAUAAUGACAAUACUAAACAUGUAGUACCGACGGU
CGAGGCUUUUCGGACGGGG SEQ ID NO:100

[0249] 铜绿假单胞菌 (*Pseudomonas aeruginosa*) ssrA

[0250] GGGGCCGATTAGGATTCGACGCCGGTAACAAAAGTTGAGGGGCATGCCGAGTTGGTAGCAGAACTCGTA
AATTGCGTGCTGCAAACTTATAGTTGCCAACGACGACAACTACGCTCTAGCTGCTTAATGCGGCTAGCAGTCGCTAG
GGGATGCCTGTAAACCCGAAACGACTGTGAGATAGAACAGGATCGCCGCCAAGTTCGCTGTAGACGTAACGGCTAAA
ACTCATACAGCTCGCTCCAAGCACCCCTGCCACTCGGGCGGCGCGGAGTTAACTCAGTAGAGCTGGCTAAGCATGTAA
AACCGATAGCGGAAAGCTGGCGGACGGGGGTTCAAATCCCCCGGTTCCACCASEQ ID NO:101

[0251] 铜绿假单胞菌 (*Pseudomonas aeruginosa*) tmRNA

[0252] GGGGCCGAUUAGGAUUCGACGCCGGUAACAAAAGUUGAGGGGCAUGCCGAGUUGGUAGCAGAACUCGUA
AAUUCGCUGCUGCAAACUUUAGUUGCCAACGACGACAACUACGCUCUAGCUGCUUAAUGCGGCUAGCAGUCGCUAG
GGGAUGCCUGUAAACCCGAAACGACUGUCAGAUAGAACAGGAUCGCCGCCAAGUUCGUGUAGACGUAACGGCUAAA
ACUCAUACAGCUCGCUCCAAGCACCCUGCCACUCGGGCGGCGCGGAGUUAACUCAGUAGAGCUGGCUAAGCAUGUAA
AACCGAUAGCGGAAAGCUGGCGGACGGGGGUUCAAUCCCCCGGUUCCACCA SEQ ID NO:102

[0253] 鼠伤寒沙门氏菌 (*Salmonella typhimurium*) ssrA

[0254] GGGGCTGATTCTGGATTCGACGGGATTTGCGAAACCCAAGGTGCATGCCGAGGGGCGGTTGGCCTCGTA
AAAAGCCGCAAAAAAATAGTCGCAAACGACGAAACCTACGCTTTAGCAGCTTAATAACCTGCTTAGAGCCCTCTCTC
CCTAGCCTCCGCTCTTAGGACGGGGATCAAGAGAGGTCAAACCCAAAAGAGATCGCGCGGATGCCCTGCCTGGGGTT
GAAGCGTTAAACGAATCAGGCTAGTCTGGTAGTGGCGTGTCCGTCCGCAGGTGCCAGGCGAATGTAAAGACTGACT
AAGCATGTAGTACCGAGGATGTAGGAATTTTCGGACGCGGGTTCAACTCCCGCCAGCTCCACCA SEQ ID NO:103

[0255] 鼠伤寒沙门氏菌 (*Salmonella typhimurium*) tmRNA

[0256] GGGGCUGAUUCUGGAUUCGACGGGAUUUGCGAAACCCAAGGUGCAUGCCGAGGGGCGGUUGGCCUCGUA
AAAAGCCGCAAAAAAUAGUCGCAAAACGACGAAACCUACGCUUUAGCAGCUAAUAACCUGCUUAGAGCCCUUCUC
CCUAGCCUCCGCUUUAGGACGGGGAUCAAGAGAGGUCAAACCCAAAAGAGAU CGCGCGGAUGCCCUGCCUGGGGUU
GAAGCGUUAACGAAUCAGGCUAGUCUGGUAGUGGCGUGUCCGUCCGAGGUGCCAGGCGAAUGUAAAGACUGACU
AAGCAUGUAGUACCGAGGAUGUAGGAAUUUCGGACGCGGGUUAACUCCCGCCAGCUCCACCA SEQ ID NO:104

[0257] 希瓦氏菌模式种 (*Shewanella putrefaciens*) ssrA

[0258] GGGGGCGATTCTGGATTCGACAGGATTCACGAAACCCCTGGGAGCATGCCGAGGGGCGGTTGGCCTCGTA
AAAAGCCGCAAAGTTATAGTTGCAAACGACGATAACTACGCTCTAGCCGCTTAATGCCGCTAGCCATCTACCACAG
CTTTGCACATGGGCAGTGGATTTGATGGTCATCTCACATCGTGCTAGCGAGGGAACCCTGTCTGGGGGTGAACCGCG
AAACAGTACCGGACTCACCGTGTGGGATCCTGTCTTTCTGGAGTTCAAACGGTTAAACAATAGAAAGACTAAGCATGT
AGCGCCTTGGATGTAGGTTTTCTGGACGCGGGTTCAAGTCCCGCCGCTCCACCASEQ ID NO:105

[0259] 希瓦氏菌模式种 (*Shewanella putrefaciens*) tmRNA

[0260] GGGGGCGAUUCUGGAUUCGACAGGAUUCAGAAACCCUGGGAGCAUGCCGAGGGGCGGUUGGCCUCGUA
AAAAGCCGCAAAGUUUAUGUUGCAAACGACGAUAACUACGCUCUAGCCGCUUAAUGCCGCUAGCCAUCUACCACAG
CUUUGCACAUGGGCAGUGGAUUUGAUGGUCAUCUCACAUCGUGCUAGCGAGGGAACCCUGUCUGGGGGUGAACCGCG
AAACAGUACCGGACUCACCGUGUGGGAUCCUGUCUUUCGGAGUCAAACGGUUAACAAUAGAAAGACUAAGCAUGU
AGCGCCUUGGAUGUAGGUUUUCUGGACGCGGGUUAAGUCCCGCCGCCUCCACCA SEQ ID NO:106

[0261] 金黄色葡萄球菌 (*Staphylococcus aureus*) ssrA

[0262] GGGGACGTTTCATGGATTCGACAGGGGTCCCCGAGCTCATTAAGCGTGTGCGAGGGTGTCTTCGTCAT
CAACACACACAGTTTATAATAACTGGCAAATCAAACAATAATTTTCGAGTAGCTGCCTAATCGCACTCTGCATCGCC
TAACAGCATTTCCTATGTGCTGTTAACGCGATTCAACCTTAATAGGATATGCTAAACACTGCCGTTTGAAGTCTGTT
TAGAAGAACTTAATCAAACCTAGCATCATGTTGGTTGTTTATCACTTTTCATGATGCGAAACCTATCGATAAACTAC
ACACGTAGAAAGATGTGTATCAGGACCTTTGGACGCGGGTTCAAATCCCGCCGTCTCCACCA SEQ ID NO:107

[0263] 金黄色葡萄球菌 (*Staphylococcus aureus*) tmRNA

[0264] GGGGACGUUCAUGGAUUCGACAGGGGUCCCCGAGCUCAUUAAGCGUGUCGGAGGGUUGUCUUCGUCAU
CAACACACACAGUUUUAUAAUACUGGCAAAUCAAACAUAUUUUCGAGUAGCUGCCUAAUCGCACUCUGCAUCGCC
UAAACAGCAUUUCCUUAUGUGCUGUUAACGCGAUUCAACCUUAAUAGGAUAUGCUAAACACUGCCGUUUGAAGUCUGUU
UAGAAGAAACUUAUCAAACUAGCAUCAUGUUGGUUGUUUAUCACUUUUAUGAUGCGAAACCUAUCGAUAAACUAC
ACACGUAGAAAGAUGUGUAUCAGGACCUUUGGACGCGGGUUAUAAUCCCGCCGUCUCCACCA SEQ ID NO:108

[0265] 戈氏链球菌 (*Streptococcus gordonii*) ssrA

[0266] GGGGTCGTTACGGATTCGACAGGCATTATGAGGCATATTTTGGCGACTCATCTAGCGGATGTAAAACGCC
AGTTAAATATAACTGCAAAAAATAACTTCTTACGCTTTAGCTGCCTAAAAACCAGCGGGCGTGACCCGATTGGA
TTGCTTGTGTCTGATGACAGGTCTTATTATTAGCAAGCTACGGTAGAATCTTGTCTAGTGATTTTACAAGAGATTGA
TAGACTCGCTTGATTTGGGCTTGAGTTATGTGTCAAAATCAAGTTAAACAATACATAGCCTATGGTTGTAGACAAA
TGTGTTGGCAGATGTTTGGACGTGGGTTCGACTCCACCGGCTCCACCA SEQ ID NO:109

[0267] 戈氏链球菌 (*Streptococcus gordonii*) tmRNA

[0268] GGGGUCGUUACGGAUUCGACAGGCAUUAUGAGGCAUUAUUUUGCGACUCAUCUAGCGGAUGUAAAACGCC
AGUUAUUUAUAAACUGCAAAAAUAAUACUUCUUAACGCUUUAGCUGCCUAAAAACCAGCGGGCGUGACCCGAUUCGGA

UUGCUUGUGUCUGAUGACAGGUCUUUUUUAGCAAGCUACGGUAGAAUCUUGUCUAGUGAUUUUACAAGAGAUUGA
UAGACUCGCUUGAUUUUGGGCUUGAGUUAUGUGUCAAAAUCAAGUAAAAACAAUACAUAGCCUAUGGUUGUAGACAAA
UUGUUGGCAGAUUUUGGACGUGGGUUCGACUCCACCGGCUCCACCA SEQ ID NO:110

[0269] 变异链球菌 (*Streptococcus mutans*) ssrA

[0270] GGGGTCGTTACGATTTCGACAGGCATTATGAGACCTATTTTTCGACTCATCTAGCGGATGTAAAACGCC
AGTTAAATATAACTGCAAAAAATACAAATTCCTACGCAGTAGCTGCCTAAAAACCAGCCTGTGTGATCAATAACAAA
TTGCTTGTGTTTGTGATTGGTCTTATTGTTAACAAGCTACGTTAGAACTGAGTCAGGCTGTTCTAAAAGAGTTCTA
CTGACTCGCATCGTTAGAGTTTGAGTTATGTATTGTAACGGTGTTAAATAAACACATAACCTATAGTTGTAGACAAA
TGGGTTAGCAGATGTTTGGACGTGGGTTCGACTCCCACCGGCTCCACCASEQ ID NO:111

[0271] 变异链球菌 (*Streptococcus mutans*) tmRNA

[0272] GGGGUCGUUACGGAUUCGACAGGCAUUAUGAGACCUAUUUUUGCGACUCAUCUAGCGGAUGUAAAACGCC
AGUAAAAUUAACUGCAAAAAAUACAAUUCUACGCAGUAGCUGCCUAAAAACCAGCCUGUGUGAUCAAUAAACAAA
UUGCUUGUGUUUGUAGAUUGGUCUUAUUGUUAACAAGCUACGUUAGAACUGAGUCAGGCUGUUCUAAAAGAGUUCUA
CUGACUCGCAUCGUUAGAGUUUGAGUUAUGUAUUGUAACGGUGUUAUUAAACACAUAAACCUAUAGUUGUAGACAAA
UGGUUAGCAGAUUUUGGACGUGGGUUCGACUCCACCGGCUCCACCA SEQ ID NO:112

[0273] 肺炎链球菌 (*Streptococcus pneumoniae*) ssrA

[0274] GGGGTCGTTACGATTTCGACAGGCATTATGAGGCATATTTTTCGACTCGTGTGGCGACGTAAACGCTCA
GTTAAATATAACTGCAAAAAATAACACTTCTTACGCTCTAGCTGCCTAAAAACCAGCAGGCGTGACCCGATTTGGAT
TGCTCGTGTTCATGACAGGTCTTATTATTAGCGAGATACGATTAAGCCTTGCTAGCGGTTTGATAAGAGATTGAT
AGACTCGCAGTTTCTAGACTTGAGTTATGTGTGCGAGGGGCTGTTAAATAATACATAACCTATGGTTGTAGACAAAT
ATGTTGGCAGGTGTTTGGACGTGGGTTCGACTCCCACCGGCTCCACCASEQ ID NO:113

[0275] 肺炎链球菌 (*Streptococcus pneumoniae*) tmRNA

[0276] GGGGUCGUUACGGAUUCGACAGGCAUUAUGAGGCAUUAUUUUGCGACUCGUGUGGCGACGUAAACGCUCA
GUUAAAAUUAACUGCAAAAAAUACACUUCUACGCUCUAGCUGCCUAAAAACCAGCAGGCGUGACCCGAUUUGGAU
UGCUCGUGUCAAUGACAGGUCUUAUUUUAGCGAGAUACGAUUAAGCCUUGUCUAGCGGUUUGAUAGAGAUUGAU
AGACUCGCAGUUUCUAGACUUGAGUUAUGUGUCGAGGGGCGUUAUUAAUACAUAAACCUAUGGUUGUAGACAAAU
AUGUUGGCAGGUGUUUGGACGUGGGUUCGACUCCACCGGCUCCACCA SEQ ID NO:114

[0277] 化脓链球菌 (*Streptococcus pyogenes*) ssrA

[0278] GGGGTTGTTACGATTTCGACAGGCATTATGAGGCATGTTTTGCGTCCCATCGGCAGATGTAAATTGCCA
GTTAAATATAACTGCAAAAAATACAACTCTTACGCTTTAGCTGCCTAAAAACCAGCTAGCGTGACTTCTACAAGAT
TGCTTGTGTCTCTGTTAGAAGTCTCAAAATAGCAAGCTACGGTTACGAAATTGTCTAGTTTCGTGACAAGAGATTGAT
AGACTCGCAAACTAATGGCTTGAGTTATGTGTCTTTAGTTTGTAAATGAAGACATAACCTATGGACGTAGACAAAT
ATGTTGGCAGGTGTTTGGACGTGGGTTCGACTCCCACCAGCTCCACCASEQ ID NO:115

[0279] 化脓链球菌 (*Streptococcus pyogenes*) tmRNA

[0280] GGGGUUGUUACGGAUUCGACAGGCAUUAUGAGGCAUGUUUUGCGUCCCAUCGGCAGAUUAAAUUGCCA
GUUAAAAUUAACUGCAAAAAAUACAAACUCUACGCUUUAGCUGCCUAAAAACCAGCUAGCGUGACUUCUACAAGAU
UGCUGUGUCCUGUUAAGAAGUCUAAAAUAGCAAGCUACGGUUAAGAAUUGUCUAGUUUCGUGACAAGAGAUUGAU
AGACUCGCAAAACUAAUGGCUUGAGUUAUGUGUCUUUAGUUUGUUAUUAAGACAUAAACCUAUGGACGUAGACAAAU
AUGUUGGCAGGUGUUUGGACGUGGGUUCGACUCCACCGGCUCCACCA SEQ ID NO:116

[0281] *Synechococcus* sp. PCC6301 ssrA

[0282] GGGGCTGTAATGGTTTCGACGTGTTGGTGAATCCTTCACCGTGATTCAGGCCGAGAGGGAGTCCACTCTCGTAAATCCAGGCTCAACCAAAAAGTAACTGCGAACAACATCGTTCCTTTTCGCTCGTAAGGCTGCTCCTGTAGCTGCTTAAACGCCACAACTTTCTGGCTCGAGCGTCTAGTCGTAGACTCCGTTAATACGCCTAGACTTAAACCCCCAACGGA TGCTCGAGTGGCGGCCTCAGGTCCGTCTCTCGCTAAGCAAAAACCTGAGCATCCCGCCAACGGGGATAATCGTTGG CTCCCGCACAGTGGGTCAACCGTGCTAAGCCTGTGAACGAGCGGAAAGTTACTAGTCAATGCGGACAGCGGTTTCGAT TCCGCTCAGCTCCACCASEQ ID NO:117

[0283] *Synechococcus* sp. PCC6301 tmRNA

[0284] GGGGCUGUAAUGGUUUCGACGUGUUGGUGAAUCCUUCACCGUGAUUCAGGCCGAGAGGGAGUCCACUCU CGUAAAUCCAGGCUCAACCAAAAAGUAACUGCGAACAACAUCGUUCCUUUCGUCUGUAAGGCUGCUCCUGUAGCUGCU UAAACGCCACAAACUUUCUGGCUCGAGCGUCUAGUCGUAGACUCCGUUAAUACGCCUAGACUUAACCCCCAACGGA UGCUCGAGUGGCGGCCUCAGGUCCGUCCUCUCGCUAAGCAAAAACCGAGCAUCCCGCCAACGGGGAUAAUCGUUGG CUCCCGCACAGUGGGUCAACCGUGCUAAGCCUGUGAACGAGCGGAAAGUUACUAGUCAUUGCGGACAGCGGUUCGAU UCCGCUCAGCUCCACCA SEQ ID NO:118

[0285] *Synechocystis* sp. PCC6803 ssrA

[0286] GGGGCCGCAATGGTTTCGACAGGTTGGCGAAAGCTTGCCCGTGATACAGGTCGAGAGTGAGTCTCCTCT CGCAAATCAAAGGCTCAAAAAAAGTAACTGCGAATAACATCGTCAGCTTCAAACGGGTAGCCATAGCAGCCTAGTC TGTAAGGCTACATTTTCTTGTCAAAGACCGTTTACTTCTTTTCTGACTCCGTTAAGGATTAGAGGTAAACCCCAAC GGATGCTTTGTTTGGCTCTTCTCTAGTTAGCTAAACAATCAAGACTCAGACTAGAGCATCCCACCATCAGGGATAAT CGATGGTCCCCGTCTAGGGCTAGAAGGACTAAACCTGTGAATGAGCGGAAAGTTAATACCCAGTTTGGACAGCAGT TCAATTCTGCTCGGCTCCACCASEQ ID NO:119

[0287] *Synechocystis* sp. PCC6803tmRNA

[0288] GGGGCCGCAAUUGGUUUCGACAGGUUGGCGAAAGCUUGCCCCGUGAUACAGGUUCGAGAGUGAGUCUCCUCU CGCAAAUCAAAGGCUCAAAAAAAGUAACUGCGAAUACAUCGUCAGCUUCAAACGGGUAGCCAUAGCAGCCUAGUC UGUAAAAGCUACAUUUUUCUGCAAAGACCGUUUACUUCUUUUCUGACUCCGUUAAGGAUUAGAGGUUAACCCCAAC GGAUGCUUUGUUUGGCUCUUCUCUAGUUAGCUAAAACAUAAGACUCAGACUAGAGCAUCCCACCAUCAGGGAUAAU CGAUGGUCCCCGUCCUAGGGCUAGAAGGACUAAACCUUGUGAAUGAGCGGAAAGUUAUACCCAGUUUGGACAGCAGU UCAAUUCUGCUCGGCUCCACCA SEQ ID NO:120

[0289] 海栖热袍菌 (*Thermotoga maritima*) ssrA

[0290] GGGGGCGAACGGGTTCGACGGGGATGGAGTCCCCTGGGAAGCGAGCCGAGGTCCCCACCTCCTCGTAAA AAAGGTGGGACAAAGAATAAGTGCCAACGAACCTGTTGCTGTTGCCGCTTAATAGATAAGCGGCCGTCTCTCCGAA GTTGGCTGGGCTTCGGAAGAGGGCGTGAGAGATCCAGCCTACCGATTAGCTTCGCCTTCCGGCCTGAATCGGGAAA ACTCAGGAAGGCTGTGGGAGAGGACACCCGTGCCGTGGGAGGTCCCTCCCAGAGCGAAAACACGGGCTGCGCTCGG AGAAGCCCAGGGGCCTCCATCTTCGGACGGGGGTTCGAATCCCCCGCCTCCACCA SEQ ID NO:121

[0291] 海栖热袍菌 (*Thermotoga maritima*) tmRNA

[0292] GGGGGCGAACGGGUUCGACGGGGAUGGAGUCCCCUGGGAAGCGAGCCGAGGUCCCCACCUCCUCGUAAA AAAGGUGGGACAAAGAAUAAGUGCCAACGAACCUUGUUGCUGUUGCCGCUUAAUAGAUAAAGCGGCCGUCCUCUCCGAA GUUGGCUGGGCUUCGGAAGAGGGCGUGAGAGAUCCAGCCUACCGAUUCAGCUUCGCCUUCGGGCCUGAAUCGGGAAA ACUCAGGAAGGCUGUGGGAGAGGACACCCUGCCCGUGGGAGGUCCCUCCCGAGAGCGAAAACACGGGCUGCGCUCGG

AGAAGCCCAGGGGCCUCCAUCUUCGACGGGGGUUCGAAUCCCCCGCCUCCACCA SEQ ID NO:122

[0293] 嗜热栖热菌 (*Thermus thermophilus*) ssrA

[0294] GGGGGTGAACGGTCTCGACGGGGGTCGCCGAGGGCGTGGCTGCGCGCCGAGGTGCGGGTGGCCTCGTA
AAAACCCGCAACGGCATAACTGCCAACACCAACTACGCTCTCGCGGCTTAATGACCGCGACCTCGCCCGGTAGCCCT
GCCGGGGGCTACCGGAAGCGGGGACACAAACCCGGCTAGCCCGGGGCCACGCCCTCTAACCCCGGGCGAAGCTTGA
AGGGGGCTCGCTCCTGGCCGCCGTCGCGGGGCCAAGCCAGGAGGACACGCGAAACGCGGACTACGCGCGTAGAGGC
CCGCCGTAGAGACCTTCGGACGGGGGTTCGACTCCCCCACCTCCACCASEQ ID NO:123

[0295] 嗜热栖热菌 (*Thermus thermophilus*) tmRNA

[0296] GGGGGUGAAACGGUCUCGACGGGGGUCGCCGAGGGCGUGGCUGCGCGCCGAGGUGCGGGUGGCCUCGUA
AAAACCCGCAACGGCAUAAACUGCCAACACCAACUACGCUUCGCGGCUUAAUGACCGCGACCUCGCCCGGUAGCCCU
GCCGGGGGCUACCGGAAGCGGGGACACAAACCCGGCUAGCCCGGGGCCACGCCUCUAACCCCGGGCGAAGCUUGA
AGGGGGCUCGCUCUGGCCGCCCGUCCGCGGGCCAAGCCAGGAGGACACGCGAAACGCGGACUACGCGCGUAGAGGC
CCGCCGUAGAGACCUUCGGACGGGGGUUCGACUCCCCCACCUCACCA SEQ ID NO:124

[0297] 苍白密螺旋体 (*Treponema pallidum*) ssrA

[0298] GGGGATGACTAGGTTTCGACTAGGGATGTGGGGTGTTCGCTGCAGGTGGAGTGTGCATCTCCTGATTC
GGCGCCTTTATAACTGCCAATTCTGACAGTTTCGACTACGCGCTCGCCGCGTAATCGCGGGCCTGTGTTTTCGCTGC
TCTGAGCGAACATATCGGCCCCGACGCCAAACGGAGCTTGCTCTTACGTTGTGCACGGCGGACGTAGGGGGACTTTTG
TCTGTGCTAAGACTCTGGCGCGTGCAGGCTAGCAGAGTCCGACAAACGCAGTACGCACCGCTAAACCTGTA
GGCGCGCAGCACTCGCTCTTTAGGACGGGGGTTCGATTCCCCCATCTCCACCASEQ ID NO:125

[0299] 苍白密螺旋体 (*Treponema pallidum*) tmRNA

[0300] GGGGAUGACUAGGUUUCGACUAGGGAUGUGGGGUGUUGCGCUGCAGGUGGAGUGUCAUCUCCUGAUUC
GGCGCCUUUAUAACUGCCAAUUCUGACAGUUUCGACUACGCGCUCGCCGCGUAAUCGCGGGCCUGUGUUUGCGCUGC
UCUGAGCGAACAUUACGGCCCCGACGCCAAACGGAGCUUGCUCUUACGUUGUGCACGGCGGACGUAGGGGGACUUUG
UCUGUGCUAAGACUCUGGCGCGUGCGGUGCAGGCCUAGCAGAGUCCGACAAACGCAGUACGCACCGCUAAACCUGUA
GGCGCGCAGCACUCGCUCUUUAGGACGGGGGUUCGAUCCCCCAUCUCCACCA SEQ ID NO:126

[0301] 霍乱弧菌 (*Vibrio cholerae*) ssrA

[0302] GGGGCTGATTCAAGATTCGACGGGAATTTTGCAGTCTGAGGTGCATGCCGAGGTGCGGTAGGCCTCGT
TAACAAACCGCAAAAAAATAGTCGCAAACGACGAAAACCTACGCACTAGCAGCTTAATACCCTGCTCAGAGCCCTTC
CTCCCTAGCTTCCGCTTGTAAGACGGGGAAATCAGGAAGGTCAAACCAAATCAAGCTGGCGTGGATTCCCCACCTG
AGGGATGAAGCGCGAGATCTAATTCAGGTTAGCCATTGTTAGCGTGTGCGTTTCGAGGCGGTGGTGAAATTAAAGA
TCGACTAAGCATGTAGTACCAAAGATGAATGGTTTTTCGGACGGGGGTCAACTCCCCCAGCTCCACCA SEQ ID
NO:127

[0303] 霍乱弧菌 (*Vibrio cholerae*) tmRNA

[0304] GGGGUGAUUCAGGAUUCGACGGGAUUUUUGCAGUCUGAGGUGCAUGCCGAGGUGCGGUAGGCCUCGU
UAACAAACCGCAAAAAAUAGUCGCAAACGACGAAAACUACGCACUAGCAGCUUAAUACCCUGCUCAGAGCCCUUC
CUCCCUAGCUUCCGCUUGUAAGACGGGGAAAUCAGGAAGGUCAAACCAAUAAGCUGGCGUGGAUCCCCCACCUG
AGGGAUGAAGCGCGAGAUCAAUUUCAGGUUAGCCAUUCGUUAGCGUGUCGGUUCGAGGCGGUGUGAAAUAAGA
UCGACUAAGCAUGUAGUACCAAAGAUGAAUGGUUUUCGGACGGGGGUUCAACUCCCCCAGCUCCACCA SEQ ID
NO:128

[0305] 鼠疫耶尔森氏菌 (*Yersinia pestis*) ssrA

[0306] GGGGCTGATTCTGGATTCGACGGGATTCGCGAAACCCAAGGTGCATGCCGAGGTGCGGTGGCCTCGTAA
AAAACCGCAAAAAAATAGTTGCAAACGACGAAAACTACGCACTAGCAGCTTAATAACCTGCTTAGAGCCCTCTCTG
CCTAGCCTCCGCTCTTAGGACGGGGATCAAGAGAGGTCAAACCTAAAAGAGCTCGTGTGAAAACCTTGCCTGGGGTG
GAAGCATTAAAACTAATCAGGATAGTTTGTCTAGTAGCGTGTCCATCCGCAGCTGGCCGGCGAATGTAATGATTGGAC
TAAGCATGTAGTGCCGACGGTGTAGTAATTTTCGGACGGGGGTTCAAATCCCCCAGCTCCACCA SEQ ID NO:129

[0307] 鼠疫耶尔森氏菌 (*Yersinia pestis*) tmRNA

[0308] GGGGCUGAUUCUGGAUUCGACGGGAUUCGCGAAACCCAAGGUGCAUGCCGAGGUGCGGUGGCCUCGUAA
AAAACCGCAAAAAAAUAGUUGCAAACGACGAAAACUACGCACUAGCAGCUUAAUAAACCUGCUUAGAGCCCUUCUG
CCUAGCCUCCGCUUAGGACGGGAUCAAGAGAGGUCAAACCUAAAAGAGCUCGUGUGGAAACCUUGCCUGGGGUG
GAAGCAUUAACUAAUCAGGAUAGUUUGUCAGUAGCGUGUCCAUCCGCAGCUGGCCGGCGAAUGUAAUGAUUGGAC
UAAGCAUGUAGUGCCGACGGUGUAGUAAUUUCGGACGGGGGUUCAAAUCCCCCAGCUCCACCA SEQ ID NO:130

[0309] 胎儿弯曲杆菌 (*Campylobacter fetus*) ssrA, 内部部分

[0310] AGGAGTAAGTCTGCTTAGATGGCATGTGCTTTGGGCAAAGCGTAAAAAGCCCAAATAAAATTAAACG
CAAACAACGTAAATTCGCTCCTGCTTACGCTAAAGCTGCGTAAGTTCAGTTGAGCCTGAAATTTAAGTCATACTA
TCTAGCTTAATTTTCGGTCATCTTTGATAGTGTAGCCTTGCGTTTGACAAGCGTTGAGGTGAAATAAAGTCTTAG
CCTTGCTTTTGAGTTTTGGAAGATGAGCGAAGTAGGGTGAAGTAGTCATCTTTGCTAAGCATGTAGAGGTCTTTG
TGGGATTATTTTTGGSEQ ID NO:131

[0311] 胎儿弯曲杆菌 (*Campylobacter fetus*) tmRNA, 内部部分

[0312] AGGAGUAAAGUCUGCUUAGAUGGCAUGUCGCUUUGGGCAAAGCGUAAAAAGCCCAAUAAAAUAAACG
CAAACAACGUUAAAAUUCGCUCCUGCUUACGCUAAAGCUGCGUAAGUUCAGUUGAGCCUGAAAUUUAAGUCAUACUA
UCUAGCUUAAUUUUCGGUCAUCUUUGAUAGUGUAGCCUUGCGUUUGACAAGCGUUGAGGUGAAUAAAGUCUUAG
CCUUGCUUUUGAGUUUUGGAAGAUGAGCGAAGUAGGGUGAAGUAGUCAUCUUUGCUAAGCAUGUAGAGGUCUUUG
UGGGAUUUUUUUG SEQ ID NO:132

[0313] 大肠弯曲杆菌 (*Campylobacter coli*) (BM2509) ssrA, 内部部分

[0314] AGGAGTAAGTCTGCTTAGATGGCATGTGCTTTGGACAAAGCGTAAAAAGTCCAAATTTAAATTTAAAC
GCAATAACGTAAATTTGCTCCTGCTTACGCTAAAGCTGCGTAAGTTCAGTTGAGCCCGAAACTCAAGTGATGCT
ATCTAGCTTGAATTTTGGTCATCTTTGATAGTGTAGATTGAAAATTGACAACCTTTAATCGAAGTTAAAGTCTTA
GTCTAGCTTGAATTTTGGGAAGGTGAGTTTAGCCAGATGAAGTTTTACCTTTGCTAAACATGTAGAAGTCTTTG
TGGGGTTATTTTTGGSEQ ID NO:133

[0315] 大肠弯曲杆菌 (*Campylobacter coli*) (BM2509) tmRNA, 内部部分

[0316] AGGAGUAAAGUCUGCUUAGAUGGCAUGUCGCUUUGGACAAAGCGUAAAAAGUCCAAAUAAAAUAAAC
GCAAAUAAACGUUAAAAUUGCUCCUGCUUACGCUAAAGCUGCGUAAGUUCAGUUGAGCCCGAAACUCAAGUGAUGCU
AUCUAGCUUGAAUUUUGGUCAUCUUUGAUAGUGUAGAUUUGAAAAUUGACAACUUUUAAUCGAAGUUAAGUCUUA
GUCUAGCUUGAAAAUUUUGGAAGGUGAGUUUAGCCAGAUGAAGUUUUCACCUUUGCUAAAACUAGUAGAAGUCUUUG
UGGGGUUAAUUUUG SEQ ID NO:134

[0317] 鸡弯曲杆菌分离物 (*Campylobacter chicken isolate*) ssrA, 内部部分

[0318] ACAGGAGTAAGTCTGCTTAGATGGCATGTGCTTTGGGCAAAGCGTAAAAAGCCCAAATAAAATTTAAA
CGCAAACAACGTAAATTCGCTCCTGCTTACGCTAAAGCTGCGTAAGTTCAGTTGAGCCTGAAATTTAAGTCATAC

TATCTAGCTTAATTTTCGGTCATTTTTGATAGTGTAGCCTTGCGTTTGACAAGCGTTGAGGTGAAATAAGGTCTT
AGCCTTGCTTTTGAGTTTTGGAAGATGAGCGAAGTAGGGTGAAGTAGTCATCTTTGCTAAGCATGTAGAGGTCTT
TGTGGGATTATTTTTGGSEQ ID NO:135

[0319] 鸡弯曲杆菌分离物 (*Campylobacter chicken isolate*) tmRNA, 内部部分

[0320] ACAGGAGUAAGUCUGCUUAGAUGGCAUGUCGUUUGGGCAAAGCGUAAAAAGCCCAAUAAAAUAAAA
CGCAAAACAACGUUAAAAUUCGCUCCUGCUUACGCUAAAGCUGCGUAAGUUCAGUUGAGCCUGAAAUUUAAGUCAUAC
UAUCUAGCUUAAUUUUCGUGUCAUUUUGAUAGUGUAGCCUUGCGUUUGACAAGCGUUGAGGUGAAUAAGGUCUU
AGCCUUGCUUUUGAGUUUUGGAAGAUGAGCGAAGUAGGGUGAAGUAGUCAUCUUUUGCUAAGCAUGUAGAGGUCUU
UGUGGGAUUUUUUGG SEQ ID NO:136

[0321] 产气荚膜梭菌 (*Clostridium perfringens*) ssrA, 内部部分

[0322] ACGGGGTAGGATGGGTTTGATAAGCGAGTCGAGGGAAGCATGGTGCCTCGATAATAAAGTATGCATT
AAAGATAAACGCACGAGATAATTTTGCATTAGCAGCTTAAGTTAGCGCTGCTCATCCTTCCTCAATTGCCCACGGT
TGAGAGTAAGGGTGTCAATTTAAAGTGGGGAACCGAGCCTAGCAAAGCTTTGAGCTAGGAACGGAATTTATGAAG
CTTACCAAAGAGGAAGTTTGTCTGTGGACGTTCTCTGAGGGAATTTTAAACACAAGACTACACTCGTAGAAAGT
CTTACTGGTCTGCTTTCGG SEQ ID NO:137

[0323] 产气荚膜梭菌 (*Clostridium perfringens*) tmRNA, 内部部分

[0324] ACGGGGUAGGAUGGGUUUGAUAAAGCGAGUCGAGGGAAGCAUGGUGCCUCGAUAAUAAAGUAUGCAUU
AAAGAUAAACGCACGAGAUAAUUUUGCAUUAGCAGCUUAAAGUUAAGCGCUGCUCAUCCUUCUCAUUGCCCACGGU
UGAGAGUAAGGGUGUCAUUUAAAAGUGGGGAACCGAGCCUAGCAAAGCUUUGAGCUAGGAACGGAUUUUAUGAAG
CUUACCAAAGAGGAAGUUUGUCUGUGGACGUUCUCUGAGGGAUUUUAAAACACAAGACUACACUCGUAGAAAGU
CUUACUGGUCUGCUUUCGG SEQ ID NO:138

[0325] 杜氏嗜血菌 (*Haemophilus ducreyi*) (NCTC10945) ssrA, 内部部分

[0326] ACGGGATTAGCGAAGTCCAAGGTGCACGTCGAGGTGCGGTAGGCCTCGTAACAAACCGCAAAAAAATAG
TCGCAAACGACGAACAATACGCTTTAGCAGCTTAATAACCTGCATTTAGCCTTCGCGCCCTAGCTTTCGCTCGTAAG
ACGGGGAGCACGCGGAGTCAAACCAAAACGAGATCGTGTGGACGCTTCCGCTTGTAGATGAAACACTAAATTGAATC
AAGCTAGTTTATTTCTTGCGTGTCTGTCCGCTGGAGATAAGCGAAATTAAAGACCAGACTAAACGTGTAGTACTGAA
GATAGAGTAATTTTCGGACCCGGGTTCGACTC SEQ ID NO:139

[0327] 杜氏嗜血菌 (*Haemophilus ducreyi*) (NCTC10945) tmRNA, 内部部分

[0328] ACGGGAUUAGCGAAGUCCAAGGUGCACGUCGAGGUGCGGUAGGCCUCGUAACAAACCGCAAAAAAUAG
UCGCAAACGACGAACAAUACGCUUUAGCAGCUUAAUAAACUGCAUUUAGCCUUCGCGCCCUAGCUUUCGCUCGUAAG
ACGGGGAGCACGCGGAGUCAAAACCAAAACGAGAUUCGUGUGGACGCUUCCGCUUGUAGAUGAAACACUAAAUUGAAUC
AAGCUAGUUUAAUUUCUUGCGUGUCUGUCCGCUUGGAGAUAAAGCGAAAUUAAAGACCAGACUAAACGUGUAGUACUGAA
GAUAGAGUAAUUUCGGACCCGGGUUCGACUCSEQ ID NO:140

[0329] 无害李斯特氏菌 (*Listeria innocua*) (食物分离物 #1) ssrA, 内部部分

[0330] GGCAAAGAAAAACAAACCTAGCTTTCGTCGCCTAATAACCAGTAGCATAGCTGATCCTCCGTGCATCG
CCCATGTGCTACGGTAAGGGTCTCACTCTAAGTGGGCTACACTAGTTAATCTCCGTCTGAGGTTAAATAGAAGAGCT
TAATCAGACTAGCTGAATGGAAGCCTGTTACCGGGCTGATGTTTATGCGAAATGCTAATACGGTGACTACGCTCGTA
GATATTCAA SEQ ID NO:141

[0331] 无害李斯特氏菌 (*Listeria innocua*) (食物分离物 #1) tmRNA, 内部部分

[0332] GGCAAAGAAAAACAAAACCUAGCUUUCGUGCCUAAUAACCAGUAGCAUAGCUGAUCCUCCGUGCAUCG
CCCAUGUGCUACGGUAAAGGGUCUCACUCUAAAGUGGGCUACACUAGUUAUUCUCCGUCUGAGGUUAAAUAAGAAGAGCU
UAAUCAGACUAGCUGAAUGGAAGCCUGUUACCGGGCUGAUGUUUAUGCGAAAUAGCUAAUACGGUGACUACGCUCGUA
GAUAUUCAA SEQ ID NO:142

[0333] 无害李斯特氏菌 (*Listeria innocua*) (食物分离物 #2) *ssrA*, 内部部分

[0334] GGCAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGCTGATCCTCCGTGCATCG
CCCATGTGCTACGGTAAGGGTCTCACTCTAAGTGGGCTACACTAGTTAATCTCCGTCTGAGGTTAAATAGAAGAGCT
TAATCAGACTAGCTGAATGGAAGCCTGTTACCGGGCCGATGTTTATGCGAAATGCTAATACGGTGACTACGCTCGTA
GATATTTAA SEQ ID NO:143

[0335] 无害李斯特氏菌 (*Listeria innocua*) (食物分离物 #2) *tmRNA*, 内部部分

[0336] GGCAAAGAAAAACAAAACCUAGCUUUCGUGCCUAAUAAGCAGUAGCAUAGCUGAUCCUCCGUGCAUCG
CCCAUGUGCUACGGUAAAGGGUCUCACUCUAAAGUGGGCUACACUAGUUAUUCUCCGUCUGAGGUUAAAUAAGAAGAGCU
UAAUCAGACUAGCUGAAUGGAAGCCUGUUACCGGGCCG AUGUUUAUGCGAAAUAGCUAAUACGGUGACUACGCUCGUA
GAUAUUUAA SEQ ID NO:144

[0337] 无害李斯特氏菌 (*Listeria innocua*) (食物分离物 #3) *ssrA*, 内部部分

[0338] GGCAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGAATAGCTGATCCTCCGTGCATCG
CCCATGTGCTACGGTAAGGGTCTCACTCTAAGTGGGCTACACTAGTTAATCTCCGTCTGAGGTTAAATAGAAGAGCT
TAATCGGACTAGCTGAATGGAAGCCTGTTACCGGGCCGATGTTTATGCGAAATGCTAATACGGTGACTACGCTCGTA
GATATTTAA SEQ ID NO:145

[0339] 无害李斯特氏菌 (*Listeria innocua*) (食物分离物 #3) *tmRNA*, 内部部分

[0340] GGCAAAGAAAAACAAAACCUAGCUUUCGUGCCUAAUAAGCAGUAGAAUAGCUGAUCCUCCGUGCAUCG
CCCAUGUGCUACGGUAAAGGGUCUCACUCUAAAGUGGGCUACACUAGUUAUUCUCCGUCUGAGGUUAAAUAAGAAGAGCU
UAAUCGGACUAGCUGAAUGGAAGCCUGUUACCGGGCCG AUGUUUAUGCGAAAUAGCUAAUACGGUGACUACGCUCGUA
GAUAUUUAA SEQ ID NO:146

[0341] 无害李斯特氏菌 (*Listeria innocua*) (ATCC 12210) *ssrA*, 内部部分

[0342] GGCAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGCTGATCCTCCGTGCATCG
CCCATGTGCTACGGTAAGGGTCTCACTCTAAGTGGGCTACACTAGTTAATCTCCGTCTGGGGTTAAATAGAAGAGCT
TAATCAGACTAGCTGAATGGAAGCCTGTTACTGGGCCGATGTTTATGCGAAATGCTAATACGGTGACTACGCTCGTA
GATATTTAA SEQ ID NO:147

[0343] 无害李斯特氏菌 (*Listeria innocua*) (ATCC 12210) *tmRNA*, 内部部分

[0344] GGCAAAGAAAAACAAAACCUAGCUUUCGUGCCUAAUAAGCAGUAGCAUAGCUGAUCCUCCGUGCAUCG
CCCAUGUGCUACGGUAAAGGGUCUCACUCUAAAGUGGGCUACACUAGUUAUUCUCCGUCUGGGGUUAAAUAAGAAGAGCU
UAAUCAGACUAGCUGAAUGGAAGCCUGUUACUGGGCCG AUGUUUAUGCGAAAUAGCUAAUACGGUGACUACGCUCGUA
GAUAUUUAA SEQ ID NO:148

[0345] 伊氏李斯特氏菌 (*Listeria ivanovii*) (NCTC 11846) *ssrA*, 内部部分

[0346] ACAGGGATAGTTCGAGCTTGAGTTGCGAGTCGGGGGGATCGTCCTCGTTATTAACGTCAAAGCCAATA
ATAACTGGCAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGCTGATCCTCCGTGCATCGC
CCATGTGCTACGGTAAGGGTCTCACTTTAAGTGGGCTACACTAAATAATCTCCGTCTGGGGTTAGTTAGAAGAGC
TTAATCAGACTAGCTGAATGGAAGCCTGTTACCGGGCTGATGTTTATGCGAAATGCTAATACGGTGACTACGCTC

GTAGATATTTAAGTGCCGATATTTCTGG SEQ ID NO:149

[0347] 伊氏李斯特氏菌 (*Listeria ivanovii*) (NCTC 11846) tmRNA, 内部部分

[0348] ACAGGGAUAGUUCGAGCUUGAGUUGCGAGUCGGGGGAUCGUCCUCGUUUAUACGUCAAAGCCAAUA
AUAACUGGCAAAGAAAAACAAAACCUAGCUUUCGUGCCUAAUAAGCAGUAGCAUAGCUGAUCCUCCGUGCAUCGC
CCAUGUGCUACGGUAAGGGUCUCACUUUAAGUGGGCUACACUAAUAAUCUCCGUCUGGGGUUAGUUAGAAGAGC
UUAUACAGACUAGCUGAAUGGAAGCCUGUUACCGGGCUGAUGUUUAUGCGAAAUGCUAAUACGGUGACUCGCUCG
UAGAUUUUAAGUGCCGAUUAUUCUGG SEQ ID NO:150

[0349] 斯氏李斯特氏菌 (*Listeria seeligeri*) (NCTC 11856) ssrA, 内部部分

[0350] ACAGGGATAGTTCGAGCTTGAGTTGCGAGTCGGGGGATCGTCCTCGTTATCAACGTCAAAGCCAATA
ATAACTGGCAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGCTGATCCTCCGTGCATCGC
CCATGTGCTACGGAAAGGGTCTCACTTTAAGTGGGCTACACTAAATAATCTCCGTCTGGGGTTAGTTAGAAGAGC
TTAATCAGACTAGCTGAATGGAAGCCTGTTACCGGGCTGATGTTTATGCGAAATACTAATACGGTGACTACGCTC
GTAGATATTTAAGTGCCCATATTTCTGG SEQ ID NO:151

[0351] 斯氏李斯特氏菌 (*Listeria seeligeri*) (NCTC 11856) tmRNA, 内部部分

[0352] ACAGGGAUAGUUCGAGCUUGAGUUGCGAGUCGGGGGAUCGUCCUCGUUAUCAACGUCAAAGCCAAUA
AUAACUGGCAAAGAAAAACAAAACCUAGCUUUCGUGCCUAAUAAGCAGUAGCAUAGCUGAUCCUCCGUGCAUCGC
CCAUGUGCUACGGAAAGGGUCUCACUUUAAGUGGGCUACACUAAUAAUCUCCGUCUGGGGUUAGUUAGAAGAGC
UUAUACAGACUAGCUGAAUGGAAGCCUGUUACCGGGCUGAUGUUUAUGCGAAAUCUAAUACGGUGACUACGCUC
GUAGAUUUUAAGUGCCCAUUAUUCUGG SEQ ID NO:152

[0353] 肠炎沙门氏菌 (*Salmonella enteritidis*) ssrA, 内部部分

[0354] ACGGGATTTGCGAAACCCAAGGTGCATGCCAGGGGCGGTTGGCCTCGTAAAAAGCCGCAAAAAATA
GTCGCAAACGACGAAACCTACGCTTTAGCAGCTTAATAACCTGCTTAGAGCCCTCTCTCCCTAGCCTCCGCTCTTA
GGACGGGGATCAAGAGAGGTCAAACCCAAAAGAGATCGCGTGGATGCCCTGCCTGGGGTTGAAGCGTTAAACGA
ATCAGGCTAGTCTGGTAGTGGCGTGTCCGTCCGACGGTGCCAGGCGAATGTAAAGACTGACTAAGCATGTAGTAC
CGAGGATGTAGGAATTTCCG SEQ ID NO:153

[0355] 肠炎沙门氏菌 (*Salmonella enteritidis*) tmRNA, 内部部分

[0356] ACGGGAUUUGCGAAACCCAAGGUGCAUGCCGAGGGGCGGUUGGCCUCGUAAAAAGCCGCAAAAAUA
GUCGCAAACGACGAAACCUACGCUUUAAGCAGCUUAAUAACCUGCUUAGAGCCUCUCUCCCUAGCCUCCGCUCUUA
GGACGGGGAUCAAGAGAGGUCAAACCCAAAAGAGAU CGCGUGGAUGCCCUGCCUGGGGUUGAAGCGUUAACGA
AUCAGGCUAGUCUGGUAGUGGCGUGUCCGUCCGACGGUGCCAGGCGAAUGUAAAGACUGACUAAGCAUGUAGUAC
CGAGGAUGUAGGAUUUCGG SEQ ID NO:154

[0357] 表皮葡萄球菌 (*Staphylococcus epidermidis*) (NCTC 11047) ssrA, 内部部分

[0358] ACAGGGGTCCCCGAGCTTATTAAGCGTGTGCGAGGGTTGGCTCCGTCATCAACACATTTTCGGTTAAA
TATAACTGACAAATCAAACAATAATTTTCGACAGTAGCTGCGTAATAGCCACTGCATCGCCTAACAGCATCTCCTACG
TGCTGTAAACGCGATTCAACCCTAGTAGGATATGCTAAACACTGCCGCTTGAAGTCTGTTTAGATGAAATATAAT
CAAGCTAGTATCATGTTGGTTGTTTATTGCTTAGCATGATGCGAAAATTATCAATAAACTACACACGTAGAAAGA
TTTGTATCAGGACCTCTGGSEQ ID NO:155

[0359] 表皮葡萄球菌 (*Staphylococcus epidermidis*) (NCTC 11047) tmRNA, 内部部分

[0360] ACAGGGGUCCCCGAGCUUUAUUAAGCGUGUCGAGGGUUGGCCUCCGUCAUCAACACAUUUCGGUAAAA

UAUAACUGACAAAUCAAAACAAUAAUUUCGCAGUAGCUGCGUAAUAGCCACUGCAUCGCCUACAGCAUCUCCUACG
UGCUGUUAACGCGAUUCAACCCUAGUAGGAUAUGCUAAACACUGCCGCUUGAAGUCUGUUUAGAUGAAAUAAUAAU
CAAGCUAGUAUCAUGUUGGUUUUAUUGCUUAGCAUGAUGCGAAAAUUAUCAAUAAACUACACACGUAGAAAGA
UUUGUAUCAGGACCUCUGG SEQ ID NO:156

[0361] 无乳链球菌 (*Streptococcus agalactiae*) (NCTC 8181) *ssrA*, 内部部分

[0362] ACAGGCATTATGAGGTATATTTTGC GACTCATCGGCAGATGTAAATGCCAGTTAAATATAACTGCAA
AAAATACAAATTCTTACGCATTAGCTGCCTAAAAACAGCCTGCGTGATCTTCACAAGATTGTTTGC GTTTTGCTA
GAAGGTCTTATTTATCAGCAAACCTACGTTTGGCTACTGTCTAGTTAGTTAAAAAGAGATTTATAGACTCGCTATG
TGAGGGCTTGAGTTATGTGTCATCACCTAGTTAAATCAATACATAACCTATAGTTGTAGACAAATATATTAGCAG
ATGTTTGGSEQ ID NO:157

[0363] 无乳链球菌 (*Streptococcus agalactiae*) (NCTC 8181) *tmRNA*, 内部部分

[0364] ACAGGCAUUAUGAGGUUAUAAUUUGCGACUCAUCGGCAGAUUAAAAUGCCAGUUAUAAUUAACUGCAA
AAAAUACAAAUUCUACGCAUUAUGCUGCCUAAAAACAGCCUGCGUGAUCUUCACAAGAUUGUUUGCGUUUUGCUA
GAAGGUCUUAUUUAUCAGCAAACUACGUUUGGCUACUGUCUAGUUAGUUAAAAAGAGAUUUUAUAGACUCGCUAUG
UGAGGGCUUGAGUUAUGUGUCAUCACCUAGUUAAUCAAUACAUAAACCUAUAUAGUUGUAGACAAAUUAUUUAGCAG
AUGUUUGG SEQ ID NO:158

[0365] 支气管炎博德特氏菌 (*Bordetella bronchiseptica*) *ssrA*

[0366] GGGGCCGATCCGGATTCGACGTGGGT CATGAAACAGCTCAAGGCATGCCGAGCACCAGTAAGCTCGTT
AATCCACTGGAACACTACAAACGCCAACGACGAGCGTTTCGCTCTCGCCGCTTAAGCGGTGAGCCGCTGCACTGAT
CTGTCCTTGGGTACGCGGGGGAASEQ ID NO:159

[0367] 支气管炎博德特氏菌 (*Bordetella bronchiseptica*) *tmRNA*

[0368] GGGGCCGAUCCGGAUUCGACGUGGGUCAUGAAACAGCUCAAGGCAUGCCGAGCACCAGUAAGCUCGUU
AAUCCACUGGAACACUACAAACGCCAACGACGAGCGUUUCGCUCUCGCCGCUAAGCGGUGAGCCGCUGCACUGAU
CUGUCCUUGGGUCACGCGGGGGAASEQ ID NO:160

[0369] 肺炎衣原体 (*Chlamydia pneumoniae*) (CWL029), *ssrA*

[0370] GGGGGTGTATAGGTTTCGACTTGAAAAATGAAGTGTTAATTGCATGCCGAGGGCGTTGGCTGGCCTCCTA
AAAAGCCAACAAAACAATAAATGCCGAACCTAAGGCTGAATGCGAAATTATTAGCTTGTTTACTCAGTAGAGGAAA
GACTAGCTGCTTAATTAGCAAAAGTTGTTAGCTAGATAATCTCTAGGTAACCCGGTATCTGCGAGCTCCACCAGAGG
CTTGCAAAATACCGTCATTTATCTGGTTGGAACCTACTTTCTCTAATTCTCAAGGAAGTTCGTTTCGAGATTTTTGAG
AGTCATTGGCTGCTATAGAGGCTTCTAGCTAAGGGAGTCCAATGTAAACAATTCTAGAAGATAAGCATGTAGAGGTT
AGCAGGGAGTTTGTCAAGGACGAGAGTTTCGAGTCTCTCCACCTCCACCA SEQ ID NO:161

[0371] 肺炎衣原体 (*Chlamydia pneumoniae*) (CWL029) *tmRNA*

[0372] GGGGGUGUAUAGGUUUCGACUUGAAAAUGAAGUGUUAUUGCAUGCGGAGGGCGUUGGCUGGCCUCCUA
AAAAGCCAACAAAACAUAUAAUGCCGAACCUAAGGCUGAAUGCGAAAUUUAUAGCUUGUUUGACUCAGUAGAGGAAA
GACUAGCUGCUUAAUUAGCAAAAGUUGUUAAGCUAGAUAAUCUCUAGGUAACCCGGUAUCUGCGAGCUCCACCAGAGG
CUUGCAAAAUACCGUCAUUUAUCUGGUUGGAACUUAUUUCUCAAUUCUCAAGGAAGUUCGUUCGAGAUUUUUGAG
AGUCAUUGGCUGCUAUAGAGGCUUCUAGCUAAGGGAGUCCAAUGUAAACAAUUCUAGAAGAUAAAGCAUGUAGAGGUU
AGCAGGGAGUUUGUCAAGGACGAGAGUUCGAGUCUCUCCACCUCACCASEQ ID NO:162

[0373] 土拉热弗朗西丝氏菌 (*Francisella tularensis*) *ssrA*

[0374] GGGGGCGAATATGGTTTCGACATGAATGTCAAAATCTAAGGTGCATGCCGAGGAAGTACCGTAACCTCG
TTAATAACAGTACAAATGCCAATAATACTGGCAACAAAAAGCAAACCGGTAGCGGCTAACGACAGCAACTTTGC
TGCTGTTGCTAAAGCTGCCTAGTCTAGCTTAATAATCTAGATGCGCACGGATATGATAGTCTTTCTTATGACACTAT
CTATACATCCGTTTCATATTCGCGATAAGACGGTCTTTGCTTTTTGTCTGGGAGTTAAGGCTGTATTTAACAGACTCG
CTAACTATTACCCTGGCTAATTGGGGAATAGTCAAGCTAACTCAAATAGATTAGCCTAAGCATGTAGATCCAAAGA
TCTAGAGTTTGTGGACGCGGGTTCAAATCCCGCCGCTCCACCA SEQ ID NO:163

[0375] 土拉热弗朗西丝氏菌 (*Francisella tularensis*) tmRNA

[0376] GGGGGCGAAUAUGGUUUCGACAUGAAUGUCAAAUUCUAAGGUGCAUGCCGAGGAAGUACCGUAACCUCG
UUAUAACAGUACAAUUGCCAAUAAUACUGGCAACAAAAAGCAAACCGGUAGCGGCUAACGACAGCAACUUUGC
UGCUGUUGCUAAGCUGCCUAGUCUAGCUAAUAAUUCUAGAUGCGCACGGAUAUGAUAGUCUUUCUUAUGACACUUA
CUAUACAUCCGUUCUAUUAUCCGCAUAAGACGGUCUUUGCUUUUUGUCUGGGAGUUAAGGCUGUAUUUAACAGACUCG
CUAACUAUUACCCUGGCUAUUUGGGAAUAGUCAAGCUAAACUCAAAUAAGAUUAGCCUAAGCAUGUAGAUCCAAAGA
UCUAGAGUUUGUGGACGCGGGUCAAUUCGCGCCGUCCACCASEQ ID NO:164

[0377] *Guillardia theta* (质体) ssrA

[0378] GGGGCTGATTTGGATTGACATATAAATTTGCGTGTTCATTATGAAGCAAGTCAAGTTTAATGATCTT
GTAAAAAACATTAAAGTACAAATAAATGCAAGCAATATAGTTTCATTAGTTCAAACGTTTAGTCTCTTTTGCATA
AGCAAAATGTGTTAATAACTTTCTTAGTAGAAAATTGGAGAAGTTACTAAGATTTATATTTACTCCATAATTATTTT
AAAGATGGTAAAAAGGTGATTCATCTTTGTATGTTTCTAACTTTGTGAAAGAATAGTGGGCTCCATTTATAATGA
ACGTGGGTTCAAATCCCACCAGCTCCACCA SEQ ID NO:165

[0379] *Guillardia theta* (质体) tmRNA

[0380] GGGGCGAUUUUGGAUUCGACAUUAAAAUUGCGUGUUUCAUUUGAAGCAAGUCAAGUUUUAUGAUCUU
GUAAAAACAUAUAAAGUACAAUAAAUGCAAGCAAUAUAGUUUCAUUUAGUUCAAAACGUUUAGUCUCUUUUGCAUA
AGCAAAUUGUGUAAUAAACUUUCUAGUAGAAUUGGAGAAGUUUACUAAGAUUUUAUUUACUCCAUAUUUAUUU
AAAGAUGGUAAAAAGGUGAUUCAUUAUUGUAUGUUUCUAAACUUUGUGAAAGAAUAGUGGGCUCCAUUUAUAAUGA
ACGUGGGUCAAUUCGACCAGCUCCACCASEQ ID NO:166

[0381] *Thalassiosira weissflogii* (质体) ssrA

[0382] GGGGCTGATTTGGTTTCGACATTTAAACTTCTTTCTATGTGTCAGGTCAAAGTTTGTATTCTTTGTAA
AAAAATACTAAATACTAATAAATGCTAATAATATAATACCGTTTATTTTTAAAGCAGTAAAAACAAAAAAGAAGC
AATGGCTTTAAATTTTGCTGTATAGTTCATTAAGTTAGTTATTAATATTTTTTTCATTATACTGGACTTTTCTCT
AGTTTATAGTTTAGAATAAATTTAAATTTTGCAAACTCGTTCGAAAATTTTCGGGCTAAACCTGTAAACGCAAATA
CTAAGAAATTTTAGATGGACATGGGTTCAATTCCCATCAGTTCCACCASEQ ID NO:167

[0383] *Thalassiosira weissflogii* (质体) tmRNA

[0384] GGGGCGAUUUUGGUUUCGACAUUAAAAACUUCUUUCUAUGUGUCAGGUCAAAGUUUGUAUUCUUUGUAA
AAAAUACUAAAAUACUAAUAAAUGCUAAUAAUAAUACCGUUUUAUUUUAAGCAGUAAAAACAAAAAAGAAGC
AAUGGCUUUAAAAUUUGCUGUAUAGUUCAUUAAACUUAGGUUAAUAAUAAUUUUUUAUUUAACUGGACUUUUCUCU
AGUUUAUAGUUUAGAAUAAUAAUUUUUUGCAAAACUCGUUCGAAAAUUUUCGGGCUAAACCGUAAACGCAAAUA
CUAAGAAUUUUAGAUGGACAUGGGUCAAUUCGCAUCAGUCCACCA SEQ ID NO:168

[0385] 幽门螺杆菌 (*Helicobacter pylori*) ssrA, (临床分离物 1), 内部部分

[0386] TGGGGATGTTACGGTTTCGACAGGGGTAGTTCGAGCTTAGGTGGCGAGTCAGGGGATCGGCCTCGTTA

AAACGTCAAAGCCTATAACTGGCAAACAACAAAACAACTTCGCTTTAGCAGCTTAATAAGCTCTTAGCGGTTCTCC
CTCCATCGCCCATGTGGTAGGGTAAGGGACTCAAAATTAAGTGGGCTACGCTGGATTCCACCGTCTGAGGATGAAAGA
AGAGAACAACCAGACTAGCTACCCGGACGCCCCGTCGATAGGCAGATGGAGTAGCGAATCGCGAATATATCGACTACA
CTCGTAGAAGCTTAAGTGCCGATATTCTTGACGTGGGTTCGACTCCCSEQ ID NO:176

[0387] 幽门螺杆菌 (*Helicobacter pylori*) tmRNA, (临床分离物 1), 内部部分

[0388] UGGGAUGUUACGGUUUCGACAGGGUAGUUCGAGCUUAGGUGGCGAGUCGAGGGGAUCGGCCUCGUUA
AAACGUCAAAGCCUAUAACUGGCAAACAACAAAACAAUUCGCUUUAGCAGCUUAAUAAGCUCUAGCGGUUCCUCC
CUCCAUCGCCCCAUGUGGUAGGGUAAAGGGACUAAAUAAGUGGGCUACGCUGGAUUCACCGUCUGAGGAUGAAAGA
AGAGAACAACCAGACUAGCUACCCGGACGCCCCGUCGAUAGGCAGAUGGAGUAGCGAAUCGCGAAUAUAUCGACUACA
CUCGUAGAAGCUUAAUGGCCGAUAUUCUUGGACGUGGGUUCGACUCCC SEQ ID NO:177

[0389] 幽门螺杆菌 (*Helicobacter pylori*) ssrA, (临床分离物 2), 内部部分

[0390] TGGGGACGTTACGTTTCGACAGGGATAGTTCGAGCTTAGGTTGCGAGTCGAGGGGATCGGCCTCGTTA
AAACGTCAAAGCCTATAATTGGCAAACAACAAATCTTTCTTTAGCTGCTTAATTGCACTAAAGGTTCTCCCTCCA
TCGTCCATGTGGTAGGGTAAGGGACTCAAACCTAAGTGGACTACGCCGGAGTTCGCCGTCTGAGGACAAAGGAAGAGA
ACAACCAGACTAGCAACTTGAAGCCTGTCGATAGGCCGAAGAGTTCGCGAAATGCTAATATATCGACTACACTCGT
AGAAGCTTAAGTGCCGATATTTTTGGACGTGGGTTCGATTCCCT SEQ ID NO:178

[0391] 幽门螺杆菌 (*Helicobacter pylori*) tmRNA, (临床分离物 2), 内部部分

[0392] UGGGGACGUUACGGUUUCGACAGGGAUAGUUCGAGCUUAGGUUGCGAGUCGAGGGGAUCGGCCUCGUUA
AAACGUCAAAGCCUAUAAUUGGCAAACAACAAUUCUUUAGCUGCUUAAUUGCACUAAAGGUUCCUCCCUCCA
UCGUCCAUGUGGUAGGGUAAAGGGACUAAACUAAGUGGACUACGCCGGAGUUCGCCGUCUGAGGACAAAGGAAGAGA
ACAACCAGACUAGCAACUUGGAAGCCUGUCGAUAGGCCGAAGAGUUCGCGAAAUGCUAAUAUAUCGACUACACUCGU
AGAAGCUUAAUGGCCGAUAUUUUUGGACGUGGGUUCGAUUCUCCUCCSEQ ID NO:179

[0393] 斯氏李斯特氏菌 (*Listeria seeligeri*) (NCTC 11856) ssrA, 内部部分

[0394] ACAGGGATAGTTTCGAGCTTGAGTTGCGAGTCGGGGGGATCGTCCTCGTTATCAACGTCAAAGCCAATA
ATAACTGGCAAAGAAAAACAAAACCTAGCTTTGCTGCCTAATAAGCAGTAGCATAGCTGATCCTCCGTGCATCGC
CCATGTGCTACGGAAGGGTCTCACTTTAAGTGGGCTACACTAAATAATCTCCGTCTGGGGTTAGTTAGAAGAGC
TTAATCAGACTAGCTGAATGGAAGCCTGTTACCGGGCTGATGTTTATGCGAAATACTAATACGGTGACTACGCTC
GTAGATATTTAAGTGCCCATATTTCTGG SEQ ID NO:180

[0395] 斯氏李斯特氏菌 (*Listeria seeligeri*) (NCTC 11856) tmRNA, 内部部分

[0396] ACAGGGAUAGUUCGAGCUUGAGUUGCGAGUCGGGGGAUCGUCCUCGUUAUCAACGUCAAAGCCAAUA
AUAACUGGCAAAGAAAAACAAAACCUAGCUUUCGUGCCUAAUAAGCAGUAGCAUAGCUGAUCCUCCGUGCAUCGC
CCAUGUGCUACGGAAGGGUCUCACUUUAAGUGGGCUACACUAAUAAUCUCCGUCUGGGGUUAGUUAGAAGAGC
UUAAUCAGACUAGCUGAAUGGAAGCCUGUUACCGGGCUGAUGUUUAUGCGAAAUACUAAUACGGUGACUACGCUC
GUAGAUUUUAAGUGCCCAUAUUUCUGG SEQ ID NO:181

[0397] 伊氏李斯特氏菌 (*Listeria ivanovii*) (NCTC 11846) ssrA, 内部部分

[0398] ACAGGGATAGTTTCGAGCTTGAGTTGCGAGTCGGGGGGATCGTCCTCGTTATTAACGTCAAAGCCAATA
ATAACTGGCAAAGAAAAACAAAACCTAGCTTTGCTGCCTAATAAGCAGTAGCATAGCTGATCCTCCGTGCATCGC
CCATGTGCTACGGTAAGGGTCTCACTTTAAGTGGGCTACACTAAATAATCTCCGTCTGGGGTTAGTTAGAAGAGC
TTAATCAGACTAGCTGAATGGAAGCCTGTTACCGGGCTGATGTTTATGCGAAATGCTAATACGGTGACTACGCTC

GTAGATATTTAAGTGCCGATATTTCTGG SEQ ID NO:182

[0399] 伊氏李斯特氏菌 (*Listeria ivanovii*) (NCTC 11846) tmRNA, 内部部分

[0400] ACAGGGAUAGUUCGAGCUUGAGUUGCGAGUCGGGGGAUCGUCCUCGUUUAUAAACGUCAAAGCCAAUA
AUAACUGGCAAAGAAAAACAAAACCUAGCUUUCGUGCCUAAUAAGCAGUAGCAUAGCUGAUCCUCCGUGCAUCGC
CCAUGUGCUACGGUAAGGGUCUCACUUUAAGUGGGCUACACUAAUAAUCUCCGUCUGGGGUUAGUUAGAAGAGC
UUAAUCAGACUAGCUGAAUGGAAGCCUGUUACCGGGCUGAUGUUUAUGCGAAAUGCUAAUACGGUGACUCGCUCG
UAGAUUUUAAGUGCCGAUAAUUCUGG SEQ ID NO:183

[0401] 非洲分枝杆菌 (*Mycobacterium africanum*) (临床分离物) ssrA, 内部部分

[0402] ACTTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAGGCAAGAGACCACCGTAAGCGTCGTTGCGAC
CAAATAAGCGCCGATTACATCAGCGCGACTACGCTCTCGCTGCCTAAGCGACGGCTAGTCTGTCAGACCGGGAAC
GCCCTCGGCCCCGACCCCTGGCATCAGCTAGAGGGATCCACCGATGAGTCCGGTCGCGGGACTCCTCGGGACAACC
ACAGCGACTGGGATCGTCATCTCGGCTAGTTTCGCGTGACCGGGAGATCCGAGCAGAGGCATAGCGAACTGCGCAC
GGAGAAGCCTTGAGGGAATGCCGTA SEQ ID NO:184

[0403] 非洲分枝杆菌 (*Mycobacterium africanum*) (临床分离物) tmRNA, 内部部分

[0404] ACUUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCGUAAGCGUCGUUGCGAC
CAAAUAAGCGCCGAUUCACAUCAGCGCGACUACGCUCUCGUGCCUAAAGCGACGGCUAGUCUGUCAGACCGGGAAC
GCCUCGCCCCGACCCUGGCAUCAGCUAGAGGGAUCCACCGAUGAGUCCGGUCGCGGGACUCCUCGGGACAACC
ACAGCGACUGGGAUCGUCAUCUCGGCUAGUUCGCGUGACCGGGAGAUCGAGCAGAGGCAUAGCGAACUGCGCAC
GGAGAAGCCUUGAGGGAAUGCCGUA SEQ ID NO:185

[0405] 戈登氏分枝杆菌 (*Mycobacterium gordonae*) (临床分离物) ssrA, 内部部分

[0406] ACTTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAGGCAAGAGACCACCGTAAGCGTCGTTGCAAC
CATATAAGCGCCGATTACATCAGCGCGACTACGCTCTCGCTGCCTAAGCGACGGCTAGTCTGTCGGACCGGGAAC
GCCCTCGCCCCGACCCCGGCATCAGCTAGAGGGATCAACCGATGAGTTCGGTCGCGGGACTCATCGGGACACCA
ACAGCGACTGGGATCGTCATCCTGGCTAGTCCGTGTGACCAGGAGATCCGAGCAGAGACATAGCGGACTGCGCAC
GGAGAAGCCTTGAGGGAATGCCGTA SEQ ID NO:186

[0407] 戈登氏分枝杆菌 (*Mycobacterium gordonae*) (临床分离物) tmRNA, 内部部分

[0408] ACUUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCGUAAGCGUCGUUGCAAC
CAUUAAGCGCCGAUUCACAUCAGCGCGACUACGCUCUCGUGCCUAAAGCGACGGCUAGUCUGUCGGACCGGGAAC
GCCUCGCCCCGACCCCGGCATCAGCUAGAGGGAUCAACCGAUGAGUUCGGUCGCGGGACUCAUCGGGACACCA
ACAGCGACUGGGAUCGUCAUCCUGGCUAGUCCGUGUGACCAGGAGAUCGAGCAGAGACAUAGCGGACUGCGCAC
GGAGAAGCCUUGAGGGAAUGCCGUA SEQ ID NO:187

[0409] 堪萨斯分枝杆菌 (*Mycobacterium kansasii*) (临床分离物) ssrA, 内部部分

[0410] ACTTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAGGCAAGAGACCACCGTAAGCGTCGTTGCAAC
CAAATAAGCGCCGATTACATCAGCGCGACTACGCTCTCGCTGCCTAAGCGACGGCTAGTCTGTCAGACCGGGACC
GCCCTCGACCCGACTCTGGCATCAGCTAGAGGGATCAACCGATGAGTTCGGTCGCGGGACTCGTCGGGACACCA
ACAGCGACTGGGATCGTCATCCTGGCTAGTTTCGCGTGACCAGGAGATCCGAGCAGAGGCATAGCGAACTGCGCAC
GGAGAAGCCTTGAGGGAATGCCGTA SEQ ID NO:188

[0411] 堪萨斯分枝杆菌 (*Mycobacterium kansasii*) (临床分离物) tmRNA, 内部部分

[0412] ACUUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCGUAAGCGUCGUUGCAAC

CAAAUAAGCGCCGAUUCACAUCAGCGCGACUACGCUCUCGCUGCCUAAGCGACGGCUAGUCUGUCAGACCGGGACC
GCCCUCGACCCGGACUCUGGCAUCAGCUAGAGGGAUCAACCGAUGAGUUCGGUCGCGGGACUCGUCGGGACACCA
ACAGCGACUGGGAUCGUCAUCCUGGCUAGUUCGCGUGACCAGGAGAUCCGAGCAGAGGCAUAGCGAACUGCGCAC
GGAGAAGCCUUGAGGGAAUGCCGUA SEQ ID NO:189

[0413] 龟分枝杆菌 (*Mycobacterium chelonae*) ssrA, 内部部分

[0414] ACAGCGAGTCTCGACTTAAGGGAAGCGTGCCGGTGCAGGCAAGAGACCACCGTAAGCGTCATTGCAAC
CAATTAAGCGCCGATTCTCATCAGCGCGACTACGCACTCGCTGCCTAAGCGACTGCGTGTCTGTCAGACCGGGAGC
GCCCTCAGCCCGGACCCCTGGCATCAGCTAGAGGGACAACTACGGGTTTCGGTCGCGGGACCCGTAGGGACATCAA
ACAGCGACTGGGATCGTCATCTCGGCTTGTTTCGCGGGACCGAGAGATCCAAGTAGAGGCATAGCGAACTGCGCAC
GGAGAAGCCTTAATGAACGGCCGTTG SEQ ID NO:190

[0415] 龟分枝杆菌 (*Mycobacterium chelonae*) tmRNA, 内部部分

[0416] ACAGCGAGUCUCGACUUAAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCGUAAGCGUCAUUGCAAC
CAAUUAAGCGCCGAUUCUCAUCAGCGCGACUACGCACUCGCUGCCUAAGCGACUGCGUGUCUGUCAGACCGGGAGC
GCCCUCAGCCCGGACCCUGGCAUCAGCUAGAGGGACAAACUACGGGUUCGGUCGCGGGACCCGUAGGGACAUCAA
ACAGCGACUGGGAUCGUCAUCUCGGCUUGUUCGCGGGACCGAGAGAUCCAAGUAGAGGCAUAGCGAACUGCGCAC
GGAGAAGCCUUAUGAACGGCCGUUG SEQ ID NO:191

[0417] 斯氏分枝杆菌 (苏加分枝杆菌) (*Mycobacterium szulgai*) (ATCC35799) ssrA, 内部部分

[0418] ACTTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAGGCAAGAGACCACCGTAAGCGTCGTTGCAAC
CAATTAAGCGCCGAGAACACTCAGCGCGACTTCGCTCTCGCTGCCTAAGCGACAGCAAGTCCGTCAGACCGGGAAA
GCCCTCGACCCGGACCCCTGGCGTCATCTAGAGGGATCCACCGGTGAGTTCGGTCGCGGGACTCATCGGGACACCA
ACAGCGACTGGGATCGTCATCCTGGCTAGTTCGCGTGACCAGGAGATCCGAGTAGAGACATAGCGAACTGCGCAC
GGAGAAGCCTTGAGGGAATGCCGTAG SEQ ID NO:192

[0419] 斯氏分枝杆菌 (苏加分枝杆菌) (*Mycobacterium szulgai*) (ATCC35799) tmRNA, 内部部分

[0420] ACUUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCGUAAGCGUCGUUGCAAC
CAAUUAAGCGCCGAGAACACUCAGCGCGACUUCGCUCUCGCUGCCUAAGCGACAGCAAGUCCGUCAGACCGGGAAA
GCCCUCGACCCGGACCCUGGCGUCAUCUAGAGGGAUCCACCGGUGAGUUCGGUCGCGGGACUCAUCGGGACACCA
ACAGCGACUGGGAUCGUCAUCCUGGCUAGUUCGCGUGACCAGGAGAUCCGAGUAGAGACAUAGCGAACUGCGCAC
GGAGAAGCCUUGAGGGAAUGCCGUAG SEQ ID NO:193

[0421] 玛尔摩分枝杆菌 (*Mycobacterium malmoense*) (临床分离物) ssrA, 内部部分

[0422] ACTTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAGGCAAGAGACCACCGTAAGCGTCGTTGCAAC
CATATAAGCGCCGTTTCAACACAGCGCGACTACGCTCTCGCTGCCTAAGCGACAGCTAGTCCGTCAGACCGGGAAC
GCCCTCGACCCGGAGCCTGGCGTCAGCTGGAGGGATCCACCGGTGAGTCCGGTCGCGGGACTCATCGGGACATAC
ACAGCGACTGGGATCGTCATCCTGGCTGGTTCGCGTGACCGGGAGATCCGAGCAGAGGCATAGCGAACTGCGCAC
GGAGAAGCCTTGAGGGAATGCCGTAG SEQ ID NO:194

[0423] 玛尔摩分枝杆菌 (*Mycobacterium malmoense*) (临床分离物) tmRNA, 内部部分

[0424] ACUUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCGUAAGCGUCGUUGCAAC
CAUUAAGCGCCGUUUAACACAGCGCGACUACGCUCUCGCUGCCUAAGCGACAGCUAGUCCGUCAGACCGGGAAC

GGCCUCGACCCGGAGCCUGGCGUCAGCUGGAGGGAUCCACCGGUGAGUCCGGUCGCGGGACUCAUCGGGACAUAC
ACAGCGACUGGGAUCGUCAUCCUGGCGUGUUCGCGUGACCGGGAGAUCGAGCAGAGGCAUAGCGAACUGCGCAC
GGAGAAGCCUUGAGGGAAUGCCGUAG SEQ ID NO:195

[0425] 微黄分枝杆菌 (*Mycobacterium flavescens*) ssrA, 内部部分

[0426] ACTTCGAGCGTCGAATCAAGGGAAGCGTGCCGGTGCAGGCAAGAGACCACCGTAAGCGTCGTTGCAAC
CAATTAAGCGCCGATTCCAATCAGCGCGACTACGCACTCGCTGCCTAAGCGACTGCGTGTCTGTCAGCCCGGGAGA
GCCCTCGACCCGGTGTCTGGCATCAGCTAGAGGGATAAACCGGTGGGTCCGGTCGCGGGACTCATCGGGACATCA
AACAGCGACTGGGATCGTCATCCTGACTTGTTGCGGTGATCAGGAGATCCGAGTAGAGACATAGCGAACTGCGCA
CGGAGAAGCCTTGAGGGAACGCCGTAG SEQ ID NO:196

[0427] 微黄分枝杆菌 (*Mycobacterium flavescens*) tmRNA, 内部部分

[0428] ACUUCGAGCGUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCGUAAGCGUCGUUGCAAC
CAAUUAAGCGCCGAUUCCAAUCAGCGCGACUACGCACUCGCGUGCCUAAGCGACUGCGUGUCUGUCAGCCCGGGAGA
GGCCUCGACCCGGUGUCUGGCAUCAGCUAGAGGGAUAAACCGGUGGGUCCGGUCGCGGGACUCAUCGGGACAUCA
AACAGCGACUGGGAUCGUCAUCCUGACUUGUUCGCGUGAUCAGGAGAUCCGAGUAGAGACAUAGCGAACUGCGCA
CGGAGAAGCCUUGAGGGAACGCCGUAG SEQ ID NO:197

[0429] 海分枝杆菌 (*Mycobacterium marinum*) ssrA, 内部部分

[0430] ACTTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAGGCAAGAGACCACCGTAAGCGTCGATGCAAC
TAGATAAGCGCCGATTACATCAGCGCGACTACGCTCTCGCTGCCTAAGCGACGGCTAGTCTGTGCGACCGGGAAC
GCCCTCGCCCCGGACCCCGGCATCAGCTAGAGGGATCAACCGATGAGTTCGGTCGCGGGGCTCATCGGGACATCA
ACAGCGACTGGGATCGTCATCCTGGCTAGTTCGCGTGACCAGGAGATCCGAGCAGAGACCTAGCGGACTGCGCAC
GGAGAAGCCTTGAGGGAATGCCGTAG SEQ ID NO:198

[0431] 海分枝杆菌 (*Mycobacterium marinum*) tmRNA, 内部部分

[0432] ACUUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCGUAAGCGUCGAUGCAAC
UAGAUAAAGCGCCGAUUCACAUCAGCGCGACUACGCUCUCGCGUGCCUAAGCGACGGCUAGUCUGUCGGACCGGGAAC
GGCCUCGCCCCGGACCCCGGCAUCAGCUAGAGGGAUCAACCGAUGAGUUCGGUCGCGGGGCUCAUCGGGACAUCA
ACAGCGACUGGGAUCGUCAUCCUGGCUAGUUCGCGUGACCAGGAGAUCCGAGCAGAGACCUAGCGGACUGCGCAC
GGAGAAGCCUUGAGGGAAUGCCGUAG SEQ ID NO:199

[0433] 田鼠分枝杆菌 (*Mycobacterium microti*) (环境分离物) ssrA, 内部部分

[0434] ACTTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAGGCAAGAGACCACCGTAAGCGTCGTTGCGAC
CAAATAAGCGCCGATTACATCAGCGCGACTACGCTCTCGCTGCCTAAGCGACGGCTAGTCTGTGTCAGACCGGGAAC
GCCCTCGGCCCCGACCCCTGGCATCAGCTAGAGGGATCCACCGATGAGTCCGGTCGCGGGACTCCTCGGGACAGCC
ACAGCGACTGGGATCGTCATCTCGGCTAGTTCGCGTGACCGGGAGATCCGAGCAGAGGCATAGCGAACTGCGCAC
GGAGAAGCCTTGAGGGAATGCCGTA SEQ ID NO:200

[0435] 田鼠分枝杆菌 (*Mycobacterium microti*) (环境分离物) tmRNA, 内部部分

[0436] ACUUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCGUAAGCGUCGUUGCGAC
CAAUUAAGCGCCGAUUCACAUCAGCGCGACUACGCUCUCGCGUGCCUAAGCGACGGCUAGUCUGUCAGACCGGGAAC
GGCCUCGCCCCGGACCCUGGCAUCAGCUAGAGGGAUCCACCGAUGAGUCCGGUCGCGGGACUCCUCGGGACAGCC
ACAGCGACUGGGAUCGUCAUCUCGGCUAGUUCGCGUGACCGGGAGAUCCGAGCAGAGGCAUAGCGAACUGCGCAC
GGAGAAGCCUUGAGGGAAUGCCGUA SEQ ID NO:201

[0437] 耻垢分枝杆菌 (*Mycobacterium smegmatis*) (ATCC 10143) *ssrA*, 内部部分

[0438] ACTTCGAGCATCGAATCCAGGGAAGCGTGCCGGTGCAGGCAAGAGACCACCGTAAGCGTCGTTGCAAC
CAATTAAGCGCCGATTCCAATCAGCGCGACTACGCCCTCGCTGCCTAAGCGACGGCTGGTCTGTCAGACCGGGAGT
GCCCTCGGCCCGGATCCTGGCATCAGCTAGAGGGACCCACCCACGGGTTCGGTCGCGGGACCTGTGGGGACATCA
AACAGCGACTGGGATCGTCATCTCGGCTTGTTCTGTGTGACCGGGAGATCCGAGTAGAGACATAGCGAACTGCGCA
CGGAGAAGCCTCGAGGACATGCCGTAG SEQ ID NO:202

[0439] 耻垢分枝杆菌 (*Mycobacterium smegmatis*) (ATCC 10143) *ssrA*, 内部部分

[0440] ACUUCGAGCAUCGAAUCCAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCGUAAGCGUCGUUGCAAC
CAAUUAAGCGCCGAUUCCAAUCAGCGCGACUACGCCUCGUGCCUAAGCGACGGCUGGUCUGUCAGACCGGGAGU
GCCCUCGGCCCCGAUCCUGGCAUCAGCUAGAGGGACCCACCCACGGGUUCGGUCGCGGGACCUUGUGGGACAUA
AACAGCGACUGGGAUUCGUCAUCUCGGCUUGUUCGUGUGACCGGGAGAUCCGAGUAGAGACAUAGCGAACUGCGCA
CGGAGAAGCCUCGAGGACAUGCCGUAG SEQ ID NO:203

[0441] 蟾 (蜥) 分枝杆菌 (*Mycobacterium xenopi*) (临床分离物) *ssrA*, 内部部分

[0442] ACTTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAGGCAAGAGACCACCGTAAGCGTCGTTGCAAC
TAAATAAGCGCCGATTACATCAGCGCGACTACGCTCTCGCTGCCTAAGCGACAGCTAGTCCGTCAGGCCGGGAGT
TCCCTCGACCCGGATCCTGGCGTCAGCTAGAGGGATCCACCGATGGGTTCGGTCGCGGGACCCATCGGGACACCA
CACAGCGACTGGGATCGCCGTCCCGGCTAGTTCGCGAGACCGGGAGATCCGAGTAAGGGCAAAGCGAACTGCGCA
CGGAGAAGCCTTGAGGGTATGCCGTA SEQ ID NO:204

[0443] 蟾 (蜥) 分枝杆菌 (*Mycobacterium xenopi*) (临床分离物) *tmRNA*, 内部部分

[0444] ACUUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCGUAAGCGUCGUUGCAAC
UAAUAAGCGCCGAUUCACAUCAGCGCGACUACGCUCUCGUGCCUAAGCGACAGCUAGUCCGUCAGGCCGGGAGU
UCCCUCGACCCGGAUCCUGGCGUCAGCUAGAGGGAUCCACCGAUGGGUUCGGUCGCGGGACCCAUCCGGGACACCA
CACAGCGACUGGGAUCCGCGUCCCGGCUAGUUCGCGAGACCGGGAGAUCCGAGUAAGGGCAAAGCGAACUGCGCA
CGGAGAAGCCUUGAGGGUAUGCCGUA SEQ ID NO:205

[0445] 胞内分枝杆菌 (*Mycobacterium intracellulare*) (NCTC 10425) *ssrA*, 内部部分

[0446] ACTTCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAGGCAACCGACCACCGTAAGCGTCGTTGCAAA
CAGATAAGCGCCGATTACATCAGCGCGACTACGCTCTCGCTGCCTAAGCGACAGCTAGTCCGTCAGACCGGGAAC
GCCCTCGACCCGGAGCCTGGCGTCAGCTAGAGGGATCCACCGATGAGTCCGGTCGCGGGACTTATCGGGACACCA
ACAGCGACTGGGATCGTCATCTCGGCTTGTTCTGCGTGACCGGGAGATCCGAGTAGAGGCATAGCGAACTGCGCAC
GGAGAAGTCTTGAGGGAATGCCGTAG SEQ ID NO:206

[0447] 胞内分枝杆菌 (*Mycobacterium intracellulare*) (NCTC 10425) *tmRNA*, 内部部分

[0448] ACUUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAACCGACCACCGUAAGCGUCGUUGCAAA
CAGAUAAAGCGCCGAUUCACAUCAGCGCGACUACGCUCUCGUGCCUAAGCGACAGCUAGUCCGUCAGACCGGGAAC
GCCCUCGACCCGGAGCCUGGCGUCAGCUAGAGGGAUCCACCGAUGAGUCCGGUCGCGGGACUUAUCGGGACACCA
ACAGCGACUGGGAUCGUCAUCUCGGCUUGUUCGCGUGACCGGGAGAUCCGAGUAGAGGCAUAGCGAACUGCGCAC
GGAGAAGUCUUGAGGGAAUGCCGUAG SEQ ID NO:207

[0449] 淋巴腺炎分枝杆菌 (瘰癧分枝杆菌) (*Mycobacterium scrofulaceum*) (NCTC 10803) *ssrA*, 内部部分

[0450] ACATCGCGCATCGAATCAAGGGAAGCGTGCCGGTGCAGGCAAGAGACCACCGTAAGCGTCGTTGCAAC

CAATTAAGCGCCGATTACATCAGCGCGACTACGCTCTCGCTGCCTAAGCGACAGCTAGTCCGTCAGACCGGGAAA
GCCCTCGACCCGGAGCCTGGCGTCAGCTAGAGGGATCAACCGATGAGTTCGGTCGCGGGACTCATCGGGACACCA
ACAGCGACTGGGATCGTCATCCTGGCTAGTCCGCGTGACCAGGAGATCCGAGCAGAGGCATAGCGGACTGCGCAC
GGAGAAGTCTTGAGGGAATGCCGTTG SEQ ID NO:208

[0451] 淋巴腺炎分枝杆菌(瘰癧分枝杆菌)(*Mycobacterium scrofulaceum*) (NCTC 10803) tmRNA, 内部部分

[0452] ACAUCGCGCAUCGAAUCAAGGGAAGCGUGCCGGUGCAGGCAAGAGACCACCGUAAGCGUCGUUGCAAC
CAAUUAAGCGCCGAUUCACAUCAGCGCGACUACGCUCUCGUGCCUAAAGCGACAGCUAGUCCGUCAGACCGGGAAA
GCCCUCGACCCGGAGCCUGGCGUCAGCUAGAGGGAUCAACCGAUGAGUUCGGUCGCGGGACUCAUCGGGACACCA
ACAGCGACUGGGAUCGUCAUCCUGGCUAGUCCGCGUGACCAGGAGAUCCGAGCAGAGGCAUAGCGGACUGCGCAC
GGAGAAGUCUUGAGGGAAUGCCGUUG SEQ ID NO:209

[0453] 星状诺卡氏菌(*Nocardia asteroides*) ssrA, 内部部分

[0454] ACTGTGTGCGCCGAGGTAGGGGAAGCGTGTGCGGTGCAGGCTGGAGACCACCGTTAAGCGTCGCGGCAA
CCAATTAAGCGCCGATTCCAATCAGCGCGACTACGCCCTCGCTGCCTGATCAGCGACGGCTAGCTGTGCGCCCCGG
TTGTGTTCCCGAACCCGGATGCCGGCATCATCTCAGGGAACACCGTGTTCGCCGGTCGCGGACGGACACGGGA
CAGCAAAACAGCGACTGGGATCGTCATCTCGGCTTGTTTCGCGTGACCAGGAGATCCAAGTAGAGACATAGCGGACT
GCACACGGAGAAGCCCTACTGACTCGACACAG SEQ ID NO:210

[0455] 星状诺卡氏菌(*Nocardia asteroides*) tmRNA, 内部部分

[0456] ACUGUGUGCGCCGAGGUAGGGGAAGCGUGUCGGUGCAGGCUAGGAGACCACCGUUAAGCGUCGCGGCAA
CCAAUUAAGCGCCGAUUCCAAUCAGCGCGACUACGCCUCGCGUGCCUGAUCAGCGACGGCUAGCUGUCGGCCCCGG
UUGUGUUCGCCGAACCCGAUGCCGGCAUCAUCUCAGGGAACUCACCGUGUUCGCCGGUCGCGGACGGACACGGGA
CAGCAAAACAGCGACUGGGAUCGUCAUCUCGGCUUGUUCGCGUGACCAGGAGAUCCAAGUAGAGACAUAGCGGCUG
CACACGGAGAAGCCCUACUGACUCGACACAG SEQ ID NO:211

[0457] 肠炎沙门氏菌(*Salmonella enteritidis*) ssrA, 内部部分

[0458] ACGGGATTTGCGAAACCCAAGGTGCATGCCAGGGGCGGTTGGCCTCGTAAAAAGCCGCAAAAAATA
GTCGAAACGACGAAACCTACGCTTTAGCAGCTTAATAACCTGCTTAGAGCCCTCTCTCCCTAGCCTCCGCTCTTA
GGACGGGGATCAAGAGAGGTCAAACCCAAAAGAGATCGCGTGGATGCCCTGCCTGGGGTTGAAGCGTTAAACGA
ATCAGGCTAGTCTGGTAGTGGCGTGTCCGTCCGACGGTGCCAGGCGAATGTAAAGACTGACTAAGCATGTAGTAC
CGAGGATGTAGGAATTTCCG SEQ ID NO:212

[0459] 肠炎沙门氏菌(*Salmonella enteritidis*) tmRNA, 内部部分

[0460] ACGGGAUUUGCGAAACCCAAGGUGCAUGCCGAGGGGCGGUUGGCCUCGUAAAAAGCCGCAAAAAAUA
GUCGAAACGACGAAACCUACGCUUUAGCAGCUUAAUAACCUGCUUAGAGCCCUUCUCCCUAGCCUCCGCUCUUA
GGACGGGGAUCAAGAGAGGUCAAACCCAAAAGAGAUCCGUGGAUGCCCUGCCUGGGGUUGAAGCGUUAACGA
AUCAGGCUAGUCUGGUAGUGGCGUGUCCGUCCGAGGUGCCAGGCGAAUGUAAAGACUGACUAAGCAUGUAGUAC
CGAGGAUGUAGGAAUUUCGG SEQ ID NO:213

[0461] 表皮葡萄球菌(*Staphylococcus epidermidis*) (NCTC 11047) ssrA, 内部部分

[0462] ACAGGGGTCCCCGAGCTTATTAAGCGTGTGCGAGGGTTGGCTCCGTCATCAACACATTTTCGGTTAAA
TATAACTGACAAATCAAACAATAATTTTCGACGTAGCTGCGTAATAGCCACTGCATCGCCTAACAGCATCTCCTACG
TGCTGTTAACGCGATTCAACCCTAGTAGGATATGCTAAACACTGCCGCTTGAAGTCTGTTTAGATGAAATATAAT

CAAGCTAGTATCATGTTGGTTGTTTATTGCTTAGCATGATGCGAAAATTATCAATAAACTACACACGTAGAAAGA
TTTGTATCAGGACCTCTGGSEQ ID NO:214

[0463] 表皮葡萄球菌 (*Staphylococcus epidermidis*) (NCTC 11047) tmRNA, 内部部分

[0464] ACAGGGGUGCCCCGAGCUUUAUUAAGCGUGUCGGAGGGUUGGCUCGCUCAUACAACAUUUCGGUAAAA
UAUAACUGACAAAUCAAAACAAUAAUUUCGCAGUAGCUGCGUAAUAGCCACUGCAUCGCCUACAGCAUCUCCUACG
UGCUGUUAACGCGAUUCAACCCUAGUAGGAUAUGCUAAACACUGCCGCUUGAAGUCUGUUUAGAUGAAUUAUAAU
CAAGCUAGUAUCAUGUUGGUUUUAUUGCUUAGCAUGAUGCGAAAAUUAUCAAUAAACUACACACGUAGAAAGA
UUUGUAUCAGGACCUCUGG SEQ ID NO:215

[0465] 无乳链球菌 (*Streptococcus agalactiae*) (NCTC 8181) ssrA, 内部部分

[0466] ACAGGCATTATGAGGTATATTTTGC GACTCATCGGCAGATGTAAATGCCAGTTAAATATAACTGCAA
AAAATACAAATTCTTACGCATTAGCTGCCTAAAAACAGCCTGCGTGATCTTCACAAGATTGTTTGC GTTTTGCTA
GAAGGTCTTATTTATCAGCAAACCTACGTTTGGCTACTGTCTAGTTAGTTAAAAAGAGATTTATAGACTCGCTATG
TGAGGGCTTGAGTTATGTGTCTACCTAGTTAAATCAATACATAACCTATAGTTGTAGACAAATATATTAGCAG
ATGTTTGG SEQ ID NO:216

[0467] 无乳链球菌 (*Streptococcus agalactiae*) (NCTC 8181) tmRNA, 内部部分

[0468] ACAGGCAUUAUGAGGUUAUUAUUUUGCGACUCAUCGGCAGAUUAAAAUGCCAGUUAUUUAUAACUGCAA
AAAAUACAAAUUCUUAACGCAUUAUGCUGCCUAAAAACAGCCUGCGUGAUCUUCACAAGAUUGUUUGCGUUUUGCUA
GAAGGUCUUAUUUAUCAGCAAACUACGUUUGGCUACUGUCUAGUUAGUUAAAAAGAGAUUUUAUAGACUCGCUAUG
UGAGGGCUUGAGUUAUGUGUCAUACCUAGUUAAUCAAUACAUAAACCUAUAUAGUUGUAGACAAAUUAUUUAGCAG
AUGUUUGG SEQ ID NO:217

[0469] 上面所提到的序列 SEQ ID NO:47-62, 65-68, 71 和 72, 98 和 99, 159-168 和 176-217 为新序列。

[0470] 上面所提到的序列能够用于形成 ssrA 基因序列的数据库, 可用来鉴定细菌种类或产生核酸诊断检验盒。

[0471] 下面为与本发明相应的代表性探针:

[0472] 沙门氏菌:

[0473] 1) 属特异性探针::

[0474] 5'-CGAATCAGGCTAGTCTGGTAG-3' SEQ ID NO:218

[0475] 分枝杆菌:

[0476] 2) 用于检测肺结核复合物的寡聚核苷酸探针:

[0477] TB015'-ACTCCTCGGACA(A/G)CCACAGCGA-3' SEQ ID NO:219

[0478] 3) 用于检测鸟分枝杆菌和鸟分枝杆菌(副结核亚种)序列的寡核苷酸探针

[0479] 探针 1:PAV1-5'-GTTGCAAATAGATAAGCGCC-3' SEQ ID NO:220

[0480] 探针 2:PAV2-5'-TCCGTCAGCCCGGGAACGCC-3' SEQ ID NO:221

[0481] 李斯特氏菌

[0482] 4) 用于测定热杀灭处理细胞后 tmRNA 完整性的寡核苷酸探针

[0483] LVtm:5'-TTTTGTTTTCTTTGCCA-3' SEQ ID NO:222

[0484] 大肠杆菌:

[0485] 5) 用于测定热杀死处理细胞后 tmRNA 完整性的寡核苷酸探针

- [0486] Evtm:5'-AGTTTTCGTCGTTTGC GA-3' SEQ ID NO:223
- [0487] 下面为根据本发明的具代表性的引物:
- [0488] 分枝杆菌:
- [0489] 1) 用于扩增所有分枝杆菌序列的简并引物
- [0490] 5' 引物
- [0491] 10SAAM3-5'-CAGGCAA (G/C) (A/T/C) GACCACCGTAA-3' SEQ ID NO:224
- [0492] 3' 引物
- [0493] 10SAAM4-5' GGATCTCC (C/T) G (A/G) TC (A/T) C (A/G) CG (A/G) AC (A/T) A-3' SEQ ID NO:225
- [0494] 2) 用于检测鸟分枝杆菌和鸟分枝杆菌(副结核亚种)序列的寡核苷酸引物
- [0495] 5' 引物:AP1 正向 -5'-TGCCGGTGCAGGCAACTG-3' SEQ ID NO:226
- [0496] 3' 引物:AP2 反向 -5'-CACGCGAACAAGCCAGGA-3' SEQ ID NO:227
- [0497] 附图简述
- [0498] 在附图中:
- [0499] 图1为大肠杆菌和霍乱弧菌 ssrA 基因序列的 Clustal 对比;
- [0500] 图2为从大肠杆菌和霍乱弧菌细胞中制备的全细胞 RNA 的琼脂糖凝胶照片;
- [0501] 图3为霍乱弧菌寡核苷酸探针与大肠杆菌和霍乱弧菌的 tmRNA 的转录序列杂交的放射自显影照片;
- [0502] 图4为用通用 ssrA 基因扩增引物从一系列生物体中得到的扩增产物的琼脂糖凝胶照片;
- [0503] 图5为李斯特氏菌 ssrA 基因序列的 Clustal 对比;
- [0504] 图6为单核细胞增多性李斯特氏菌和枯草芽孢杆菌 ssrA/tmRNA 基因序列的 Clustal 对比;
- [0505] 图7为用李斯特菌属特异性 PCR 扩增引物从一系列生物体中得到的扩增产物的琼脂糖凝胶照片;
- [0506] 图8为李斯特菌属特异性寡核苷酸探针与实施例4中制备的一系列生物体杂交的放射自显影照片;
- [0507] 图9为单核细胞增多性李斯特氏菌种特异性寡核苷酸探针与实施例7中制备的一系列生物体杂交的放射自显影照片;
- [0508] 图10为如实施例6中所述的用多色探针检测方法检测尼龙膜上李斯特氏菌 ssrA 基因的计算机扫描图象;
- [0509] 图11为沙眼衣原体菌株的 ssrA 基因序列的 Clustal 对比;
- [0510] 图12为幽门螺杆菌菌株 ssrA 基因序列的 Clustal 对比;
- [0511] 图13为生殖道支原体菌株 ssrA 基因序列的 Clustal 对比;
- [0512] 图14为淋病奈瑟球菌菌株 ssrA 基因序列的 Clustal 对比;
- [0513] 图15为单核细胞增多性李斯特氏菌菌株 ssrA 基因序列的 Clustal 对比;
- [0514] 图16为单核细胞增多性李斯特氏菌和无害李斯特菌菌株的 ssrA 基因序列的 Clustal 对比
- [0515] 图17为李斯特菌寡聚核苷酸探针(Evtm)与经中度热处理的大肠杆菌细胞中分离

的全 RNA 样品杂交的放射自显影照片；

[0516] 图 18 为李斯特菌寡聚核苷酸探针 (Evtm) 与经极度热处理的大肠杆菌细胞中分离的全 RNA 样品杂交的放射自显影照片；

[0517] 图 19 为李斯特氏菌寡聚核苷酸探针 (Lvtm) 与经中度热处理的单核细胞增多性李斯特氏菌细胞中分离的全 RNA 样品杂交的放射自显影照片；

[0518] 图 20 为李斯特氏菌寡聚核苷酸探针 (Lvtm) 与经极度热处理的单核细胞增多性李斯特氏菌细胞中分离的全 RNA 样品杂交的放射自显影照片；

[0519] 图 21 为经热处理后不同时间点 tmRNA 的 RT-PCR 产物的琼脂糖凝胶照片。

[0520] 本发明将通过下面的实施例作进一步的阐明。

[0521] 完成本发明的方式

[0522] 实施例 1

[0523] 检查可用的 tmRNA 序列的初级核苷酸序列

[0524] 用 Clustal W 核酸序列对比程序对可用的 tmRNA 进行比较性初级核酸序列对比，表明原核生物的 tmRNA 比其它细菌高拷贝数 RNA 具有更显著程度的核酸序列变异性和非同源性，如表 1 所示；

[0525] 表 1

[0526] 不同细菌的 RNA 分子间核苷酸序列同源性百分比

[0527]

	大肠杆菌：霍乱弧菌	枯草芽孢杆菌：结核分枝杆菌
rRNA% 同源性	88	66
tmRNA% 同源性	68	25

[0528] 这些不同细菌的 tmRNA 序列间的非同源性区位于分子的中间，tmRNA 分子内核苷酸序列的非同源性程度表明可制备属和种特异性探针以用来区别和 / 或检测细菌。

[0529] 核苷酸序列对比已经表明 tmRNA 分子的 5' 和 3' 侧翼区都有种内和属内的高度同源性。这表明可制备通用寡核苷酸引物，以用来从多种细菌中扩增 ssrA 基因或其编码的 tmRNA。

[0530] 我们已经证明来源于不同生物体的 tmRNA 分子的核苷酸序列内的同源区和非同源区可以被用来作为在分子水平鉴定和检测生物体的基础。

[0531] 实施例 2

[0532] 霍乱弧菌 tmRNA 特异性探针的设计

[0533] 如图 1 所显示的大肠杆菌核苷酸序列 (SEQ ID NO. 37) 和霍乱弧菌 ssrA 序列 (SEQ ID NO. 127) 的对比表明这两种细菌在系统发生上有紧密的联系。但是这些序列间的非同源区由缺乏星号标明。合成了图 1 中加下划线的霍乱弧菌 ssrA 核苷酸序列可变区的互补的寡核苷酸探针。

[0534] 霍乱弧菌 tmRNA 特异性探针的序列为：

[0535] 5' -AACGAATGGCTAACCTGAA-3' SEQ ID NO. 169

[0536] 在大肠杆菌和霍乱弧菌生长的中间指数期和稳定期，从液体培养物中分离得到全

RNA。如图 2 所示等量的被分离的全 RNA 在变性甲醛琼脂糖凝胶中电泳并被印迹到 HYBOND-N 尼龙膜上,其中泳道 1-4 分别代表:

[0537] 泳道 1:中间指数期大肠杆菌全 RNA

[0538] 泳道 2:中间指数期霍乱弧菌全 RNA

[0539] 泳道 3:稳定期大肠杆菌全 RNA

[0540] 泳道 4:稳定期霍乱弧菌全 RNA

[0541] 将所得的 Northern 印迹与末端标记 γ P³² 的霍乱弧菌 tmRNA 特异性探针杂交。如图 3 所示的杂交试验的结果证明了探针的特异性,因为只有霍乱弧菌 tmRNA 被检测到。而且,观察到在生长稳定期的培养液中分离的霍乱弧菌 tmRNA 有更大程度的杂交信号强度,这表明在这一时期在霍乱弧菌细胞中存在更大拷贝数目的 tmRNA 分子。

[0542] 实施例 3

[0543] 用于表征未知 ssrA 基因和 tmRNA 序列的通用 ssrA/tmRNA 寡核苷酸扩增引物的产生

[0544] 所有可用的 ssrA 基因和 tmRNA 序列的 Clustal W 对比表明能够设计出简并的寡核苷酸引物,用来从多种生物体中扩增 ssrA 基因和 tmRNA 核苷酸序列。

[0545] 可合成简并的寡核苷酸引物,用来从大范围的细菌的全基因组 DNA 制备物中 PCR 扩增得到 ssrA 基因序列。

[0546] 合成的简并寡核苷酸如下所示:

[0547] (a) tmU5':5' 体外 PCR 扩增引物

[0548] 5'-GGG(A/C)(C/T)TACGG(A/T)TTCGAC-3' SEQ ID NO:170

[0549] (b) tmU5':3' 体外 PCR 扩增引物

[0550] 5'-GGGA(A/G)TCGAACC(A/G)(C/G)GTCC-3' SEQ ID NO:171

[0551] 括号内为简并碱基位置。

[0552] PCR 反应的产物在琼脂糖凝胶中电泳,如图 4 所示在所有例子中都扩增得到约 350 碱基对 PCR 产物,这表明简并 tmRNA 引物的通用性。

[0553] 图 4 中的各泳道分别代表:

[0554] A:分子量标记 V

[0555] 1:大肠杆菌

[0556] 2:沙门氏菌浦纳亚种

[0557] 3:产气克雷伯氏菌

[0558] 4:奇异变形菌

[0559] 5:雷氏变形菌

[0560] 6:气单胞菌

[0561] 7:金黄色葡萄球菌

[0562] 8:肠球菌模式种(粪链球菌)

[0563] 9:乳杆菌模式种

[0564] 10:枯草芽孢杆菌

[0565] 11:单核细胞增多性李斯特氏菌

[0566] 12:无害李斯特菌

[0567] 13 :墨氏李斯特菌

[0568] 14 :威氏李斯特菌

[0569] 15 :格氏李斯特菌

[0570] 16 :牛分枝杆菌

[0571] B :分子量标记 V

[0572] 如表 2 所示,所述通用引物从革兰氏阳性和革兰氏阴性细菌中均扩增到了 *ssrA* 基因。

[0573] 表 2

[0574] 用通用扩增引物进行细菌物种检测

		PCR 产物
革兰氏阴性菌	大肠杆菌	+
	沙门氏菌浦纳亚种	+
	产气克雷伯氏菌	+
	奇异变形菌	+
	雷氏变形菌	+
	气单胞菌	+
革兰氏阳性菌	金黄色葡萄球菌	+
	肠球菌模式种	+
	乳杆菌模式种	+
	枯草芽孢杆菌	+
	单核细胞增多性李斯特氏菌	+
	无害李斯特菌	+
	墨氏李斯特菌	+
	威氏李斯特菌	+
	格氏李斯特菌	+
	牛分枝杆菌	+

[0576] 实施例 4

[0577] 分离和表征以前未知的细菌 *ssrA*/tmRNA 核苷酸序列

[0578] 由实施例 2,从李斯特菌和牛分枝杆菌的基因组 DNA 中扩增得到的 PCR 产物被亚克隆到 T 末端质粒载体来进行 DNA 测序。每个物种挑选 3 个重组克隆并用双脱氧测序法进行测序。对每个亚克隆的 DNA 双链的序列进行测定。

[0579] 牛分枝杆菌 *ssrA* 基因的核苷酸序列与肺结核分枝杆菌 *ssrA* 基因序列有 100% 同源性。

[0580] 图 5 所示为从李斯特菌得到的新 *ssrA* 基因序列 (SEQ ID NOS51,53,55,59 和 61) 的 Clustal W 对比。该分析表明能够产生用于李斯特菌的属特异性探针和寡核苷酸扩增引物。而且,该对比还表明可产生种特异性寡核苷酸探针,并能够从其它李斯特菌中区分出单核细胞增多性李斯特氏菌。

[0581] 在图 5 中,据推测的属特异性寡核苷酸引物 Ltm1 和 Ltm2 被框出,同时作为属特异

性李斯特菌寡核苷酸探针的 LGtm 也被框出。据推测的单核细胞增多性李斯特氏菌种特异性寡核苷酸探针序列以下划线和斜体标识。

[0582] 为进一步说明 *ssrA* 基因 /tmRNA 核酸靶点为适合细菌诊断的靶点,进行了单核细胞增多性李斯特氏菌 *ssrA* 基因核苷酸序列 (SEQ ID NO. 55) 和枯草芽孢杆菌 *ssrA* 基因核苷酸序列 (SEQ ID NO. 11) (一种和李斯特氏菌在种系发生上密切相关的细菌) 的比较性对比,如图 6 所示。对该序列对比进行序列分析表明其序列同源性为 41%,相应的 16SrRNA 对比表明核苷酸序列有 87% 的同源性(数据没有出示)。

[0583] 实施例 5

[0584] 用于李斯特氏菌菌种的 *ssrA* 基因 /tmRNA 属特异性扩增引物,属特异性和种特异性探针的产生和应用

[0585] 用实施例 4 中李斯特氏菌的 *ssrA* 基因 /tmRNA 核苷酸序列对比,分析 *ssrA* 基因 /tmRNA 核苷酸序列区域以决定其是否适用于产生属特异性扩增引物和属特异性及种特异性寡核苷酸探针。在分析中,表现出与枯草芽孢杆菌有最大程度差异的区域被选出来设计这些扩增引物和探针。

[0586] 下面为合成的寡核苷酸的序列:

[0587] (a) Ltm1:5' 李斯特氏菌属特异性扩增引物

[0588] 5' -AAAGCCAATAATAACTGG-3' SEQ ID NO:172

[0589] (b) Ltm2:3' 李斯特氏菌属特异性扩增引物

[0590] 5' -CCAGAAATATCGGCACTT-3' SEQ ID NO:173

[0591] (c) LGtm: 李斯特氏菌属特异性杂交探针

[0592] 5' -GTGAGACCCTTACCGTAG-3' SEQ ID NO:174

[0593] (d) LStm: 单核细胞增多性李斯特氏菌种特异性杂交探针

[0594] 5' -TCTATTTAACCCAGACG-3' SEQ ID NO:175

[0595] 属特异性扩增引物 Ltm1 和 Ltm2 用于与做为模板的二十个不同菌株的全基因组 DNA 进行一系列 PCR 反应。用这些引物只能从李斯特氏菌中扩增得到 *ssrA* 基因序列(260 碱基对产物)(图 7 和表 3),这表明 *ssrA* 基因 /tmRNA 适合于作为体外扩增某细菌属的靶点。没有检测到其它细菌的扩增产物,尽管采用如实施例 2 所描述的通用引物(tmU5' 和 tmU3') 从这些细菌的 DNA 中 PCR 扩增得到了 PCR 产物。

[0596] 图 7 中的各泳道分别代表:

[0597] A:分子量标记 V

[0598] 1:大肠杆菌

[0599] 2:沙门氏菌浦纳亚种

[0600] 3:产气克雷伯氏菌

[0601] 4:奇异变形菌

[0602] 5:雷氏变形菌

[0603] 6:气单胞菌

[0604] 7:金黄色葡萄球菌

[0605] 8:肠球菌模式种

[0606] 9:乳杆菌模式种

- [0607] 10 : 枯草芽孢杆菌
 [0608] 11 : 单核细胞增多性李斯特氏菌菌株 1
 [0609] 12 : 单核细胞增多性李斯特氏菌菌株 2
 [0610] 13 : 单核细胞增多性李斯特氏菌菌株 3
 [0611] 14 : 单核细胞增多性李斯特氏菌菌株 4
 [0612] 15 : 单核细胞增多性李斯特氏菌临床分离物
 [0613] 16 : 无害李斯特菌
 [0614] 17 : 墨氏李斯特菌
 [0615] 18 : 威氏李斯特菌
 [0616] 19 : 格氏李斯特菌
 [0617] 20 : 牛分枝杆菌
 [0618] B : 分子量标记 V
 [0619] 表 34
 [0620] 用李斯特氏菌特异性扩增引物进行细菌种的检测

		PCR 产物
[0621]	革兰氏阴性菌	大肠杆菌
		-
		沙门氏菌浦纳亚种
		-
		产气克雷伯氏菌
		-
	革兰氏阳性菌	奇异变形菌
		-
		雷氏变形菌
		-
		气单胞菌
		-
		金黄色葡萄球菌
		-
		肠球菌模式种
		-
		乳杆菌模式种
		-
		枯草芽孢杆菌
		-
		李斯特氏菌 菌株 1
		+
		单核细胞增多性李斯特氏菌 菌株 2
		+
		单核细胞增多性李斯特氏菌 菌株 3
		+
		单核细胞增多性李斯特氏菌 菌株 4
		+
		单核细胞增多性李斯特氏菌 临床分离物
		+
		无害李斯特菌
		+
		墨氏李斯特菌
		+
		威氏李斯特菌
		+
		格氏李斯特菌
		+
		牛分枝杆菌
		-

[0622] 如图 4 所示, 李斯特氏菌属特异性寡核苷酸探针 LGtM 进行 Southern 印迹杂交。如图 8 和表 4 所示, 只在各李斯特氏菌种中观察到阳性杂交信号, 表明 tmRNA 序列可以作为检测特定属的靶点。

[0623] 图 8 中所示的各泳道为：

[0624] A :分子量标记 V

[0625] 1 :大肠杆菌

[0626] 2 :沙门氏菌浦纳亚种

[0627] 3 :产气克雷伯氏菌

[0628] 4 :奇异变形菌

[0629] 5 :雷氏变形菌

[0630] 6 :气单胞菌

[0631] 7 :金黄色葡萄球菌

[0632] 8 :肠球菌模式种

[0633] 9 :乳杆菌模式种

[0634] 10 :枯草芽孢杆菌

[0635] 11 :单核细胞增多性李斯特氏菌

[0636] 12 :无害李斯特菌

[0637] 13 :墨氏李斯特菌

[0638] 14 :威氏李斯特菌

[0639] 15 :格氏李斯特菌

[0640] 16 :牛分枝杆菌

[0641] B :分子量标记 V

[0642] 用本实施例所描述的属特异性扩增得到的 PCR 产物,如图 7 所示,进行 Southern 印迹,其与单核细胞增多性李斯特氏菌种特异性寡核苷酸探针杂交。如图 9 和表 4 所示在四株单核细胞增多性李斯特氏菌中的三株和一株临床分离得到的菌株检测到阳性杂交信号。

[0643] 图 9 中的各泳道代表：

[0644] A: 分子量标记 V

[0645] 1 :大肠杆菌

[0646] 2 :沙门氏菌浦纳亚种

[0647] 3 :产气克雷伯氏菌

[0648] 4 :奇异变形菌

[0649] 5 :雷氏变形菌

[0650] 6 :气单胞菌

[0651] 7 :金黄色葡萄球菌

[0652] 8 :肠球菌模式种

[0653] 9 :乳杆菌模式种

[0654] 10 :枯草芽孢杆菌

[0655] 11 :单核细胞增多性李斯特氏菌菌株 1

[0656] 12 :单核细胞增多性李斯特氏菌菌株 2

[0657] 13 :单核细胞增多性李斯特氏菌菌株 3

[0658] 14 :单核细胞增多性李斯特氏菌菌株 4

[0659] 15 :单核细胞增多性李斯特氏菌临床分离物

[0660] 16 :无害李斯特菌

[0661] 17 :墨氏李斯特菌

[0662] 18 :威氏李斯特菌

[0663] 19 :格氏李斯特菌

[0664] 20 :牛分枝杆菌

[0665] B: 分子量标记 V

[0666] 表 4

[0667] 李斯特氏菌属特异性探针和单核细胞增多性李斯特氏菌种特异性探针的特异性

[0668]

		LGtm 属特异性探针	LStm 种特异性探针
革兰氏 阴性菌	大肠杆菌	-	-
	沙门氏菌浦纳亚种	-	-
	产气克雷伯氏菌	-	-
	奇异变形菌	-	-
	雷氏变形菌	-	-
	气单胞菌	-	-
革兰氏 阳性菌	金黄色葡萄球菌	-	-
	肠球菌	-	-
	乳杆菌模式种	-	-
	枯草芽孢杆菌	-	-
	单核细胞增多性李斯特氏菌 菌株 1	+	+
	单核细胞增多性李斯特氏菌 菌株 2	+	+
	单核细胞增多性李斯特氏菌 菌株 3	+	+
	单核细胞增多性李斯特氏菌 菌株 4	+	-
	单核细胞增多性李斯特氏菌 临床分离物	+	+
	无害李斯特菌	+	-
	墨氏李斯特菌	+	-
	威氏李斯特菌	+	-
	格氏李斯特菌	+	-
	牛分枝杆菌	-	-

[0669] 菌株 4, 一种典型的单核细胞增多性李斯特氏菌菌株, 用这种探针不能产生阳性信号。对从该菌株中 PCR 扩增得到的 *ssrA* 基因进行 DNA 测序表明其含有与无害李斯特氏菌相

同的探针靶点区。但是应该注意到从该菌株得到的 *ssrA* 基因包含的其它区域的序列与前述的单核细胞增多性李斯特氏菌中的这些序列相同而不同于无害李斯特氏菌,如图 15 所示。所以可合成针对这些可变区其中之一的种特异性寡核苷酸探针,该探针或在种(例如单核细胞增多性李斯特氏菌)内识别每种株型(分离物)。

[0670] 实施例 6

[0671] 李斯特氏菌 *ssrA* 基因序列的多色探针检测

[0672] 将 LGTm(A), LStm(B) 和乌普萨拉弯曲杆菌的 16S-23S rRNA 间隔序列 (C-5' CATTA AACTTTAGCAAGGAAGTG3' SEQ ID NO:228) 寡核苷酸探针非可逆地结合到尼龙膜上与扩增的 *ssrA* PCR 产物进行杂交,所述扩增利用属特异性引物 Ltm1 and Ltm2(Ltm1 的 5' 端标记有生物素),它们来源于单核细胞增多性李斯特氏菌 (1-6), 无害李斯特氏菌 (7-10), 伊氏李斯特氏菌 (11), 墨氏李斯特氏菌 (12), 斯氏李斯特氏菌 (13), 威氏李斯特氏菌 (14) 和格氏李斯特氏菌 (15)。用 tmU5' 和 tmU3' (tmU5' 的 5' 端标记有生物素) 扩增得到的 *ssrA* 的 PCR 扩增产物也被杂交到尼龙膜条带上,被检测细菌来源于革兰氏阳性菌枯草芽孢杆菌、乳杆菌模式种、金黄色葡萄球菌、表皮葡萄球菌、肠球菌模式种、产气荚膜梭菌 (16-21) 和革兰氏阴性菌大肠杆菌、肠炎沙门氏菌、雷氏变形菌、产气克雷伯氏菌 (22-25)。如图 10 所示,经杂交后,对生物素比色检验进行显影表明:条带 1-6 表明 *ssrA* 的 PCR 扩增产物来自于单核细胞增多性李斯特氏菌并证明 PCR 扩增产物来自李斯特氏菌,因 A 和 B 都能够进行颜色检测;条带 7-15 证明 PCR 产物来自于李斯特氏菌,但其中只有 A 能够进行颜色检测;条带 16-25 表明 PCR 产物不是从李斯特氏菌中得到的,因没有检测到颜色。C 是阴性寡核苷酸对照探针而 D 为对所有样品的比色检验的阳性对照。

[0673] 实施例 7

[0674] 用 *ssrA*/tmRNA 序列来区分生物体的物种

[0675] 图 11 (SEQ ID NOS. 19 和 21), 图 12 (SEQ ID NOS. 41 和 43), 图 13 (SEQ ID NOS. 77 和 79), 图 14 (SEQ ID NOS. 83 和 85) 15 和 16 (SEQ ID NO. 53, 55 和 57) 所示的 Clustal W 序列对比表明在同一种细菌的不同菌株的 *ssrA*/tmRNA 序列内存在着核苷酸的差异。这表明 *ssrA*/tmRNA 序列潜在地可以用来区分同一细菌种类中不同菌株的个体和/或集体。这有助于其应用于流行病学研究和细菌种群分析。

[0676] 实施例 8

[0677] 对细菌细胞进行中度和极度热处理后分析 tmRNA 的完整性

[0678] 对培养物进行热处理:将大肠杆菌和单核细胞增多性李斯特氏菌在 80° C 进行热处理,对于大肠杆菌而言处理 20 分钟,对于单核细胞增多性李斯特氏菌处理 40 分钟,以及于 120° C 处理 15 分钟(高压釜)。经过过夜生长和热处理后在 0 小时,1 小时,2 小时,6 小时,12 小时和 48 小时进行测验。每个时期的检测都没观察到存活的菌体。在这些时期全 RNA 被分离并在变性的 1.2% 琼脂糖凝胶中电泳及进行 Northern 印迹。在大肠杆菌的例子中(图 17 和图 18)每个印迹都会与放射性标记的寡核苷酸探针 Evtm 杂交,在单核细胞增多性李斯特氏菌例子中(图 19 和图 20)印迹与放射性标记的 LVtm 杂交。在每个检测样品中没有检测到 tmRNA 转录序列,这表明热处理后 tmRNA 转录序列已被降解。带有符号 + ve 的泳道为全 RNA 样品的阳性对照。

[0679] 实施例 9

[0680] 用 tmRNA 转录序列来区别活的和死的细菌

[0681] 100ml 单核细胞增多性李斯特氏菌在液体培养液中培养过夜。生长后,对细胞进行连续稀释并通过在营养琼脂平板上铺板来测定存活率。同时,从这些细胞的 1ml 液体中分离得到全 RNA。剩余的细胞在 65° C 热处理 20 分钟。接着将细胞除去来进行存活率分析和全 RNA 分离。在处理 0 小时,2 小时,6 小时和 24 小时的时间点取样品来测定存活率和 RNA 分离。

[0682] 在营养琼脂平板上铺板表明热处理能杀死单核细胞增多性李斯特氏菌细胞,因没有观察到活的集落形成单位。每个分离的 RNA 样品用 DNA 酶处理以除去所含的任何 DNA 并且用李斯特氏菌属特异性 ssrA/tmRNA 寡核苷酸引物 Ltm1 和 Ltm2 对全 RNA 样品(100ng)进行反转录 PCR 扩增。扩增反应的阴性对照包括引物、靶序列和 Taq 聚合酶,但没有反转录酶。

[0683] 扩增反应的结果如图 12 所示。

[0684] 扩增的 tmRNA 的 RT-PCR 产物只能在没有经热处理的 RNA 样品中检测到。所有其它样品中没有产生 RT-PCR 产物,这表明这些样品中 tmRNA 分子在热处理后死的细胞中已经被降解。

[0685] 图 21 中的各泳道代表:

[0686] A: 分子量标记 V;

[0687] 1:RNA 的 PCR 扩增(没有热处理过的细胞)

[0688] 反转录酶(RT), +Taq 聚合酶(TP);

[0689] 2:RNA 的 RT-PCR(没有经过热处理的细胞), +RT, +TP;

[0690] 3:RNA 的 PCR 扩增(热处理后 0 小时), -RT, +TP;

[0691] 4:RNA 的 RT-PCR(热处理后 0 小时), +RT, +TP;

[0692] 5:RNA 的 PCR 扩增(热处理后 1 小时), -RT, +TP;

[0693] 6:RNA 的 RT-PCR(热处理后 1 小时), +RT, +TP;

[0694] 7:RNA 的 PCR 扩增(热处理后 2 小时), -RT, +TP;

[0695] 8:RNA 的 RT-PCR(热处理后 2 小时), +RT, +TP;

[0696] 9:RNA 的 PCR 扩增(热处理后 6 小时), -RT, +TP;

[0697] 10:RNA 的 RT-PCR(热处理后 6 小时), +RT, +TP;

[0698] 11:RNA 的 PCR 扩增(热处理后 24 小时), -RT, +TP;

[0699] 12:RNA 的 RT-PCR(热处理后 24 小时), +RT, +TP;

[0700] B: 分子量标记

[0001]

序列表

<110> 爱尔兰公司 (爱尔兰生物研究)
爱尔兰戈尔韦国立大学

<120> 应用于原核生物和真核生物的基于核酸探针的诊断检验

<130> P00-37-PCT

<140>

<141>

<150> PCT/IE 99/00043

<151> 1999-05-14

<160> 228

<170> PatentIn Ver. 2.0

<210> 1

<211> 366

<212> DNA

<213> *Actinobacillus actinomycetemcomitans*

<400> 1

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ttaataacct gccttttagcc ttgcctcccc agcttccgct cgtaagacgg ggataaagcg 180
gagtc aaacc aaaacgagat cgtgtggaag ccaccgtttg aggatcgaag cattaaatta 240
aatcaaagta gcttaattgt cgcgtgtccg tcagcaggat taagtgaatt taaagaccgg 300
actaaacgtg tagtgctaac ggcagaggaa ttctggacgg gggttcaact cccccagct 360
ccacca
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<210> 2

<211> 366

<212> RNA

<213> *Actinobacillus actinomycetemcomitans*

<400> 2

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ggggcugauu cuggauucga cgggauuagc gaagcccgaa gugcacgucg aggugcggua 60
ggccucguua auaaacgca aaaaaauagu cgcaaacgac gaacaauacg cuuagcagc 120
```

[0002]

uuaauaaccu gccuuuagcc uuugcucccc agctuccgcu cguaagacgg ggauaaagcg 180
 gagucaaacc aaaacgagau cguguggaag ccaccguuug aggaucgaag cauuuaauua 240
 aaucaaagua gcuuauuugu cgcguguccg ucagcaggau uaagugaauu uaaagaccgg 300
 acuaaacgug uagugcuaac ggcagaggaa uuucggacgg ggguucaacu cccccagcu 360
 ccacca 366

<210> 3

<211> 315

<212> DNA

<213> *Aeromonas salmonicida*

<400> 3

aagattcaag aaaccaagg tgcattccga ggtgcggttag gcctcgtaa caaacggcaa 60
 aaaaatagtc gcaaacgacg aaaactacgc actagcagct taataacctg catagagccc 120
 ttctacceta gcttgccgtg gtcttaggga atcggaaggt catccttcac aggatcggtg 180
 ggaagtcctg ctggggcgcg aagcattaaa accaatcgag ctagtcaatt cgtggcggtg 240
 ctctccgag cgggttgcg aatgtaaaga gtgactaagc atgtagtacc gaggatgtag 300
 taattttgga cgggg 315

<210> 4

<211> 315

<212> RNA

<213> *Aeromonas salmonicida*

<400> 4

aagauucacg aaaccaagg ugcaugccga ggugcgguag gccueguuaa caaacggcaa 60
 aaaaauaguc gcaaacgacg aaacuacgc acuagcagcu uaauaaccug cauagagccc 120
 uuauaccua gcuuugcugu guccuaggga aucggaaggu cauccuucac aggaucgugu 180
 ggaaguccug cuccggcgcg aagcauuaaa accaauagag cuagucauuu cgugcgugu 240
 cucccgag cggguugcg aauguaaaga gugacuaage auguaguacc gaggauag 300
 uauuuugga cgggg 315

<210> 5

<211> 349

<212> DNA

<213> *Alcaligenes eutrophus*

<400> 5

tggcgccacc tggtttcgac gtggttacaa agcagttagg cataccgagg acccgccacc 60
 tcgttaatca atggaatgca ataactgcta acgacgaacg ttacgcactc gcttaattgc 120
 ggccgtcctc gcactggctc gctgacgggc tagggtcgca agaccacgag aggtatttac 180
 gtcagataag ctccggaagg gtcacgaagc cggggacgaa aacctagtga ctgcgcgtcg 240
 tagagcgtgt tcgtccgatg cgcgggttaa atcaaatgac agaactaagt atgtagaact 300
 ctctgtggag ggcttacgga cgcgggttcg attccgcgag gctccacca 349

[0003]

<210> 6

<211> 349

<212> RNA

<213> *Alcaligenes eutrophus*

<400> 6

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ucguuaauca auggaaugca auaacugcua acgacgaacg uuacgcacuc gcuaauuugc 120
ggcccguccuc gcacuggcuc gcugacgggc uaggguucgca agaccacgcg agguauuuac 180
gucagauaag cuccggaagg gucacgaagc cggggacgaa aaccuaguga cucgcgucg 240
uagagcgugu ucguccgaug cgcggguuua aucaaaugac agaacuaagu auguagaacu 300
cucuguggag ggcuuacgga cgcggguucg auucccgccg gcuccacca 349

```

<210> 7

<211> 347

<212> DNA

<213> *Aquifex aeolicus*

<400> 7

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gtaacagccg ctaaaacagc tcccgaagct gaactcgctc tcgtcgcta attaaacggc 120
agcgcgtccc cggtaggttt ggggtggcc taccggaggc cgtcagagac acccgctcg 180
gtactcggt gcacggggc tgagtagctg acacctaac cgtgctacce tcggggagct 240
tgcccgctggc gacccgagg gaaatcctg aacacgggct aagcctgtag agcctcgat 300
gtggcccgcc tctcggaag cgggttcgat tccgcgcgc tccacca 347

```

<210> 8

<211> 347

<212> RNA

<213> *Aquifex aeolicus*

<400> 8

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guaaacagccg cuaaaacagc ucccgaagcu gaacucguc ucgcugccua auuaaacggc 120
agcgcgucucc cgguagguuu gggguggcc uaccggaggc cgcagagac acccgucgg 180
gcuaucggg gcacggggc ugaguagcug acaccuaacc cgugcuacc ucggggagcu 240
ugcccguggg gacccgagg gaaaauccug aacacgggcu aagccuguag agccucgga 300
guggcgcgcg uccuggaag cggguucga uccgcgcgc uccacca 347

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<210> 9

<211> 316

<212> DNA

<213> *Bacillus megaterium*

[0004]

<400> 9

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ataataactg gcaaatactaa caataacttc gctttagctg cataatagta gcttagcggt 120
ectecttcca tcgcccattgt ggtagggttaa gggactcaact ttaagtgggc tacgccggag 180
ttcgccgtct gaggaacgaag gaagagaata atcagactag cgactgggac gctgtttggt 240
aggcagaaca gctcgcgaat gateaatatg ccaactacac tcgtagacgc ttaagtggcc 300
atatttctgg acgtgg                                     316

```

<210> 10

<211> 316

<212> RNA

<213> *Bacillus megaterium*

<400> 10

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auaauaacug gcaaaucuaa caauaacuuc gcuuuagcug cauaauagua gcuuagcguu 120
ccucccucca ucgccc augu gguaggguaa gggacucacu uuaagugggc uacgccggag 180
uucgccguu gaggaacgaag gaagagaaua aucagacuag cgacugggac gccuguuggu 240
aggcagaaca gcucgcgaan gaucuaauug ccaacuacac ucguagacgc uuaaguggcc 300
auauuucugg acgugg                                     316

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<210> 11

<211> 363

<212> DNA

<213> *Bacillus subtilis*

<400> 11

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ggggacgtta cggattcgac agggatggat cgagcttgag ctgcgagccg agagcgagat 60
tcgtaaacac gcacttaaat ataactgga aaactaacag ttttaaccaa aacgtagcat 120
tagctgccta ataagcgcag cgagctcttc ctgacatigc ctatgtgtct gtgaagagca 180
catccaagta ggctacgctt gcgttccgt ctgagaacgt aagaagagat gaacagacta 240
gctctcgga ggcgcccg caggcaagaa gatgagtga accataaata tgcagctac 300
gctcgtagac gcttaagtaa tcgatgtttc tggacgtggg ttgcactccc accgtctcca 360
cca                                     363

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<210> 12

<211> 363

<212> RNA

<213> *Bacillus subtilis*

<400> 12

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ggggacguua cggauucgac agggauugau cgagcuugag cugcgagccg agagcgauu 60
ucguuaaac gcacuuauu auaacuggca aaacuaacag uuuaaaccaa aacguageau 120

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[0005]

uagcugccua ataaagcgcag cgagcucuc cugacauugc cuaugugucu gugaagagca 180
 cauccaagua ggcuaacgcuu gcguuuccgu cugagaacgu aagaagagau gaacagacua 240
 gcucucggaa ggcccgcgcg caggcaagaa gaugagugaa accaanaaaua ugcaggeuac 300
 gcucguagac gcuaaaguua ucgauguuuc uggacguggg uucgacuccc accgucucca 360
 cca 363

<210> 13

<211> 387

<212> DNA

<213> Bordetella pertussis

<400> 13

ggggcgcgac eggattcgac gtgggtcatg aaacagctca gggcatgccg agcaccagta 60
 agctegttaa tccactggaa cactacaaac gccaacgacg agcgtctcgc tctcgcgcgt 120
 taagegggtga gccctgtcac tgatctgtcc ttgggtcagg cgggggaagg caacttcaca 180
 gggggcaacc ccgaaccgca gcagcgacat tcacaaggaa tcggccaccg ctggggtcac 240
 acggcggttg tttaaattac gtgaatcgcc ctggtcgggc ccgtcgatcg gctaagtcca 300
 gggttaaatc caaatagatc gactaagcat gtagaactgg ttgcggaggg ctgcggacg 360
 ggggttcaat tcccccggc tccacca 387

<210> 14

<211> 387

<212> RNA

<213> Bordetella pertussis

<400> 14

ggggccgauc cggauucgac gugggucaug aaacagcuca gggcaugccg agcaccagua 60
 agcucguuaa uccacuggaa cacuacaaac gccaacgacg agcguucguc ucucgcgcgu 120
 uaagegguga gccgcugcac ugaucugucc uuggguacagg cgggggaagg caacuucaca 180
 gggggcaacc ccgaaccgca gcagcgacau ucacaaggaa ucggccaccg cuggggucac 240
 acggcguugg uuuaaaauac gugaaucgcc cugguccggc ccgucgaucg gcuaagucca 300
 gggguuaaau caaaauagauc gacuaagcau guagaacugg uugcggaggg cuugcggacg 360
 gggguucaau ucccccggc uccacca 387

<210> 15

<211> 362

<212> DNA

<213> Borrelia burgdorferi

<400> 15

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 cttaaaactt ctaaaataaa tgcaaaaat aataacttta caagctcaa tcttgtaatg 120
 gotgettaag ttagcagagg gttttgtga atttggttt gaggttcact tatactttt 180
 tgcacatcaa agcttgctta aaaaatgttt caagttgatt ttagggact tttatacttg 240

[0006]

agagcaattt ggtggtttgc tagtatttcc aaaccatatt gcttaataaa atactagata 300
agctttaga agcttatagt attatittta ggacgcgggt tcaattcccg ccattccac 360
ca 362

<210> 16

<211> 362

<212> RNA

<213> *Borrelia burgdorferi*

<400> 16

ggggauguuu uggauuugac ugaaaauguu aaauuuguaa guugcaggca gagggaaucu 60
cuuaaaacuu cuaaaauaaa ugcaaaaaau aaauacuuua caagcucaaa ucuuguuaug 120
gcugcuuaag uuagcagagg guuuuguuga auuuggcuuu gagguucacu uauacucuuu 180
ucgacaucaa agcuugcuua aaaauguuuu caaguugauu uuagggacu uuauacuug 240
agagcaauuu ggugguuugc uaguauuucc aaaccuuuuu gcuaauuaaa auacuagaua 300
agcuuguaga agcuuauagu auuauuuuuu ggacgcgggu ucaauucccg ccuuccac 360
ca 362

<210> 17

<211> 359

<212> DNA

<213> *Campylobacter jejuni*

<400> 17

gggagcgact tggcttcgac aggagtaagt ctgcttagat ggcatgtcgc tttgggcaaa 60
gcgtaaaaag cccaaataaa attaaacgca aacaacgtta aaticgctcc tgettaagct 120
aaagctgcgt aagttcagtt gagcctgaaa tttaagtcac actatctagc ttaattttcg 180
gtcatttttg atagtgtagc cttgcgtttg acaagcgttg aggtgaaata aagtcttagc 240
cttgcctttg agttttggaa gatgagcgaa gtagggtgaa gtagtcctct ttgctaagca 300
tgtagaggtc tttgtgggat tatttttgga caggggttcg attccctcgc ctteccacca 359

<210> 18

<211> 359

<212> RNA

<213> *Campylobacter jejuni*

<400> 18

gggagcgacu uggcuucgac aggaguaagu cugcuuagau ggcugucgc uuugggcaaa 60
gcguaaaaag cccaaauaaa auuaaacgca aacaacguua aaucgcucc ugcuuacgcu 120
aaagcugcgu aaguucaguu gagccugaaa uuuaagucan acuaucuaagc uuauuuuucg 180
gucauuuuug auaguguagc cuugcguuug acaagcguug agguugaaaua aagucuuagc 240
cuugcuuuug aguuuuggaa gaugagegaa guagggugaa guagucaucu uugcuuagca 300
uguagagguc uuugugggau uuuuuuugga cagggguucg auuccccucg cuuccacca 359

[0007]

<210> 19
 <211> 420
 <212> DNA
 <213> Chlamydia trachomatis (D/UW-3/CX)

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 cagcttcgct gatctogaag atctaagagt agctgcttaa ttagcaaagt tgttacetaa 180
 atacgggtga cccggtgttc gcgagctcca ccagaggttt tegaaacacc gtcattgtatc 240
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 ttagttcteta taggggtttc tagctgagga gacataacgt atagtacctt ggaactaagc 360
 atgttagaggt tagcggggag ttactaagg acgagagttc gactctctcc acctccacca 420

<210> 20
 <211> 420
 <212> RNA
 <213> Chlamydia trachomatis (D/UW-3/CX)

<400> 20
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 cagcuucguu gaudiogaag auuaagaguu agcuucuaa uuagcaaaau ugmiaaccuaa 180
 auacggguga cccgguguuc gcgagucucca ccagagguuu ucgaaacacc gucauguauc 240
 ugguuagaac uuagguucuu uauuucuga ggaaauaguu uuagaaauuu augagagucg 300
 uuagucucua uagggguuuc uageugagga gacauaacgu auaguaccua ggaacuaagc 360
 auguagaggu uagcggggag uuuaucuaagg acgagaguuc gacucucucc accuccacca 420

<210> 21
 <211> 421
 <212> DNA
 <213> Chlamydia trachomatis (小鼠肺炎)

<400> 21
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 ggctctctaa aaagccgaca aaacaataaa tgccgaacct aaggetgaat gcgaaattat 120
 cagcttcgct gatcttaatg atctaagagt tgctgcttaa ttagcaaagt tgttacetaa 180
 gtactggtaa cccggtgttc gcgagctcca ccagaggttt tegaaacgoc gtcattttatc 240
 tgggttagaat tagggccttt taactctcaa gggaactaat ttgaatttta atgagagtcg 300
 ttggtcteta tagaggtttc tagctgagga gatataacgt aaaatattct agaaactaag 360
 catgtagagg ttagcgggga gtttactaag gacgagagtt cgaattctct cactccacc 420
 a 421

<210> 22

[0008]

<211> 421

<212> RNA

<213> Chlamydia trachomatis (小鼠肺炎)

<400> 22

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ggggguguaa agguuucgac uuagaaauga ageguuaauu gcaugcggag ggcguuggeu 60
ggccuccuaa aaagccgaca aaacaauaaa ugccgaaccu aaggeugaau gcgaaauuau 120
cagcuucgcu gaucuuaaug aucuaagagu ugcugcuuaa uuagcaaagu uguuaccuaa 180
guacugguuaa cccgguguuc gcgagcucca ccagagguuu ucgaaacgcc gucauuuauc 240
ugguuagaau uagggccuuu uaacucucuaa gggaacuaau uugaauuuua augagagucg 300
uuggucucua uagagguuuc uagcugagga gauauaacgu aaaaauuuc uagaaacuaag 360
cauguagagg uuagcgggga guuuacuaag gacgagaguu cgaaucucuc caccuccacc 420
a 421

```

<210> 23

<211> 404

<212> DNA

<213> Chlorobium tepidum

<400> 23

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tggacggact cgttaacaa gtctatgtac caatagatgc agacattat tcgtatgcaa 120
tggctgcctg attagcaca gttaatcag aagccatcgt cctgcggtga atgcettac 180
tetgaagccg ccgcatgcca taacccgcgc ttgacctac gggttcgcgc aagtaagctc 240
cgtacattca tgcgcaggcg ggtgtgcggg taaccaatcg ggataaggcg acgaacgctg 300
ctggcggtgt aatcgacca cgaaaaacca accaccagag atgagtgtgg taactgcac 360
gagcagtgtc ctggacgcgg gtccaagtc cgcactctcc acca 404

```

<210> 24

<211> 404

<212> RNA

<213> Chlorobium tepidum

<400> 24

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ggggaugaca ggcuaucgac aggauaggug ugagaugucg uugcacuccg aguucagca 60
uggaeggacu cguuaaaca gucuauauac caauagauge agaegaauu ucguaugeaa 120
uggcugccug auuagcaca guuaauucag aagccaucgu ccugcgguga augcgcuuac 180
ucugaagccg ccggaugcca uaacccgcgc uugagccuac gggucgcgc aaguaagcuc 240
cguacauuca ugcccaggcg ggugugcgcg uaaccaaucg ggauaaggcg acgaacgcug 300
cuggcggugu aaucggacca cgaaaaacca accaccagag augagugugg uaacugcauc 360
gagcaguguc cuggacgcgg guucaagucc ogccaucucc acca 404

```

<210> 25

<211> 294

[0009]

<212> DNA

<213> *Cyanophora paradoxa* (藻类) 蓝色小体

<400> 25

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gttctatctc gaaaatcaag aactctcaaa atttaaagc aactaatatt gtacgtttta 120
accgtaaage agctttcgct gtttaataat tacttttaat ttaaaaacct aattttttta 180
ggaatttatt tatttatgtt ttatcctgct taatgaatta aaaaaagcta tacttgtgaa 240
taaacgcata atttaaaaaa acggacgtgg gticaaatcc caccagctcc acca      294

```

<210> 26

<211> 294

<212> RNA

<213> *Cyanophora paradoxa* (藻类) 蓝色小体

<400> 26

```

ggggcuguuu agguuucgac guuuuuuuu aauuauguuu guuaagcaag ucgaggauuu 60
guucuaucuc gaaaaucaag aacucucaaa auuuuaaagc aacuaauuu guacguuuua 120
accguaaage agcuuucgcu guuuuaauau uacuuuuuau uuaaaaaacc aauuuuuuuu 180
ggaauuuuuu uauuuuungu uuauccugcu uaauaauua aaaaaagcua uacuugugaa 240
uaaacgcuaa auuuuaaaaa acggacgugg guucaaaucc caccagcucc acca      294

```

<210> 27

<211> 189

<212> DNA

<213> *Clostridium acetobutylicum*

<400> 27

```

aatctggcgt cgagagcggg gaaacgagcc ttacaaagct ttgagtaagg aacggaattt 60
atgaagctac tgaagtgaag agcttgittg taggcgttct atggagggaa tgttaaaata 120
caaactgcac tcggagatgc ttaatgaaac cattttcgga caggggttcg attccctcgc 180
ctccacca

```

<210> 28

<211> 189

<212> RNA

<213> *Clostridium acetobutylicum*

<400> 28

```

aauucggcgu cgagagcggg gaaacgagcc uuacaaagcu uugaguaagg aacggaauuu 60
augaagcuac ugaagugaaa agcuuguuug uagcgguuuc auggagggaa uguuuaaaua 120
caaacugcac ucggagauge uuaaugaaac cauuuucgga cagggguucg auuucccucg 180
ccuccacca

```

[0010]

<210> 29

<211> 349

<212> DNA

<213> *Deinococcus radiodurans*

<400> 29

```

gggggtgacc cggtttcgac aggggaactg aaggtgatgt tgcgtgtcga ggigccgttg 60
gcctcgtaaa caaacggcaa agccatttaa ctggcaacca gaactacgct ctgcctgctt 120
aagtgagatg acgaccgtgc agcccggcct ttggcgtcgc ggaagtcact aaaaaagaag 180
gctagcccag gcgattotcc atagccgacg gcgaaacttt atggagctac ggctcgcgag 240
aacctgceca etggtgagcg ccggcccgac aatcaaacag tgggatacac acgtagacgc 300
acgtcggacg gacctttgga cggcggttcg actccgceca cctccacca 349

```

<210> 30

<211> 349

<212> RNA

<213> *Deinococcus radiodurans*

<400> 30

```

gggggugacc cgguuucgac aggggaacug aaggugaugu ugcgugucga ggugccguug 60
gccucguaaa caaacggcaa agccauuuuaa cuggcaacca gaacuacgcu cugcugcuu 120
aagugagaug acgaecgugc agcccggccu uuggcguogc ggaagucacu aaaaaagaag 180
gcuagcccag gcgaucucc auagccgacg gcgaaacuuu auggagcuac ggccugcgag 240
aaccugceca cuggugagcg ccggcccgac aaucaaacag ugggauacac acguagacgc 300
acgcuggacg gaccuuugga cggcgguucg acuccgceca ccuccacca 349

```

<210> 31

<211> 330

<212> DNA

<213> *Desulfovibrio desulfuricans*

<400> 31

```

gggactggaa ccgtagegge aggtcgagge gccgtggccc tcgtaaaaag cggcacaaaa 60
gtaattgcca acaacgatta cgactacgct tacgtgcct aataacagcg aggcattgac 120
cgittaacgg tegegcegat cagggccatg cctgataacc ctgattggcg acacttatea 180
ggetggcgaa aaccggetct cgcgggggtt ttctcgaggg agtttaccgg cgggattgct 240
gcgttgtgcc tggtcagggg ccaacagegc ggtgaaatac atacttgacc taaacctgta 300
atgcttcgtg tggaatgttc tcggacgggg
330

```

<210> 32

<211> 330

<212> RNA

<213> *Desulfovibrio desulfuricans*

[0011]

<400> 32

gggacuggaa ccguagcggc agguccagge gccgcuggcc ucguaaaaag cggeacaaaa 60
 guaaauugcca acaacgauua cgacuacgcu uacgcugccu aaauacagcg aggcaaugac 120
 cguuuuaacgg ucgcgcgcu cagggccaug ccugauaacc cugauuggcg acacuuauca 180
 ggcuggcgaa aaccggcucu cgcggggguu uuucgcgagg aguuuacggc cgggauugcu 240
 gcguuguccc uggucagggg ccaacagcgc ggugaaaaua auacuugacc uaaaccugua 300
 augcuucgug uggaauguuc uggacggggg 330

<210> 33

<211> 318

<212> DNA

<213> *Dichelobacter nodosus*

<400> 33

ctcgagggtc atgtcgagaa tgagagaate tcgttaaata ctttcaaac ttatagttgc 60
 aaacgacgac aactacgctt tagcggctta attcccgctt tcgcttacct agatttgtct 120
 gtgggtttac cgtaacgac attaacacag aatcgctggt taacgcgtcc gctgttaate 180
 ggttaaatta agcggaatcg cttgtaaaat gcctgagcgt tggctgttta tgagttaaac 240
 etaattaact gctctaaaca tgtagtacca aaagttaagg attcgcggac gggggttcaa 300
 atccccccgc ctccacca 318

<210> 34

<211> 318

<212> RNA

<213> *Dichelobacter nodosus*

<400> 34

cuagaggugc augucgagaa ugagagaauu ucguuaaaua cuuucaaac uuauaguugc 60
 aaacgacgac aacuaacguu uagcggcuua auuuccgcuu ucgcuuaccu agauuugucu 120
 guggguuuac cgtaacgac auuaacacag aaucgcuggu uaacgcgtcc gcuguuaauu 180
 gguuaaaaua agcggaaucg cuuguaaaau gccugagcgu uggcuguuuu ugaguuaaac 240
 cuaauuaacu gcucuaaaca uguaguacca aaaguuaagg auucgcggac ggggguucaa 300
 auccccccgc cuccacca 318

<210> 35

<211> 367

<212> DNA

<213> *Enterococcus faecalis*

<400> 35

gggggcgita cggattcgac aggcatagtt gagcttgaat tgcgtttcgt aggttaocgc 60
 tacgttaaaa cgttacagtt aaatataact gctaaaaacg aaaacaattc tttegcctta 120
 gctgcctaaa aaccagctag cgaagatcct cccggcateg cccatgtget cgggtcaggg 180
 tccataatga agtgggatac gctaaatttt tccgtctgta aaatttagag gagcttacea 240

[0012]

gactagcaat acagaatgcc tgtcactegg cacgetgtaa agegaacctt taaatgagtg 300
 tctatgaacg tagagattta aglggcaata tgtttggacg cgggttcgac tcccgcgcgc 360
 tccacca 367

<210> 36

<211> 367

<212> RNA

<213> Enterococcus faecalis

<400> 36

gggggcguua cggauucgac aggcuuaguu gagcuugaau ugcguuucgu agguuacggc 60
 uacguuaaaa cguuacaguu aaauuaaacu gcuaaaaaacg aaaacaauuc uuucguuuua 120
 gcugccuaaa aaccagcuag cgaagaucuu cccggaucg cccaugugcu cgggucaggg 180
 uccuaaucga agugggauac gcuaaaauuu uccgucugua aaauuuagag gacuuacca 240
 gacuagcaau acagaatgcc ugucacucgg cacgcuguaa agcgaaccuu uaaugagug 300
 ucuaugaacg uagagauuaa aguggcauaa uguuuggacg cggguucgac ucccgcgcgc 360
 uccaeca 367

<210> 37

<211> 363

<212> DNA

<213> Escherichia coli

<400> 37

ggggctgatt ctggattcga cgggatttgc gaaacccaag gtgcatgcgc aggggcgggt 60
 ggctctgtaa aaagccgcaa aaaatagtcg caaacgacga aaactacgct ttagcagctt 120
 aataacctgc ttagagccct ctctccctag cctccgctct taggacgggg atcaagagag 180
 gtcaaaccca aaagagatcg cgtggaagcc ctgcctgggg ttgaagcgtt aaaacttaat 240
 caggctagtt tgttagtggc gtgtccgtcc gcagctggca agegaatgta aagactgaat 300
 aagcatgtag taccgaggat gtaggaattt cggacgcggg ttcaactccc gccagctcca 360
 cca 363

<210> 38

<211> 363

<212> RNA

<213> Escherichia coli

<400> 38

ggggcugauu cuggauucga cgggauuugc gaaacccaag gūgcūgccc aggggcgguu 60
 ggccucguua aaagccgcaa aaaauagucg caaacgacga aaacuaacgu uuagcagcuu 120
 aaauaccucg uuagagcccu cucuccuag ccucgcucu uaggacgggg aucaagagag 180
 gucaaaccca aaagagaucg cūgūgaagcc cūgcūggggg uūgaagcguu aaacuuuau 240
 caggcuaguu uguuaguggc guguccguc gcagcuggca agegaugua aagacugacu 300
 aagcauguag uaccgaggau guaggauuuu cggacgcggg uucaacuccc gccagcucca 360

[0013]

cca 363

<210> 39

<211> 366

<212> DNA

<213> Haemophilus influenzae

<400> 39

```
ggggctgatt ctggattcga cgggattagc gaagcccaag gtgcacgtcg aggtgcggta 60
ggcctcgtaa ataaaccgca aaaaaatagt cgcaaacgac gaacaatacg cttagcagc 120
ttaataacct gcatttagcc ttcgcgtccc agcttceget cgtaagacgg ggataacgcg 180
gagtcaaaacc aaaacgagat cgtgtggaag ccaccgttgg aggategaag cactaaattg 240
aatcaaaacta gcttaagttt agcgtgtctg tccgcattgct taagtgaat taaagacgag 300
actaaacgtg tagtactgaa ggtagagtaa ttctggacgg gggttcaact cccccagct 360
ccacca 366
```

<210> 40

<211> 366

<212> RNA

<213> Haemophilus influenzae

<400> 40

```
ggggcugauu cuggauucga cgggauuagc gaagcccaag gugcacgucg aggugcggua 60
ggccucguua auaaaccgca aaaaaauagu cgcaaacgac gaacaauacg cuuuagcagc 120
uuauuaaccu gcauuuagcc uucgcgcucc agcuuccgcu cguaagacgg ggauaacgcg 180
gagucaaaacc aaaacgagau cguguggaag ccaaccguug aggaucgaag cacuaaaauug 240
aaucaaaacua gcuaaaguuu agcgugucug uccgcaugcu uaagugaaau uaaagacgag 300
acuaaacgug uaguacugaa gguagaguua uuucggacgg ggguucaacu cccccagcu 360
ccacca 366
```

<210> 41

<211> 340

<212> DNA

<213> Helicobacter pylori (ATC 43504)

<400> 41

```
agatttcttg tgcgcagat agcatgccaa gcgctgettg taaaacagca acaaaaataa 60
ctgtaaacaa cacagattac gctccagctt acgctaaagc tgcgtgagtt aatctctttt 120
tggagetgga ctgattagaa ttcttagcgt tttaatcgct ccataacctt aagctagacg 180
cttttaaaag gtggttcgcc ttttaacta agaaacaaga actcttgaaa ctatcttaag 240
gttttagaaa gttggaccag agctagtttt aaggctaaaa actaaccaat ttcttaagca 300
ttgtagaagt ttgtgtttag ggcaagattt ttggaactggg 340
```

<210> 42

[0014]

<211> 340

<212> RNA

<213> *Helicobacter pylori* (ATC 43504)

<400> 42

```

agauuuuuug ucgcgcagau ageaugccaa gcgcugcuug uaaaacagca acaaaaaaua 60
cuguaaacia cacagauuac gcuccagcuu acgcuaaage ugegugaguu aaucuccuuu 120
uggagcugga cugauuagaa uuucuaagcu uuuaaalcgu ccauaacctu aagcuagacg 180
cuuuuaaaag gugguucgc uuuaaaacua agaaacaaga acucuugaaa cuaucuuaag 240
guuuuagaaa guuggaccag agcuaguuuu aaggcuaaaa acuaaccaau uuucuaagca 300
uuguagaagu uuguguuuag ggcaagauuu uggacuggg 340

```

<210> 43

<211> 386

<212> DNA

<213> *Helicobacter pylori* (菌株 26695)

<400> 43

```

ggggtgact tggatttcca cagatttett gtcgcacaga tagcatgcca agcgtgctt 60
gtaaaacage aacaaaaata actgtaaaca acacagatta cgtccagct tacgctaaag 120
ctgctgtagt taatctcett ttggagctgg actgattaga atttctagcg ttttaatcgc 180
tccataacct taagctagac gcttttaaaa ggtggttcgc cttttaacct aagaacaag 240
aacctctgaa actatctcaa ggttttagaa agttggacca gagctagttt taaggetaaa 300
aaaccaacca attttetaag cattgtagaa gtttgtgttt agggcaagat ttttgactg 360
gggttcgatt cccacagct ccacca 386

```

<210> 44

<211> 386

<212> RNA

<213> *Helicobacter pylori* (菌株 26695)

<400> 44

```

ggggcugacu uggauuuca cagauuuuuu gucgcacaga uagcaugcca agcgcugcuu 60
guaaaacage aacaaaaaua acuguaaaca acacagauua cgcuccagcu uacgcuaaag 120
cugcgugagu uaauccuccu uuggagcugg acugauuaga auuucuaagc uuuaaalcgc 180
uccauaaceu uaagcuagac guuuuuuaaa ggugguucgc cuuuuaaacu aagaacaag 240
aacucuugaa acuaucucua gguuuuagaa aguuggacca gagcuaguuu uaaggcuaaa 300
aaaccaacca auuuucuaag cauuguagaa guuuguguuu agggcaagau uuuggacug 360
ggguucgauu cccacagcu ccacca 386

```

<210> 45

<211> 312

<212> DNA

<213> *Klebsiella aerogenes* (NCTC 9528)

[0015]

<400> 45

```

gggattcgcg aaacccaagg tgcattgcega ggggcgggttg gctcgtaaa aagccgcaaa 60
aaaatagtcg caaacgacga aaactacgct ttagcagett aataacctgc taagagccct 120
ctctccctag ctcccgctcc taagacgggg aataaagaga ggtcaaacc aaagagate 180
gcgtaggaagc cctgcctggg gttgaagcgt taaaactaat caggetagtt tgtcagtggc 240
gtgtccgtec gcagctggcc agcgaatgta aagactggac taageatgta gtgccgagga 300
tgtaggaatt tc                                     312

```

<210> 46

<211> 312

<212> RNA

<213> *Klebsiella aerogenes* (NCTC 9528)

<400> 46

```

gggaauucgcg aaacccaagg ugcaugcega ggggcggguug gccucguaaa aagccgcaaa 60
aaaauagucg caaacgacga aaacuacgcu uuagcagcuu aauaaccugc uaagagcccu 120
cucucccuag cuuccgcucc uaagacgggg aaauaagaga ggucaaacc aaagagaucc 180
gcguggaagc ccugccuggg guugaagcgu uaaaacuaau cagguaguu ugucaguggc 240
guguccgucc gcagcuggcc agcgaugua aagacuggac uaagcaugua gugccgagga 300
uguaggaaau uc                                     312

```

<210> 47

<211> 316

<212> DNA

<213> *Lactobacillus lactis* (NCTC 662)

<400> 47

```

aagcacagtt cgagcttgaa ttgcgttcg taggttaegt ctacgttaa acgttacagt 60
taaataaac tgctaaaaac gaaaacaact cttacgttt agctgcctaa aaacagttag 120
cgtagatcct ctcggcatcg cccatgtgct cgagtaaggg tctcaaattt agtgggatac 180
gttaaaacttt tccgtctgta aagtttaaaa gagatcatca gactagegat acagaatgcc 240
tgtcactcgg caagctgtaa agcgaacact caaatgagtt gactatgaac gtagatTTTT 300
aagtgtcgat gtgttt                                     316

```

<210> 48

<211> 316

<212> RNA

<213> *Lactobacillus lactis* (NCTC 662)

<400> 48

```

aagcacaguu cgagcuugaa uugcguuucg uagguuacgu cuacguuaaa acguuacagu 60
uaauuuuuaac ugcuaaaaac gaaaacaacu cuuacguuuu agcugccuaa aaacaguuag 120
cguagauccu cucggcaucg eccaugugcu cgaguaaggg ucucuaauuu agugggauac 180

```

[0016]

guuaaacuuu uccgucugua aaguuaaaaa gagaucauca gacuagcgau acagaauGCC 240
 ugucacucgg caagcuguaa agcgaaccu caaagaguu gacuaugaac guagauuuuu 300
 aagugucgau guguuu 316

<210> 49

<211> 362

<212> DNA

<213> Legionella pneumophila

<400> 49

gtgggttgca aaaccggaag tgcatgccga gaaggagatc tctcgtaaatt aagactcaat 60
 taaatataaa tgcaaacgat gaaaactttg ctggtgggga agctatcgct gcctaataag 120
 cacttttagtt aaaccatcac tgtgtactgg ccaataaacc cagtatcccg ttcgaccgag 180
 cccgcttate ggtatcgaat caacggtcct aagagataag ctagegtcct aatctatccc 240
 gggttatggc gcgaaactca gggaaatcgct gtgtatcacc ctgcccgtcg gaggagccac 300
 agttaaattc aaaagacaag gctatgcctg tagagctaaa ggcagaggac ttgcggacgc 360
 gg 362

<210> 50

<211> 362

<212> RNA

<213> Legionella pneumophila

<400> 50

guggguugca aaaccggaag ugcagccga gaaggagauc ucucguaaau aagacuaaau 60
 uaaaaauaaa ugcaaacgau gaaaacuuug cuggugggga agcuaucgu gccuaauaag 120
 cacuuuaguu aaaccaucac uguguacugg ccauuuaacc caguaucccg uucgaccgag 180
 cccguuauc gguaucgaau caacggucuu aagagauaag cuagcguccu aaucuaucac 240
 ggguuauagg gcgaaacuca gggaaucgu guguaucac cugcccgucc gaggagccac 300
 aguuuuuuuc aaaagacaag gcuaugcaug uagagcuaaa ggcagaggac uugcgacgc 360
 gg 362

<210> 51

<211> 322

<212> DNA

<213> Listeria grayi

<400> 51

acagggatag gtcgagcttg agttgcgagc cgggggggac ggcccgctcat caacgtcaaa 60
 gccataata actggcaaac aaaacaacaa tttagctttc gctgcctaat agcagtetga 120
 atagctgate ctccgtgcat caccatgtg ctacgtaag ggtctcaatt ttaagtgggt 180
 tacgtgtgct tatctccgtc tggggcaaac gagaagagca taatagact agctagatag 240
 agccctgacg ccgggcagac atctatgaga aatccaaata cggcaactac gctcgtatag 300
 gctcaagtgc cgatatttct gg 322

[0017]

<210> 52

<211> 322

<212> RNA

<213> *Listeria grayi*

<400> 52

```

acagggaatag gacagagcuug aguuigcagac cgggggggaaic ggcccgcuaui caacgucaaa 60
gccaaauaau acuggcaaac aaaacaacaa uuuaagcuuuc gcugccuaau agcagucuga 120
auagcugauc cuccgugcau caccgaugug cuacgguaag ggucucacuu uuaagugggu 180
uacgcuggcu uaucuccguc uggggcaaac gagaagagca uaaucagacu agcuagauag 240
agcccugacg cgggcagac aucuaugcga aaucacaaau cggcaacuac gcucguagau 300
gcucaagugc cgauuuuucu gg 322

```

<210> 53

<211> 322

<212> DNA

<213> *Listeria innocua*

<400> 53

```

acagggatag ttcagcttg agttgcgagt cgggggggac gtccctgtta tcaacgtcaa 60
agccaataat aactggcaaa gaaaaacaaa acctagcttt cgtgcctaa taagcagtag 120
catagctgat cctccgtga tcgccatgt gtacggtaa ggtctcact ctaagtgggc 180
tacactagtt aatctccgc tgaggttaaa tagaagagct taatcagact agctgaatgg 240
aagcctgtta ccgggctgat gtttatgca aatgctaata cggtgactac gctcgtagat 300
attcaagtgc cgatatttct gg 322

```

<210> 54

<211> 322

<212> RNA

<213> *Listeria innocua*

<400> 54

```

acagggauag uucgagcuug aguugcgagu cgggggggac guccueguua ucaacgucaa 60
agccaauaau aacuggcaaa gaaaaacaaa accuagcuuu cgcugccuaa uaagcaguag 120
cauagcugau ccuccguga ucgcccaugu gcuacgguaa ggguccacu cuaagugggc 180
uacacuaguu aaucuccguc ugagguuaaa uagaagagcu uaaucagacu agcugaauag 240
aagccuguaa ccgggcugau guuuauugca aaugcuaaua cggugacuac gcucguagau 300
auucaagugc cgauuuuucu gg 322

```

<210> 55

<211> 322

<212> DNA

<213> *Listeria monocytogenes* (NCTC 7973)

[0018]

<400> 55

acagggatag ttcgagcttg agttgcgagt cgggggggac gtccctcgta tcaacgtcaa 60
 agccaataat aactggcaaa gaaaaacaaa acctagcttt cgtgcctaa taagcagtag 120
 catagetgat cctccgtgca tgcgccatgt gctacggtaa gggctcact ctaagtgggc 180
 tacactagtt aatctcgtc tgggggttaa tagaagagct taatcagact agctgaatgg 240
 aagcctgtta cgggcegat gtttatgca aatgctaata cggtgactac gctcgtagat 300
 atttaagtgc cgatatttct gg 322

<210> 56

<211> 322

<212> RNA

<213> *Listeria monocytogenes* (NCTC 7973)

<400> 56

acagggaatg ttcgagcctg agttgcgagt cgggggggac gtccctcgta tcaacgtcaa 60
 agccaataat aacuggcaaa gaaaaacaaa accuagcuaa cgcugcuaa uaagcaguag 120
 cauagcugau ccuccgugca ucgcccaugu gcuacgguaa gggucucacu cuaagugggc 180
 uacacuaguu aaucuccguc ugggguuuaa uagaagagcu uaaucagacu agcugaaugg 240
 aagccuguaa ccgggcegan guuaugcga aaugcuaaia cggugaenac gcucguagau 300
 auuuuagugc cgauuuuucu gg 322

<210> 57

<211> 247

<212> DNA

<213> *Listeria monocytogenes* (NCTC 11994)

<400> 57

caaagccaat aataactggc aaagaaaaac aaaacctagc ttctcgtgcc taataagcag 60
 tagcatagct gatctccgt gcctgcacca tgtgtacagg taagggtctc actctaagtg 120
 ggctacacta gttaactctc gtctgggggt aaatagaaga gcttaatcag actagetgaa 180
 tggaagcctg ttaccgggcc gatgtttatg cgaaatgcta atacggtgac tacgctcgta 240
 gatattt 247

<210> 58

<211> 247

<212> RNA

<213> *Listeria monocytogenes* (NCTC 11994)

<400> 58

caaagccaau aaauacuggc aaagaaaaac aaaaccuagc uuucgcugcc uaauaagcag 60
 uagcauagcu gaucuccgu gcaucgcca ugugcuacgg uaagggucc acucuaagug 120
 ggcuacacua guuaaucucc gucugggguu aaauagaaga guuaaucag acuagcugaa 180
 uggaagcug uuaccgggcc gauguuuuug cgaaauagcu auacggugac uacgcucgua 240

[0019]

gauauuu 247

<210> 59

<211> 322

<212> DNA

<213> *Listeria murrayi*

<400> 59

```
acagggatag ttcgagcttg agttgcgagt cgggggggac gtcctcgtaa tcaacgtcaa 60
agccaataat aactggcaaa gaaaaacaaa acctagcttt cgtgcctaa taagcagtag 120
catagctgat cctccgtgca tcgcccatgt gctacggtaa gggctcact ctaagtgggc 180
tacactagtt aatctccgtc tgagggttaa tagaagagct taatgagact agctgaatgg 240
aagcctgtta cgggctgat gtttatgca aatgctaata cggtgactac gctcgtagat 300
attcaagtgc cgatatttct gg 322
```

<210> 60

<211> 322

<212> RNA

<213> *Listeria murrayi*

<400> 60

```
acagggauag uucgagcuug aguugcgagu cgggggggac guccucguua ucaacgucaa 60
agccaauaau aacuggcaaa gaaaaacaaa accuagcuuu cguugcuuaa uaagcaguag 120
cauagcugau ccuucgugca ucgcccaugu gcuacgguaa gggucucacu cuaagugggc 180
uacacnaguu aaucucguc ugagguaaaa uagaagagcu uaangagacu agcugaangg 240
aagcuguaa cgggcuugau guuuauugca aaugcuuaata cggugacuac gcucguagau 300
auucaagugc cgauuuucu gg 322
```

<210> 61

<211> 322

<212> DNA

<213> *Listeria welshimeri*

<400> 61

```
acagggatag ttcgagcttg agttgcgagt cgggggggac gtcctcgtaa tcaacgtcaa 60
agccaataat aactggcaaa gaaaaacaaa acctagcttt cgtgcctaa taagcagtag 120
catagctgat cctccgtgca tcgcccatgt gctacggtaa gggctcact ctaagtgggc 180
tacactggtt aatctccgtc tgagggttagt tggaagagct taatcagact agctgaatgg 240
aagcctgtta cgggcccgat gtttatgca aatgctaata cggtgactac gctcgtagat 300
atttaagtgc cgatatttct gg 322
```

<210> 62

<211> 322

<212> RNA

[0020]

<213> *Listeria welshimeri*

<400> 62

```
acagggauag uucgagcuug aguugcgagu cgggggggaur guccucguua ucaacgucaa 60
agccauuaau aacuggc aaa gaaaaacaaa accuagcuuu cgcugccuaa uaagcaguag 120
cauagcugau ccucgcugca ucgcuccaugu gcuaagguaa gggucucacu cuaagugggc 180
uacacuggeu aaucucguc ugagguuagu uggaagagcu uaaucagacu agcugaugg 240
aagccuguaa ccgggcgcu guuuauugca aaugcuaua cggugacuaa gcucguagau 300
auuuagugc cgauuuuuc gg 322
```

<210> 63

<211> 322

<212> DNA

<213> *Marinobacter hydrocarbonoclasticus*

<400> 63

```
gccggtgacg aaccettggg tgcattgcca gatggcagcg aatctcgtaa atccaaagct 60
gcaacgtaat agtcgcaaac gacgaaaact acgcactggc ggcgtaagcc gtccagtcg 120
tccgtgctga ggcgcctata actcagtagc aacatccag gacgcatcg ctataggt 180
gtccgttca ccagagctca ctggtgttcg gctaagatta aagagctcg ctcttgacc 240
ctgacctcg ggtcgttga ggttaaatca atagaaggac actaagcatg tagacctca 300
ggcctagtgc tggcggacgc gg 322
```

<210> 64

<211> 322

<212> RNA

<213> *Marinobacter hydrocarbonoclasticus*

<400> 64

```
gccggugacg aaccuuggg ugcugcgca gauggcagcg aaucucguua auccaaagcu 60
gcaacguauu agucgcaaac gacgaaaacu acgcacuggc ggcguaagcc guuccagucg 120
uccuggcuga ggcgcuaaua acucaguagc aacauccag gacgucaucg cuuauagcu 180
gcuccguuca ccagagcuca cugguguucg gcuagaaua aagagcucgc cucuugcacc 240
cugaccuucg ggucgcuuga gguuaauca auagaaggac acuaagcag uagaccucaa 300
ggcuagugc uggcggacgc gg 322
```

<210> 65

<211> 338

<212> DNA

<213> *Mycobacterium avium*

<400> 65

```
ttegcgcate gaatcaagg aagcgtgcc gtgcaggcaa ctgaccacc taagegtcgt 60
tgcaaataga taagcgcca ttacatcag cgcgacttac ctctcgtgc ctaagcgaca 120
```

[0021]

gctagtcctg cagcccgga acgcccetga cccggagcct ggctcagct agagggatcc 180
accgatgagt tcggtcgagg gactcatcgg gacaccaaca gcgactggga tcgtcactct 240
ggcctgttcg cgtgaccagg agatccgagt agaggcalag cgaactgcgc acggagaagc 300
cttgaggga tgcctagaa cccgggttcg attcccaa 338

<210> 66

<211> 338

<212> RNA

<213> *Mycobacterium avium*

<400> 66

uucgcgauc gaaucaagg aagcgugccg gugcaggcaa cugaccaccg uaagcgucgu 60
ugcaauaga uaagcgccga uucacaucag cgcgacuac cucucgucg cuaagcgaca 120
gcuagucgu cagcccgga acgcccucga cccggagccu ggcgucagcu agagggaucc 180
accgaugagu ucggucgagg gacucaucgg gacaccaaca gcgacuggga ucgucauccu 240
ggcuuguucg cgugaccagg agauecgagu agaggcauag cgaacugcgc acggagaagc 300
cuugaggga ugcguagaa cccggguucg auucccaa 338

<210> 67

<211> 318

<212> DNA

<213> *Mycobacterium bovis*

<400> 67

ttcgcgcatc gaatcaagg aagcgtgccc gtgcaggcaa gagaccaccg taagcgtcgt 60
tgcgacaaa taagcgccga ttcacatcag cgcgactacg tctcgtgccc taagcgacgg 120
ctagtctgtc agaccggga cgcctcggc cggaccctg gcatcagcta gagggatcca 180
ccgatgagtc cggtcgggg actcctcggg acaaccacag cgactgggat cgtcatctcg 240
gctagtctgc gtgaccggga gatccgagca gaggcatagc gaactgcgca cggagaagcc 300
ttgagggaat gccgtagg 318

<210> 68

<211> 318

<212> RNA

<213> *Mycobacterium bovis*

<400> 68

uucgcgauc gaaucaagg aagcgugccg gugcaggcaa gagaccaccg uaagcgucgu 60
ugcgacaaa uaagcgccga uucacaucag cgcgacuac ucucgucgc uaagcgacgg 120
cuagucuguc agaccggga cgcctcggc cggaccctg gcaucagcua gagggaucca 180
ccgaugaguc cggucgagg acuccucggg acaaccacag cgacugggau cgucaucucg 240
gcuaguucgc gugaccggga gauecgagca gaggcatagc gaacugcgca cggagaagcc 300
uugagggaau gccguagg 318

[0022]

<210> 69

<211> 369

<212> DNA

<213> *Mycobacterium leprae*

<400> 69

```

ggggetgaaa ggttttegact tgcgcatecg aatcaaggga agcgtgecgg tgcaggcaag 60
agaccaccgt aagcgtcggt gcagcaatat aagcgcgat tcatatcage gcgactatgc 120
tctcgtgccc taagcgatgg ctagtctgtc agaccgggaa cgcctcgtc ccggagcctg 180
gcateagcta gagggatcta ccgatgggtt cggtcgctgg actcgtcggg acaccaaccg 240
cgactgggat cgtcactctg gctagtctgc gtgatcagga gatccgagta gaggcatagc 300
gaactacgca cggagaagcc ttgagggaaa tgccgtagga cccgggttcg attcccggea 360
gtccacca                                     369

```

<210> 70

<211> 369

<212> RNA

<213> *Mycobacterium leprae*

<400> 70

```

ggggcugaaa gguuucgacu ucgcgcaucg aaucaggga agcgugccgg ugcaggcaag 60
agaccaccgu aagcgucguu gcagcaauau aagcgcgau ucuaucage gcgacuagc 120
ucucgcugcc uaagcgaugg cuagucuguc agaccgggaa cgcctcugc ccggagcug 180
gcaucagcua gagggauca ccgauggguu cggucgcggg acucgucggg acaccaaccg 240
cgacugggau cgucauccug gcuaguucgc gugaucagga gaucgagua gaggcuaagc 300
gaacuacgca cggagaagcc uugagggaaa ugccguagga cccggguucg auucccggea 360
gcuccacca                                     369

```

<210> 71

<211> 338

<212> DNA

<213> *Mycobacterium paratuberculosis*

<400> 71

```

ttcgcgcate gaatcaaggg aagcgtgccc gtgcaggcaa ctgaccaccg taagcgtcgt 60
tgcaaataga taagcgcga ttacatcag cgcgacttac ctctcgtgc ctaagcgaca 120
gctagtccgt cagcccgga acgcctcga cccggagcct ggcgtcagct agagggatec 180
accgatgagt tcggtcgcgg gactcctgg gacaccaaca gcgactggga tcgtcactct 240
ggcttggttc cgtgaccagg agatccgagt agaggcatag cgaactgcgc accgagaagc 300
cttgagggaa tgccgtagaa cccgggttcg attcccaa                                     338

```

<210> 72

<211> 338

<212> RNA

[0023]

<213> *Mycobacterium paratuberculosis*

<400> 72

```

uucgcgcuauc gaaucaaggg aagcgugccg gugcaggcaa cugaccaccg uaagcgucgu 60
ugcaaaauaga uaagcgccga uucacaucag cgcgacuuac cucucgcugc cuaagcgaca 120
guuagucugu cagcccggga acgccucga cccggagccu ggcgucagcu agagggaucc 180
accgaugagu ucggucgcgg gacucaucgg gacaccaaca ggcacuggga ucgucauccu 240
ggcuuguuug cguagaccag gaauccgagu agaggcauag cgaacugcgc acggagaagc 300
cuugagggaa ugccguagaa cccggguucg auucccaa 338

```

<210> 73

<211> 368

<212> DNA

<213> *Mycobacterium tuberculosis*

<400> 73

```

ggggctgaac ggtttcgact tcgcgcacgc aatcaaggga agcgtgccgg tgcaggcaag 60
agaccaccgt aagcgtegtt gcgaccaaat aagcgccgat tcacatcagc gcgactacgc 120
tctcgtctgc taagcgacgg ctagctgttc agaccgggaa cgcctcggc cggaccctg 180
gcatcagcta gagggatcca ccgatgagtc cggtcgcggg actcctcggg acaaccacag 240
cgactgggat cgtcatctcg gctagtgcgt gtgaccggga gatecgagca gaggcatagc 300
gaactgcgca cggagaagcc ttgagggaat gccgtaggac cggggttcga ttcccggeag 360
ctccacca 368

```

<210> 74

<211> 368

<212> RNA

<213> *Mycobacterium tuberculosis*

<400> 74

```

ggggcugaac gguuucgacu ucgcgcacug aaucaggga agcgugccgg ugcaggcaag 60
agaccaccgu aagcgucguu gcgaccaaau aagcgccgau ucacaucagc gcgacuacgc 120
ucucgcugcc uaagcgacgg cuagucuguc agaccgggaa cgcctcggc cggaccctg 180
gcaucagcua gagggaucca ccgaugaguc cggucgcggg acuccucggg acaaccacag 240
cgacugggau cgucaucug gcuaguucgc gugaccggga gaucgagca gaggcauagc 300
gaacugcgea cggagaagcc uugagggaau gccguaggac cggguucga uucccggeag 360
cuccacca 368

```

<210> 75

<211> 411

<212> DNA

<213> *Mycoplasma capricolum*

<400> 75

[0024]

```

ggggatgtea tggatttgac aggatatett tagtacatat aagcagtagt gttgtagact 60
ataaatacia ctagggtltaa aaaaacgcaa ataaaaacga agaaactttt gaaatgccag 120
catttatgat gaataatgca tcagctggag caaactttat gtttgcctaa taactactag 180
tttagttata gtatttcacg aattatagat attttaaget ttatttataa ccgtattacc 240
caagcttaat agaataatg attgcaataa atatatttga aatctaattg caaatgatat 300
ttaaccttta gttaatatta gttaaatatt ttaattagaa aattaactaa actgtagaaa 360
gtatgtatta atatatettg gacgcgagtt cgattctcgc catctccacc a 411

```

<210> 76

<211> 411

<212> RNA

<213> Mycoplasma capricolum

<400> 76

```

ggggauguea uggauuugac aggauaucuu uaguacauau aagcaguagu guuguagacu 60
auaaaauacia cuagguuuua aaaaacgcaa auaaaaacga agaaacuuuu gaaaugccag 120
cauuuugau gaauaauuca ucagcuggag caaacuuuau guuugcuuaa uaacuacuag 180
uuuaguuuaa guauuucacg aauuauagau auuuuaagcu uuauuuuaa ccguauuacc 240
caagcuuaau agaauauaug auugcaauaa auauuuuga aaucuaauug caaauugauu 300
uuacccuuua guuaauuuua guuaauuauu uuaauuagaa aaauaacuaa acuguagaaa 360
guanguauua auauaucuug gacgcgaguu cganucucgc caucuccacc a 411

```

<210> 77

<211> 388

<212> DNA

<213> Mycoplasma genitalium (ATCC 33530, #1)

<400> 77

```

ggggatgttt tgggtttgac ataatgctga tagacaaaca gtagcattgg ggtatgcccc 60
ttacagcget aggttcaata accgacaaag aaaataacga agtgttggta gaaccaaatt 120
tgatcattaa ccaacaagca agtgtaact ttgcttttgc ataagtagat actaaagcta 180
cagctggiga atagtcatag tttgetagct gtcatagttt atgaactcag gttaaatcgt 240
tcaatttaac ctttaaaaat agaacttggt gtttccatga ttgttttgig atcaattgga 300
aacaagacaa aaatecaca aactaaaatg tagaagctgt ttgtttgtgc ctttatggaa 360
acgggttcga ttecegtcat ctccaeca 388

```

<210> 78

<211> 388

<212> RNA

<213> Mycoplasma genitalium (ATCC 33530, #1)

<400> 78

```

ggggauguuu uggguuugac auaaugcuga uagacaaaca guagcauugg gguaugcccc 60
uuacagcgeu agguucaaua accgacaaag aaauuaacga aguguuggua gaaccaaaau 120

```

[0025]

ugaucuuuaa ccaacaagca aguuuaacu uugcuuuugc auaaguagau acuaaagcua 180
 cagcugguga auagucuuag uuugcuagcu gucauaguuu augacucgag guuaaaucgu 240
 ucauuuuuac cuuuaaaaau agaacuuguu guuuccauga uuuuuuugug aucaauugga 300
 aacaagacaa aaauccacaa aacuaaaaug uagaagcugu uuguuguguc cuuuauugga 360
 acggguucga uueccgucan cuccaacca 388

<210> 79

<211> 243

<212> RNA

<213> Mycoplasma genitalium (ATTC 33530, #2)

<400> 79

acaaagcgaa gacaaacaga gcaggggagc cccacagcgc aggcaaaacc gacaaagaaa 60
 aaacgaaggg gagaccaaag acaaaccaac aagcaaggaa cgcgcaaaga gaacaaagca 120
 cagcgggaaa gcaaggcagc gcaagagacc gaggaaacgc aaaaccacaa aagaacggcc 180
 agagggacaa ggaaacaaga caaaaaccac aaaacaaaag agaagcgggg ccaggaaacg 240
 ggc 243

<210> 80

<211> 350

<212> RNA

<213> Mycoplasma genitalium (ATTC 33530, #2)

<400> 80

acauaaugcu gauagacaaa caguagcauu gggguaugcc ccuuacagcg cuagguucaa 60
 uaaccgacaa agaaaauaac gaaguguugg uagaucacaa uuugaucuu aaccaacaag 120
 caaguguuaa cuuugcuuuu gcauaaguag auacuaaagc uacagcuggu gaauagucan 180
 aguuugcuag cugucuuagu uuauagucg agguuaaauc guucaauua accuuuaaaa 240
 auagaacuug uuuguuccau gauuguuuug ugaucuuug gaaacaagac aaaaauccac 300
 aaaaacuaaaa uguagaagcu guuuguugug uccuuuaugg aaacggguuc 350

<210> 81

<211> 387

<212> DNA

<213> Mycoplasma pneumophila

<400> 81

gggatgtag aggttttgac ataatgttga aaggaaaaca gttgcagtgg ggtatgcccc 60
 ttacagctct aggtataata accgacaaaa ataacgacga agttttggta gatccaatgt 120
 tgategctaa ccaacaagea agtatcaact acgctttcgc ttagaacata cttaaagctac 180
 acgaattgaa tcgccatagt ttggttcgtg tcacagttaa tggctcgggg ttaactggtt 240
 caacttaate cttaaattat gaacttatcg ttacttgtt tgtcttatga tctaaagtaa 300
 gcgagacatt aaaacataag actaaactgt agaagctgtt ttaccaatcc ttatggaaa 360
 cgggttcgat tccgctcgc tccacca 387

[0026]

<210> 82

<211> 387

<212> RNA

<213> *Mycoplasma pneumophila*

<400> 82

```

ggggauguag agguuuugac auaauguuga aaggaaaaca guugcagugg gguaugcccc 60
uuacagcucu agguauaaua accgacaaaa auaacgacga aguuuuggua gauccaangu 120
ugaucgcuaa ccaacaagca aguaucacu acgcuuucgc uuagaacaua cuaaagcuac 180
acgaaungaa ucgccauagu uugguucgug ucacaguuaa uggeucgggg uuaacugguu 240
caacuaaauu cuuaaaauau gaacuaucg uuuacluguu ugucuauga ucuaaaguaa 300
gcgagacauu aaaacauaag acuaaacugu agaagcuguu uuaccaaucc uuuauggaaa 360
eggguuegau uccegucauc uccacca 387

```

<210> 83

<211> 318

<212> DNA

<213> *Neisseria gonorrhoeae* (ATCC 19424)

<400> 83

```

gggggttgeg aagcagatgc gggcataccg ggggtctcaga ttcccgtaaa aactgaatt 60
caaatagtcg caaacgacga aacttacgct ttageccgett aaggetagcc gttgcagcag 120
tcgggtcaatg ggctgtgtgg cgaaagccac cgcaacgtea tcttacattg actggtttcc 180
agccgggtta cttggcagga aataagactt aaggtaactg gtttccaaaa ggccgtgttg 240
tcggcatgat ggaaataaga ttttcaaata gacacaacta agtatgtaga acgctttgta 300
gaggactttc ggacgggg 318

```

<210> 84

<211> 318

<212> RNA

<213> *Neisseria gonorrhoeae* (ATCC 19424)

<400> 84

```

ggggguugcg aagcagaugc gggcuaaccg gggucucaga uucccguaaa acacugaauu 60
caaaauagucg caaacgacga aacuuacgu uuagccgeuu aaggeuagcc guugcagcag 120
ucggucaaug ggcugugugg cgaaagecac cgcaacguca ucuuacauug acugguuucc 180
agccggguua cuuggcagga auaaagacuu aagguaacug guuuccaaaa ggccguuugg 240
ucggcaugau ggaaataaga uuuucaaua gacacaacua aguauguaa acgcuuugua 300
gaggacuuuc ggacgggg 318

```

<210> 85

<211> 363

<212> DNA

[0027]

<213> *Neisseria gonorrhoeae* (FA 1090)

<400> 85

```

gggggcgacc ttggtttcga cgggggttgc gaagcagatg cgggcatacc ggggtctcag 60
attcccgtaa aacactgaat tcaaatagtc gcaaacgacg aaacttacgc tttagccgct 120
taaggetagc cgttcageca gtcggatcaat gggctgtgtg gtgaaagcca cgcgaacgct 180
atcttacatt gactggtttc cagccgggtt acttggcagg aaataagact taaggtaact 240
ggtttccaaa aggcctgttg gtcggcatga tggaaataag attttcaaat agacacaact 300
aagtatgtag aacgctttgt agaggacttt cggacggggg ttgatccccc cccgcttcca 360
cca 363

```

<210> 86

<211> 363

<212> RNA

<213> *Neisseria gonorrhoeae* (FA 1090)

<400> 86

```

gggggcgacc uugguuucga cggggguugc gaagcagaug cgggcacauacc gggguucacg 60
auucccguaa aacacugaau ucaaaauaguc gcaaacgacg aaacuuacgc uuugcccgcu 120
uaaggcuagc cguugcagca gucggucaau gggcugugug gugaaagcca ccgcaacguc 180
aucuuacauu gacugguuuc cagccggguu acuuaggcagg aaauaagacu uaagguaacu 240
gguuuccaaa aggcugugug gucggcauga uggaaauaag auuuucaaau agacacaacu 300
aaguaugaug aacgcuuugu agaggacuuu cggacggggg uucgauuccc cccgcttcca 360
cca 363

```

<210> 87

<211> 363

<212> DNA

<213> *Neisseria meningitidis*

<400> 87

```

gggggcgacc ttggtttcga cgggggttgc gaagcagatg cgggcatacc ggggtctcag 60
attcccgtaa aacactgaat tcaaatagtc gcaaacgacg aaacttacgc tttagccgct 120
taaggetagc cgttcageca gtcggatcaat gggctgtgtg gggaaagcca cgcgaacgct 180
atcttacatt gactggtttc ctgccgggtt atttggcagg aaatgagatt taaggtaact 240
ggtttccaaa aggcctgttg gtcggcatga tggaaataag attttcaaat agacacaact 300
aagtatgtag aacgctttgt agaggacttt cggacggggg ttgatccccc cccgcttcca 360
cca 363

```

<210> 88

<211> 363

<212> RNA

<213> *Neisseria meningitidis*

[0028]

<400> 88

```

gggggcgacc uigguuucga cggggguugc gaagcagaug cgggcuuacc ggggucucag 60
auucccguaa aacacugaau ucaaauguc gcaaacgaag aaacuuacgc uuagccgcu 120
uaaggcuage cguugcagca gucggucaau gggeugugug gcgaaagcca ccgcaaguc 180
aucuuacauu gacugguuuc cugccggguu auuuggcagg aaaugagauu uaagguaacu 240
gguuuuccaaa aggcuguuug gucggcauga uggaauaag auuuucaaau agacacaacu 300
aaguauguag aacguuugu agaggacuuu cggacggggg uucgauuccc cccgcucca 360
cca 363

```

<210> 89

<211> 385

<212> DNA

<213> *Nostoc muscorum* PCC7120

<400> 89

```

gggtccgtcg gtttcgacag gttggcgaac gctactctgt gattcaggtc gagagttagt 60
ctcctctgca aatcaaggct caaaacaaaa gtaaatgcga ataacatcgt taaatttgct 120
cgtaaggacg ctctagtagc tgctaaafa gcctctttea gtttcgagcg tcttcggtt 180
gactecgita aggactgaag accaaccccc aacggatgct ctageaatgt tctctggtt 240
gotttctage taagatttaa tcagagcadc ctacgttcgg gataatgaac gattcccgcc 300
ttgagggtca gaaaggctaa acctgtgaat gagegggggg tcaatacca atttgacag 360
cagttcgact ctctcgatc cacca 385

```

<210> 90

<211> 385

<212> RNA

<213> *Nostoc muscorum* PCC7120

<400> 90

```

ggguccgucg guuucgacag guuggcgaac guuacucugu gauucagguc gagagugagu 60
cuccucugca auucaaggcu caaaacaaaa guaaaugcga auuacaucgu uaaaauugcu 120
cguaaggacg cucuaguagc ugccuaaaau gccucuuuca gguucgagcg ucucggguu 180
gacuccguua aggacugaag accaaccccc aacggauucu cuagcaaugu ucucugguu 240
guuugcuage uaagauuuua ucagagcauc cuacguucgg gauaauaagc gauucccgcc 300
uuagggguca gaaaggcuua accugugaau gagegggggg ucaauacca auuuggacag 360
caguucgauc cugcugauc cacca 385

```

<210> 91

<211> 371

<212> DNA

<213> *Odontella sinensis* (硅藻属)叶绿体

<400> 91

```

ggggctgact tggtttcgac atttaaaaat tgttacagta tgatgcaggt cgaagtttct 60

```

[0029]

```

aatcttcgta aaaaaagaga aatttataat aaatgctaata aatttaatttt cttctgtgtt 120
taaaagltta tcaactaagc aaaaatagttt aaatttaagt ttgcgtgttt aagttttatg 180
cacatttaata gatctagtaa ataactttgt tcgtataat ttatatttat aactagactt 240
ttgtcttttt tatagtttag aataacttta tcatttcaaa cctcgttcca tctagttgaa 300
ctaaacctgt gaacgaatac tataataaaa ttttagatg gacgtgggtt cgactcccat 360
cagctccacc a 371

```

<210> 92

<211> 371

<212> RNA

<213> *Odontella sinensis* (硅藻属)叶绿体

<400> 92

```

ggggcugacu ugguuucgac auuuaaaaau uguuacagua ugaugcaggu cgaaguuuu 60
aaucuuugua aaaaaagaga aauiuuuaau aaauuguaau aauiuuuuu cuucuguguu 120
uaaaaguuua ucaacuaagc aaaauiaguuu aauiuuuaagu uuugcuguuu aaguuuuuag 180
cacauuuauu gaucuaguua auaacuuugu ugcuaauauu uuauuuuuu aacuagacuu 240
uugucuuuuu uauaguuuag aauiacuuua ucauuucaa ccucguucca ucuaguugaa 300
cuuaaccugu gaacgaauac uauuuuuuuu uuuuuagaug gacguggguu cgacuccau 360
cagcuccacc a 371

```

<210> 93

<211> 323

<212> DNA

<213> *Porphyra purpureum* (红藻)叶绿体

<400> 93

```

ggggtgcgaa ggtttctaca ttgtgaaaaa acaaatatat gaaagtaaaa cgagctcatt 60
attagagett ttagttaaat aaatgcagaa aataatatta ttgctttttc tcgaaaatta 120
gtctgttgcat aaatagtcct aatttttgta attcgaagt atagactctt atacactacg 180
aatattctgt tagagttgct cttataaaaa gaaaagtaaa aaatacaaa ttcttatgtt 240
ttttacciga attgattcaa ttttaaggta gtattttttg atttttaca tggacgtggg 300
ttcaagtccc accagctcca cca 323

```

<210> 94

<211> 323

<212> RNA

<213> *Porphyra purpureum* (红藻)叶绿体

<400> 94

```

ggggcugcaa gguuucuaca uuuguaaaaa acaauuuuuu gaaaguaaaa cgagcucuu 60
auuagagcuu uuaguuuuuu aaaugcagaa aaauuuuuu uuuguuuuu ucgaaaauu 120
gcuugugcau aaauagucuc aauiuuuuu aaucgaagug auagacucuu auacacucg 180
aauiuuucgu uagaguuuuc cuuauuuuuu gaaaaguaaa aauiuuuuu uuuuuuuuu 240

```

[0030]

uuuuaccuga auugauucaa uuuaaggua guauuuuuug auuuuuuacaa uggacgugg 300
uucaaguccc accagucca cca 323

<210> 95

<211> 407

<212> DNA

<213> Porphyromonas gingivalis

<400> 95

ggggetgacc ggctttgaca gcgtgatgaa gcggtatgta agcatgtagt gcgtgggtgg 60
cttgcaactat aatctcagac atcaaaagtt taattggcga aaataactac getctcgetg 120
cgtaatcgaa gaatagtaga ttagacgctt catcgccgcc aaagtggcag cgacgagaca 180
tcgcccagagc agctttttcc cgaagtagct cgatgggtgc gtgctgacaa atcggggaacc 240
gctacaggat gettctctcc tgtggtcaga tgaacggaa gataaggatc gtgcattggg 300
tcgtttcagc ctccgctcgc tcaagaaaat tccaactgaa actaaacatg tagaaagcat 360
attgattcca tgtttggacg agggttcaat tccctccagc tccacca 407

<210> 96

<211> 407

<212> RNA

<213> Porphyromonas gingivalis

<400> 96

ggggcugacc ggcuuugaca gcgugaugaa gcgguaugua agcauguagu gcgugggugg 60
cuugcacuau aaucucagac aucaaaaguu uaaauggcga aaauaacuac gcucucgcug 120
cguaaucgaa gaauaguaga uuagacguu caucgccgcc aaaguggcag cgacgagaca 180
ucgcccgagc agcuuuuucc cgaaguagcu cgauggugcg gucgugacaa aucgggaacc 240
gcuacaggau gcuuccugcc uguggucaga ucgaacggaa gaaaggauc gugcauuggg 300
ucguuucage cuccgcucgc ucacgaaaau uccaacugaa acuaaacaug uagaaagcau 360
auugauucca uguuuggacg aggguucaau uccuccagc uccacca 407

<210> 97

<211> 310

<212> DNA

<213> Proteus rettgeri (NCTC 10975)

<400> 97

gggatttgcc aaaccaagg tgcattgccg ggggcgggtg gcctegtaaa agccgcgaaa 60
aaaatagtcg caaacgacga aaactacgct ttagcagctt aataacctgc ttagagccct 120
ctctccctag cctccgctct tggacgggga tcaagagagg tcaaaccgaa aagagatgc 180
gtggatgcct tgcctggggt tgaagcgta aacttaatca ggatagtttg ttggtggcgt 240
gtctgtccgc agctggcaaa tgaattcaaa gactagacta agcatgtagt accgaggatg 300
tagaaatttc 310

[0031]

<210> 98
 <211> 310
 <212> RNA
 <213> *Proteus rettgeri* (NCTC 10975)

<400> 98
 gggauuugcg aaacccaagg ugcaugccga ggggcggguug gccucguaaa aagccgcaaa 60
 aaaaauagucg caaacgcagc aaacuaacgu uuagcagcuu aaiaaccugc uuagagcccu 120
 cucucccuag ccuccgcucu uggaacgggga ucaagagagg ucaaacccaa aagagaucgc 180
 guggaugccu ugccuggggu ugaagcguua aacuuauca ggauaguug uugguggcgu 240
 gucugucgc agcuggcaaa ugaauucaa gacuagacua agcauguagu accgaggau 300
 uagaaauuuc 310

<210> 99
 <211> 241
 <212> DNA
 <213> *Pseudoalteromonas haloplanktis*

<400> 99
 gggagcgaaa cccaagggca gccagggggc ggggcccga aaagccgcaa aaaaaagegc 60
 aaacgcagaa aacacgcagc agcaaaaccg cagagccccc cccagcccg ccggacgggg 120
 acaagagagg caaacccaaa agagacgcgg gaggcccg gggaagcgaa acaacaggaa 180
 gggggggcgc gccgcagcgg caaagaacaa agacagacaa gcagagaccg aggagagaaa 240
 c 241

<210> 100
 <211> 313
 <212> RNA
 <213> *Pseudoalteromonas haloplanktis*

<400> 100
 ggaauucaag aagcccgagg ugcaugcga ggugcgguuu gccucguaaa aaagccgcaa 60
 uuuaaaguua ucgcaaacga cgauaacuac ucucuagcag cuuagcugg cuagegcucc 120
 uucaugua ucuugggac uggauuuugg agugucacc uaacaccuga ucgcagcgga 180
 aaccuggcc gggguugaag cguuaaaacu aagcgccuc gccuuuau cu accguguuug 240
 uccgggguuu aaagguuaa uaaaugacaa uacuaacau guaguaaccg cggucgagc 300
 uuucggacg ggg 313

<210> 101
 <211> 353
 <212> DNA
 <213> *Pseudomonas aeruginosa*

<400> 101

[0032]

```

ggggccgatt aggattcgac gccggtaaca aaagttgagg ggcattccga gttggtagca 60
gaactcgtaa attcgctgct gcaaaacttat agttgccaac gacgacaaet acgccttagc 120
tgettaaatgc ggctagcagt cgetagggga tgctgtataa cccgaaacga ctgtcagata 180
gaacaggatc gccgccaagt tcgtgttaga cgtaacgget aaaactcata cagctcgctc 240
caagcaccct gccacteggg cggcggggag ttaactcagt agagetgget aagcatgtaa 300
aaccgatage ggaaagetgg cggacggggg ttcaaatecc cccggttcca cca 353

```

<210> 102

<211> 353

<212> RNA

<213> *Pseudomonas aeruginosa*

<400> 102

```

ggggccgauu aggauucgac gccgguaaca aaaguugagg ggcaugccga guugguagca 60
gaacucguua auucgcugcu gcaaacuuau aguugccaac gacgacaaet acgcucuaagc 120
ugcuuaaungc ggcuagcagu cguagggga ugccuguaaa cccgaaacga cugucagaua 180
gaacaggauu gccgccaagu ucgcuguaga cguaacggcu aaaacucava cagcucgcuc 240
caagcaccu gccacucggg cggcggggag uuaacucagu agagcuggcu aagcauguaa 300
aaccgauage ggaaagcugg cggacggggg uucaaauecc cccgguucca cca 353

```

<210> 103

<211> 363

<212> DNA

<213> *Salmonella typhimurium*

<400> 103

```

ggggctgatt ctggattcga cgggatttgc gaaacccaag gtgcatccg aggggcggtt 60
ggcctogtaa aaagccgcaa aaaaatagtc gcaaacgacg aaacctacgc tttagcagct 120
taataacctg cttagagccc tctctcccta gctctcgcgc ttaggacggg gatcaagaga 180
ggtaaaaccc aaaagagatc gcgcggatgc cctgcctggg gttgaagcgt taaaacgaat 240
caggctagtc tggtagtgcc gtgtccgtcc gcaggtgccg ggcaatgta aagactgact 300
aagcatgtag taccgaggat gtaggaattt cggacggggg ttcaactccc gccagctcca 360
cca 363

```

<210> 104

<211> 363

<212> RNA

<213> *Salmonella typhimurium*

<400> 104

```

ggggcugauu cuggauucga cgggauuugc gaaacccaag gugcaugccg aggggcgguu 60
ggcucuguaa aaagccgcaa aaaaauaguc gcaaacgacg aaaccuacgc uuagcagcu 120
uaauaacuug cuuagagccc ucucuccua gccucgcuc uuaggacggg gaucaagaga 180
gguaaaaccc aaaagagauc gcgcggauug ccugcugggg guugaagcgu uaaaacgaau 240

```

[0033]

caggeuaguc ugguaugugc guguecgucc gcaggugcea ggcgaaugua aagacugacu 300
 aagcauguag uaccgaggau guaggaaauu cggacgcggg uucaacuccc gccagcucca 360
 cca 363

<210> 105

<211> 355

<212> DNA

<213> *Shewanella putrefaciens*

<400> 105

gggggcgatt ctggattcga caggattcac gaaacctgg gageatgccg aggggcggtt 60
 ggcctcgtaa aaagccgcaa agttatagtt gcaaacgacg ataactacgc tctagccgct 120
 taatgccgct agccatctac cacacgtttt gcacatgggc agtggatttg atggteatct 180
 cacatcgtgc tagcgaggga acctgtctg ggggtgaacc gcgaaacagt accggactca 240
 ccgtgtggga tctgtctttt cggagttaaa acggttaaac aatagaaaga ctaageatgt 300
 agcgccttgg atgtaggttt tctggacgcg ggttcaagtc ccgcgcctc cacca 355

<210> 106

<211> 355

<212> RNA

<213> *Shewanella putrefaciens*

<400> 106

gggggcgauu cuggauucga caggauucac gaaaccucgg gageaugccg aggggcgguu 60
 ggccucguua aaagccgcaa aguuauaguu gcaaacgacg auuacuacgc ucuagccgcu 120
 uauagccgcu agccaucuac cacacgcuuu gcacaugggc aguggaauug auggucaucu 180
 cacaucgugc uagcgaggga acccugucug ggggugaacc gcgaaacagu accggacuca 240
 ccguguggga uccugucuuu cggaguucac acgguuuuaa auuagaaaga cuaagcaugu 300
 agcgcguugg auguagguuu ucuggacgcg gguucaaguc ccgcgcctc cacca 355

<210> 107

<211> 362

<212> DNA

<213> *Staphylococcus aureus*

<400> 107

ggggacgttc atggattcga caggggtccc ccgagctcat taagcgtgtc ggagggttgt 60
 ctctgtcate aacacacaca gtttataata actggcaaat caaacaataa ttctgcagta 120
 gctgcctaatt cgcactctgc atgcctaacc agcatttccct atgtgctgtt aacgcgatte 180
 aaccttaata ggatatgcta aacactgccg tttgaagtct gtttagaaga aacttaataca 240
 aactagcate atgttggttg ttatcactt ttcattgatgc gaaacctatc gataaactac 300
 aacgtagaa agatgtgtat caggaccttt ggacgcgggt tcaaatcccg ccgtctccac 360
 ca 362

[0034]

<210> 108
 <211> 362
 <212> RNA
 <213> *Staphylococcus aureus*

<400> 108
 ggggacguuc auggauucga cagggguccc ccgagcucan uaagecuguc ggagggguugu 60
 cuucgucauc aacacacaca guuuuaaaua acuggcaauu caaacaauaa uuucgcagua 120
 gcugccuaau cgcacucugc auegccuaac agcauuuccu augugcuguu aacgcgauc 180
 aaccuuuaau ggauaugcua aacacugccg uuugaagucu guuuagaaga aacuuauca 240
 aacuagcauc auguugguug uuuaucacuu uucaugaugc gaaaccuanc gauaaacuac 300
 acacguagaa agauguguau caggaccuuu ggacgcgggu ucaaaucceg ccgucuccac 360
 ca 362

<210> 109
 <211> 349
 <212> DNA
 <213> *Streptococcus gordonii*

<400> 109
 ggggtcgita cggattcgac aggcattatg aggcataatt tgcgactcat ctagecgatg 60
 taaaacgcca gttaaatata actgcaaaaa ataatacttc ttacgettta gctgcctaaa 120
 aaccagcggg cgtgaccoga ttccgattgc ttgtgtctga tgacaggtct tattattage 180
 aagctacggt agaattctgt ctagtgattt tacaagagat tgatagactc gcttgatttg 240
 ggcttgagtt atgtgtcaaa atcaagttaa aacaatacat agcctatggt tgtagacaaa 300
 tgtgttggea gatgtttgga cgtgggttgc actcccacgc gctccacca 349

<210> 110
 <211> 349
 <212> RNA
 <213> *Streptococcus gordonii*

<400> 110
 ggggucguua cggauucgac aggcuuuug aggcuuuuu ugcgacucan cuagecggaug 60
 uaaaacgcca guuaauuaa acugcaaaaa auauuacuc uuacgcuuua gcugccuaaa 120
 aaccagcggg cgugaccoga uuaggauugc uuugucuga ugacaggucn uauuuuugc 180
 aagcuacggu agaaucuugu cuagugauuu uacaagagau ugauagacuc gcuuugauug 240
 ggcuugaguu augugucaaa aucaaguuaa aacaauacau agccuauugu uguagacaaa 300
 uguguuggca gauuuuugga cguggguucg acucccacgc gcuccacca 349

<210> 111
 <211> 349
 <212> DNA
 <213> *Streptococcus mutans*

[0035]

<400> 111

```

ggggtcgtta cggattcgac aggcattatg agacctatit tgcgactcat ctagecgatg 60
taaaacgcca gttaaataata actgcaaaaa atacaaatit ttacgcagta gctgcctaaa 120
aaccagcctg tgtgatcaat aacaaattgc ttgtgtttgt tgatttgtct tattgttaac 180
aagctacgtt agaactgagt caggtgttgc taaaagagtt ctactgactc gcatcgtag 240
agtttgagtt atgtattgta acggtgttaa ataaacacat aacctatagt ttagacaaaa 300
tgggttagca gatgtttgga cgtgggttcg actcccaccg gctccacca 349

```

<210> 112

<211> 349

<212> RNA

<213> Streptococcus mutans

<400> 112

```

ggggucguua cggauucgac aggcuuuau agaccuuuuu ugcgacucuu cuagecgau 60
uaaaacgcca guuaauauua acugcaaaaa auacaaauuc uuacgcagua gcugccuaaa 120
aaccagccug ugugaucuuu aacaaauugc uuguguuugu ugauuggucu uauuguuuac 180
aagcuacguu agaacugagu caggcuguuc uaaaagaguu cuacugacuc gcaucguuag 240
aguuuaguu auguauugua acgguguuua auaaacacau aaccuuuagu uguagacaaa 300
uggguuagca gauguuugga cguggguucg acucccaacc gcuccacca 349

```

<210> 113

<211> 348

<212> DNA

<213> Streptococcus pneumoniae

<400> 113

```

ggggtcgtta cggattcgac aggcattatg aggcatait tgcgactcgt gtggcgacgt 60
aaacgcctag ttaaataata ctgcaaaaaa taacatttct tacgctctag ctgcctaaaa 120
accagcagge gtgacccgat ttggattgct cgtgttcaat gacaggtctt attattagcg 180
agatacgatt aagccttgct tagcggtttg ataagagatt gatagactcg cagtttctag 240
acttgagtta tgtgtcgagg ggtgtttaa ataatacata acctatggtt gtagacaaat 300
atgtttgcag gtgttttgac gtgggttcga ctcccaccg ctccacca 348

```

<210> 114

<211> 348

<212> RNA

<213> Streptococcus pneumoniae

<400> 114

```

ggggucguua cggauucgac aggcuuuau aggcuuuuu ugcgacucuu guggcgacgu 60
aaacgcucag uuaauuauua cugcaaaaaa uaacacuuuc uacgcucuag cugccuaaaa 120
accagcagge gugacccgau uuggauugcu cguguucaa gacaggucuu auuuuuagcg 180

```

[0036]

```

agauacgauu aagccuuguc uagcgguuug auaagagauu gauagacucg caguuuucua 240
acuugaguua ugugucgagg ggcuguuaaa auaauacaua accuauuguu guagacaaau 300
auguuggcag guguuuggac guggguucga cuccaccagg cuccacca 348

```

<210> 115

<211> 348

<212> DNA

<213> *Streptococcus pyogenes*

<400> 115

```

ggggttgta eggattcgac aggcattatg aggcattgtt tgcgtcccat cggcagatgt 60
aaattgccag ttaaatataa ctcaaaaaa tacaactct tacgttttag ctgcctaaaa 120
accagctagc gtgacttcta caagattget tgtgtcctgt tagaagtctc aaaatagcaa 180
gtacaggta cgaattgtc tagtttcgtg acaagagatt galagactcg caaactaatg 240
getttagtta tgtgtcttta gtttgttaaa tgaagacata acctatggac gttagacaaat 300
atgttggcag gtgtttggac gtgggttcga ctcccaccag ctccacca 348

```

<210> 116

<211> 348

<212> RNA

<213> *Streptococcus pyogenes*

<400> 116

```

gggguuguua cggauucgac aggcuuuug aggcuuuuu ugcguccau cggcagaugu 60
aaaaugccag uuaauuuaa cugcaaaaaa uacaacucu uacguuuag cugccuaaaa 120
accagcuagc gugacuucua caagauugcu uguguccugu uagaagucuc aaaauagcaa 180
guacaggua cgaauuguc uaguucgug acaagagauu gauagacucg caaacuaaug 240
guugaguua ugugucuuua guuuguuaa ugaagacaua accuauggac guagacaaau 300
auguuggcag guguuuggac guggguucga cuccaccagg cuccacca 348

```

<210> 117

<211> 394

<212> DNA

<213> *Synechococcus* sp. PCC6301

<400> 117

```

ggggtgtaa tggtttcgac gtgttggtga atcttcacc gtgattcagg ccgagaggga 60
gtccactctc gtaaatccag gtcaaccaa aagtaactgc gaacaacatc gtcccttcg 120
ctcgttaaggc tgcctctgta gtgtcttaaa cgcacaaaac tttctggctc gagcgtctag 180
tcgtagaact cgttaatacg cctagaetta aaccccaac ggatgctcga gtggcggeet 240
caggctcgtc ctctcgttaa gcaaaaacct gagcatcccg ccaacgggga taatcgttgg 300
ctccgcaca gtgggtcaac cgtgctaagc ctgtgaacga gcggaaagtt actagtcatt 360
gaggacagcg gttcgattcc gtcagctcc acca 394

```

[0037]

<210> 118

<211> 394

<212> RNA

<213> *Synechococcus* sp. PCC6301

<400> 118

```

ggggcuguaa ugguuuegac guguugguga auccuucacc gugauucagg ccgagagggga 60
guccacucuc guaaaucag gcuaaccaa aaguaacugc gaacaacauc guuccuuucg 120
cucguaaggc ugcuucugua gcugcuuaaa cgccacaaac uuucuggcuc gagegucuaag 180
ucguagacuc cguuaauacg ccuagacuua aacccccaac ggaugcucga guggcggccu 240
caggucgcuc cucucguua gcaaaaaccu gagcaucccg ccaacgggga uauucguugg 300
cucccgacac gugggucaac cgugcuaagc cugugaacga gcggaaaguu acuagucuuu 360
gcggacagcg guucgauucc gcucagcucc acca 394

```

<210> 119

<211> 399

<212> DNA

<213> *Synechocystis* PCC6803

<400> 119

```

ggggccgcaa tggtttcgac aggttggcga aagcttgecc gtgatacagg tcgagagtga 60
gtctctcttc gcaaatcaaa ggcacaaaaa aaagtaactg cgaataacat cgtcagcttc 120
aaaegggtag ccatagcagc ctagtctgta aaagetacat ttctcttgta aagaccgttt 180
acttcttttc tgaactcgtt aaggattaga ggtaacccc aacggatget ttgtttgget 240
cttctctagt tagctaaaca atcaagactc agaactagagc atcccaccat caggataat 300
cgatgttccc cgtcttaggg ctagaaggac taaacctgtg aatgagcgga aagttaatac 360
ccagtttgga cagcagttca attctgctcg gctccacca 399

```

<210> 120

<211> 399

<212> RNA

<213> *Synechocystis* PCC6803

<400> 120

```

ggggccgcaa ugguuuegac agguuggcga aagcuugccc gugauacagg ucgagaguga 60
gucuccucuc gcaaaucaaa ggcuaaaaaa aaaguaacug cgaauaacau cguccagcuu 120
aaacggguag ccuagcagc cuagucugua aaagcuacau uuucuuugua aagaccguuu 180
acuucuuuuc ugacuccguu aaggauuaga gguaaaccac aacggauucu uuguuuggcu 240
cuucucuagu uagcuuaaca aucaagacuc agacuagagc auccaccacu cagggaauuu 300
cgaugguccc cguccuaggg cuagaaggac uaaaccugug aaugagcgga aaguuauaac 360
ccaguuugga cagcaguuca auucugcucg gcuccacca 399

```

<210> 121

<211> 356

[0038]

<212> DNA

<213> *Thermotoga maritima*

<400> 121

```

gggggcgaac ggggttcgac gggatggagt cccctgggaa gcgagccgag gtccccacct 60
ccctglaaaa aaggltggac aaagaataag tgcacacgaa ccgttgcgtg ttgcctgta 120
atagataagc ggcgttcctc tccgaagtgc gctgggttc ggaagagggc gtgagagatc 180
cagctaccg attcagcttc gccttcgggc ctgaatcggg aaaactcagg aaggctgtgg 240
gagaggacac cctgcctgtg ggaggtccct cccgagagcg aaaacacggg ctgcgtcgg 300
agaagcccag gggtctccat ctgcgacgg ggttcgaat cccccgcct ccacca 356

```

<210> 122

<211> 356

<212> RNA

<213> *Thermotoga maritima*

<400> 122

```

gggggcgaac gggguccgac gggauaggag cccugggaa gcgagccgag guccccaccu 60
ccucguaaaa aaggugggac aaagaauaag ugccaacgaa ccuguugcug uugccgcuua 120
auagauaagc ggcgucucc uccgaaguug gcugggcuuc ggaagagggc gugagagauc 180
cagccuaccg auucagcuuc gccuuccggc cugaauccggg aaaacucagg aaggcugugg 240
gagaggacac ccugcccgug ggaggucccu cccgagagcg aaaacacggg cugcgcucgg 300
agaagcccag gggtccucca cttcggacgg gggguccgaa cccccgcct ccacca 356

```

<210> 123

<211> 349

<212> DNA

<213> *Thermus thermophilus*

<400> 123

```

gggggtgaaa cgtctcgcac ggggttcgcc gagggcgttg ctgcgcgcc aggtgcgggt 60
ggctctgtaa aaaccgcga cggcataact gccaacacca actacgtct cgcggttaa 120
tgaccgcgac ctgcctcggt agcctgcgc ggggttcacc ggaagcggg acacaaacc 180
ggctagcccg gggtcacgcc ctctaacccc gggtgaagct tgaagggggc tcgtctctgg 240
ccgcccgtcc gggggccaag ccaggaggac acgcgaaaac cggactacgc gcgtagagcc 300
ccgcctaga gaccttcgga cgggggttcg actccccca cctccacca 349

```

<210> 124

<211> 349

<212> RNA

<213> *Thermus thermophilus*

<400> 124

```

gggggugaaa cggucucgac ggggguccgc gagggcgugg cugcgcgcc aggugcgggu 60

```

[0039]

ggccucguua aaacccgcaa cggcauaacu gccaacacca acuacgcucu cgcggcuuaa 120
 ugaccgcgac cucgcccggg agcccugccg ggggcucacc ggaagcgggg acacaaaccc 180
 ggcuagcccg ggcccaagcc cucuaacccc gggcgaagcu ugaagggggc ucgcuccugg 240
 ccgcccgucc gcgggccaag ccaggaggac acgcgaaacg cggacuacgc gcguagagge 300
 ccgcgcguaga gaccuucgga cggggguucg acucccccca ccuccacca 349

<210> 125

<211> 354

<212> DNA

<213> *Treponema pallidum*

<400> 125

gggatgact aggtttcgac taggatgtg ggggtgttgcg ctgcagggtg agtgtcgatc 60
 tctgatteg gcgcctttat aactgccaat tctgacagtt tgcactacgc gctcgccgcg 120
 taatcgccgg cctgtgtttg cgtctctctg agegaacata tcggcccgac gccaaaacgga 180
 gcttctcttt acgttgtgca cggcggacgt agggggactt ttgtctgtgc taagactctg 240
 gcgcgtgcgg tgcaggecta gcagagtcg acaaacgcag tacgcaccgc taaacctgta 300
 ggcgcgacgc actcgtcttt taggacgggg gttegattec ccccatctec acca 354

<210> 126

<211> 354

<212> RNA

<213> *Treponema pallidum*

<400> 126

ggggaugacu agguuucgac uagggaugug ggguguuugc cugcaggugg aguguegauc 60
 uccugauucg gcgcuuuau aacugccaau ucugacaguu ucgacuacgc gcucgcgcg 120
 uaaucgcggg ccuguguuug cgcugcucug agegaacaua ucggcccgac gccaaaacgga 180
 gcuuugcucu acguugugca cggcggacgu agggggacuu uugucugugc uaagacucug 240
 gcgcgugcgg ucgaggecuu gcagagucg acaaacgcag uacgcaccgc uaaaccugua 300
 ggcgcgacgc acucgcucuu uaggacgggg guucgauucc ccccaucucc acca 354

<210> 127

<211> 367

<212> DNA

<213> *Vibrio cholerae*

<400> 127

ggggtgatt caggattcga cgggaatitt gcagctgag gtgcatgcc aggtgcggta 60
 ggctctgtta acaaacgca aaaaaatagt cgcaaacgac gaaaactacg cactagcagc 120
 ttaataacct gctcagagcc cttcctccct agcttccgct tgtaagacgg ggaatcagg 180
 aaggfcaaac caaatcaagc tggcgtggat tccccacct gagggatgaa gcgcgagatc 240
 taattcaggt tagccattcg ttagcgtgtc ggttcgcagg cgggtggtgaa attaaagatc 300
 gactaageat glagtaccaa agatgaatgg ttltcggacg ggggttcaac tccccccagc 360

[0040]

tccacca	367
<210> 128	
<211> 367	
<212> RNA	
<213> <i>Vibrio cholerae</i>	
<400> 128	
ggggcugauu caggauucga cgggaauuuu gcagucugag gugcaugcog aggugcggua 60	
ggccucguua acaaaccgca aaaaaauagu cgcaaacgac gaaaacuacg cacuagcago 120	
uuauuaccuu gcucagagcc cuuccuccuu agcuuccguu uguuagacgg ggaaauagg 180	
aaggucaaac caaucaagc uggcguggau uccccaccu gagggauaa gcgcgagauc 240	
uaauucaggu uagccauucg uuagcguguc gguucgcagg cgguggugaa auuaaagauc 300	
gacuaagcau guaguacaa agaugaauagg uuucggacg gggguucaac uccccccagc 360	
uccacca	367
<210> 129	
<211> 364	
<212> DNA	
<213> <i>Yersinia pestis</i>	
<400> 129	
ggggctgatt ctggattcga cgggattcgc gaaacccaag gtgcattccg aggtgcggtg 60	
gcctcgtaaa aaaccgcaaa aaaaatagtt gcaaacgacg aaaactacgc actagcagct 120	
taataacctg cttagagccc tctctgccta gcctccgctc ttaggacggg gatcaagaga 180	
ggtcaaacct aaaagagctc gtgtggaaac cttgcctggg gtggaagcat taaaactaat 240	
caggatagtt tgtcagtagc gtgtccatcc gcagctggcc ggogaatgta atgattggac 300	
taagcatgta gtgcgacgg ttagtaatt tggacgggg gtccaaatcc cccagctcc 360	
acca	364
<210> 130	
<211> 364	
<212> RNA	
<213> <i>Yersinia pestis</i>	
<400> 130	
ggggcugauu cuggauucga cgggaauucg gaaacccaag gugcaugcog aggugcggu 60	
gccucguaaa aaaccgcaaa aaaaauaguu gcaaacgacg aaaacuacgc acuagcagcu 120	
uaauaaccug cuuagagccc ucucugccua gccuccguc uuaggacggg gaucagaga 180	
ggucaaaccu aaaagagcuc guguggaaac cuugccuggg guggaagcau uaaaacuaau 240	
caggauaguu ugucaguagc guguccaucc gcagcuggcc ggcgaugua augauaggac 300	
uaagcaugna gugccgacgg uguaguaauu ucggacgggg guucaaauc cccagcuuc 360	
acca	364

[0041]

<210> 131
 <211> 309
 <212> DNA
 <213> *Campylobacter fetus*

<400> 131
 aggagtaagt ctgcttagat ggcattgtgc ttgtggcaaa gcgtaaaaag cccaaataaa 60
 attaaacgca aacaacgtta aattcgctcc tgcctacgct aaagctgcgt aagttcagtt 120
 gagectgaaa tttaagtcac actatctage ttaattttcg gtcacttttg atagtgtage 180
 cttgcgtttg acaagcgttg aggtgaaata aagtcttagc cttgcttttg agttttggaa 240
 gatgagcgaa gtagggtgaa gtagtcactt ttgctaagca ttagagagtc ttgtgggat 300
 tatttttgg 309

<210> 132
 <211> 309
 <212> RNA
 <213> *Campylobacter fetus*

<400> 132
 aggaguaagu cugcuuagau ggcauguegc uuugggcaaa gcguaaaaag cccaaauaaa 60
 auuaaacgca aacaacguua aaauugcuucc ugcuuacgcu aaagcugcgu aaguucaguu 120
 gagecugaaa uuuaagucac acuaucuaage uuaauuuuug gucaucuuug auaguguage 180
 cuugcguuug acaagcguug aggugaaaau aagucuuage cuugcuuuug aguuuuggaa 240
 gaugagcgaa guaggugaa guagucucu uugcuaagca uguagagguc uuugugggau 300
 uauuuuugg 309

<210> 133
 <211> 309
 <212> DNA
 <213> *Campylobacter coli* (BM2509)

<400> 133
 aggagtaagt ctgcttagat ggcattgtgc ttgtgacaaa gcgtaaaaag tccaaattaa 60
 aattaaacgc aaataacgtt aaatttgcct ctgcttaacc taaagctgcg taagttcagt 120
 tgagcccgaa actcaagtga tgcctatctag cttgaatttt ggtcactttt gatagtgtag 180
 attgaaaatt gacaactttt aatcgaaagt aaagtcttag tctagcttga aattttggaa 240
 ggtgagttta gccagatgaa gttttcacct ttgctaaaca ttagaagtc ttgtggggt 300
 tatttttgg 309

<210> 134
 <211> 309
 <212> RNA
 <213> *Campylobacter coli* (BM2509)

[0042]

<400> 134

```

aggaguaagu cugcuuagau ggcaugucgc uuuggacaaa gcuuaaaaag uccaaaunaa 60
aaauaaaacgc aaauaacguu aaauuugcuc cugcuuacgc uaaagcugcg uaaguucagu 120
ugagcccgaa acucaaguga ugcuaucuaag cuugaauiuu ggucaucuuu gauaguguag 180
auugaaaaau gacaacuuuu aaucgaaguu aaagucuuag ucuagcuuga aaauuuggaa 240
ggugaguuua gccagaugaa guuuucaccu ugcuaaaca uguagaaguc uuuguggggg 300
uuuuuuugg 309

```

<210> 135

<211> 311

<212> DNA

<213> 未知

<220>

<223> 未知生物体的描述:Campylobacter chicken 分离物

<400> 135

```

acaggagtaa gtctgcttag atggcatgtc gctttgggca aagcgtaaaa agcccaaata 60
aaattaaacg caaacaacgt taaattcgt cctgcttacg etaaagctgc gtaagttcag 120
ttgagcctga aatttaagtc ataactateta gcttaatttt cggteatttt tgatagtgtg 180
gccttgctgt tgacaagcgt tgaggtagaa taaggcttta gccttgcttt tgagttttgg 240
aagatgagcg aagtaggggtg aagtagtcat ctttgetaag catgtagagg tctttgtggg 300
attatttttg g 311

```

<210> 136

<211> 311

<212> RNA

<213> 未知

<220>

<223> 未知生物体的描述:Campylobacter chicken 分离物

<400> 136

```

acaggaguaa gucugcuuag auggcauguc guuuugggca aagcguaaaa agcccaaaaua 60
aaauuaaacg caaacaacgu uaaauucgu ccugcuuacg cuaaagcugc guaaguucag 120
uugagccuga aauiuaaguc auacuaucua guuaauiuuu cggucuiuuu ugauagugua 180
gccuugcguu ugacaagcgu ugaggugaaa uaaggucuaa gccuugcuuu ugauuuuugg 240
aagaugagcg aaguagggug aaguagucuu euuugcuaag cauguagagg ucuuuguggg 300
auuuuuuug g 311

```

<210> 137

<211> 313

<212> DNA

<213> Clostridium perfringens

<400> 137

[0043]

acgggggtag gatgggtttg ataagcgagt cgaggggaagc atgggtgcctc gataataaag 60
 latgcattaa agataaacgc acgagataat tttagcattag cagcctaagt tagcgtgtct 120
 catecttctt caattgccca cggttgagag taagggtgtc atttaaaagt ggggaaccga 180
 gcctagcaaa gctttgagct aggaacggaa tttatgaagc ttaccaaaga ggaagtttgt 240
 cftgtgaagt tctctgaggg aattttaaaa cacaagacta cactegttaga aagtcttact 300
 ggtctgcttt cgg 313

<210> 138

<211> 313

<212> RNA

<213> *Clostridium perfringens*

<400> 138

acggggguag gauggguuug auaagcgagu cgaggggaagc auggugccuc gaaauaaaag 60
 uaugcauuua agauaaacgc acgagauaau uuugcauuag cagcuuaagu uagcgcugcu 120
 cauccuuccu caauugccca cgguuagagag uaaggugugc auuuuuuagu ggggaaccga 180
 gccuagcaaa gcuuugagcu aggaacggaa uuuaugaagc uuaccaaaga ggaaguuugu 240
 cuguggaacu ucucugaggg aauuuuuuuu cacaagacua cacucguaga aagucuuacu 300
 ggucugcuuu cgg 313

<210> 139

<211> 331

<212> DNA

<213> *Haemophilus ducreyi* (NCTC 10945)

<400> 139

acgggattag cgaagtecaa ggtgcacgtc gaggtgcggg aggcctcgta acaaaccgca 60
 aaaaaatagt cgcaaacgac gaacaatacg ctttagcagc ttaataacct gcatttagcc 120
 ttccgcacct agctttegct cgtaagacgg ggagcacgcg gagtcaaacc aaaacgagat 180
 cgtgtggacg ctccgcttg tagatgaaac actaaattga atcaagetag tttatttctt 240
 gcgtgtctgt ccgctggaga taagcgaaat taaagaccag actaaacgtg tagtactgaa 300
 gatagagtaa ttctggaccc gggttcgact c 331

<210> 140

<211> 331

<212> RNA

<213> *Haemophilus ducreyi* (NCTC 10945)

<400> 140

acgggaauag cgaaguccaa ggugcacguc gagguccggu aggcucguua acaaaccgca 60
 aaaaaauagu cgcaaacgac gaacaauacg cuuuagcagc uuaauaacuu gcauuuagcc 120
 uuccgcgccu agcuuucguu cguuagacgg ggagcacgcg gagucaaac aaaacgagau 180
 cguguggacg cuuuccguug uagaugaaac acuaaaauuga aucaagcuag uuuaauucuu 240
 gcgugucugu ccgcuggaga uaagcgaaau uaaagaccag acuaaacgug uaguacugaa 300

[0044]

gauagaguaa uuucggaccc ggguuugacu c 331

<210> 141

<211> 232

<212> DNA

<213> *Listeria innocua* (食物分离物 #1)

<400> 141

ggcaaagaaa aacaaaacct agctttcgct gcctaataac cagtagcata gctgacctc 60
cgtgcacgc ccatgtgcta cggtaagggt ctcaactctaa gtgggctaca ctagttaatc 120
tccgtctgag gttaaataga agagcttaat cagactagct gaatggaagc ctgttaccgg 180
gctgatgttt atgcgaaatg ctaatacggg gactacgctc gtagatatcc aa 232

<210> 142

<211> 232

<212> RNA

<213> *Listeria innocua* (食物分离物 #1)

<400> 142

ggcaaagaaa aacaaaaccu agcuuucgcu gccuaauaac caguagcaua gcugaucuc 60
cgugcaucgc ccaugugcua cgguaagggu cncacucuaa gugggcuaa cuaguuaauc 120
uccgucugag guuaaaauaga agagcuuaau cagacuagcu gaauggaagc cuguuaccgg 180
gcugauguuu augcgaaaug cuaauacggg gacuacguc guagauauuc aa 232

<210> 143

<211> 232

<212> DNA

<213> *Listeria innocua* (食物分离物 #2)

<400> 143

ggcaaagaaa aacaaaacct agctttcgct gcctaataag cagtagcata gctgacctc 60
cgtgcacgc ccatgtgcta cggtaagggt ctcaactctaa gtgggctaca ctagttaatc 120
tccgtctgag gttaaataga agagcttaat cagactagct gaatggaagc ctgttaccgg 180
gccgatgttt atgcgaaatg ctaatacggg gactacgctc gtagatatcc aa 232

<210> 144

<211> 232

<212> RNA

<213> *Listeria innocua* (食物分离物 #2)

<400> 144

ggcaaagaaa aacaaaaccu agcuuucgcu gccuaauaag caguagcaua gcugaucuc 60
cgugcaucgc ccaugugcua cgguaagggu cucacucuaa gugggcuaa cuaguuaauc 120
uccgucugag guuaaaauaga agagcuuaau cagacuagcu gaauggaagc cuguuaccgg 180

[0045]

gccgauguuu atgcgaaaug cuaauacggg gactacgctc guagauuuu aa 232

<210> 145

<211> 232

<212> DNA

<213> *Listeria innocua* (食物分离物 #3)

<400> 145

ggcaaagaaa aacaaaacct agctttcgct gcctaataag cagtagaata gctgaccc 60
cgtgcacgc ccatgtgcta cggtaagggt ctactctaa gtggctaca ctagttaatc 120
tccgtctgag gttaaataga agagcttaat cggactagct gaatggaagc ctgttaccgg 180
gccgatgttt atgcgaaatg ctaatacggg gactacgctc gtagatattt aa 232

<210> 146

<211> 232

<212> RNA

<213> *Listeria innocua* (食物分离物 #3)

<400> 146

ggcaaagaaa aacaaaaccu agcuuucgcu gccuaauaag caguagaaua gcugaucuc 60
cgugcaucgc ccaugugcua cgguaagggu cncacucuaa gugggcuaa cuaguuaa 120
uccgucugag guuaauaga agagcuuaau cggacuagcu gaauggaagc cuguuacgg 180
gccgauguuu atgcgaaaug cuaauacggg gacuacguc guagauuuu aa 232

<210> 147

<211> 232

<212> DNA

<213> *Listeria innocua* (ATCC 12210)

<400> 147

ggcaaagaaa aacaaaacct agctttcgct gcctaataag cagtagcata gctgaccc 60
cgtgcacgc ccatgtgcta cggtaagggt ctactctaa gtggctaca ctagttaatc 120
tccgtctggg gttaaataga agagcttaat cagactagct gaatggaagc ctgttactgg 180
gccgatgttt atgcgaaatg ctaatacggg gactacgctc gtagatattt aa 232

<210> 148

<211> 232

<212> RNA

<213> *Listeria innocua* (ATCC 12210)

<400> 148

ggcaaagaaa aacaaaaccu agcuuucgcu gccuaauaag caguagcaua gcugaucuc 60
cgugcaucgc ccaugugcua cgguaagggu cncacucuaa gugggcuaa cuaguuaa 120
uccgucuggg guuaauaga agagcuuaau cagacuagcu gaauggaagc cuguuacgg 180

[0046]

gcccgauguuu augcgaaaug cuauuacggii gactaacgcuc guagauuuu aa 232

<210> 149

<211> 322

<212> DNA

<213> *Listeria ivanovii* (NCTC 11846)

<400> 149

acagggatag ttccagcttg agttgcgagt cggggggatc gtctctgtta ttaacgtcaa 60
agccaataat aacggcaaa gaaaaacaaa acctagcttt cgcgcctaa taagcagtag 120
catagctgat cctccgtgca tgcgccatgt gctacggtaa gggctctact ttaagtgggc 180
tacactaaat aatctccgtc tggggttagt tagaagagct taatcagact agctgaatgg 240
aagcctgtta cgggctgat gtttatgca aatgctaata cggtgactac gctcgtagat 300
atttaagtgc cgatatttct gg 322

<210> 150

<211> 321

<212> RNA

<213> *Listeria ivanovii* (NCTC 11846)

<400> 150

acagggauag uucgagcuug aguugcgagu cggggggauc guccucguua uuaacgucaa 60
agccaauaa uacugcaaa gaaaaacaaa accuagcuuu cgcugcctaa uaagcaguag 120
cauagcugau cctccgugca ucgcccaugu gcuacgguaa gggucucacu uuaagugggc 180
uacacuaaa uaucuccguc ugggguuagu uagaagagcu uaaucagacu agcugaaugg 240
aagccuguaa cgggcugau guuuaugcga aaugcuaaua cggugacucg cucguagaa 300
uuuaagugcc gauuuucug g 321

<210> 151

<211> 322

<212> DNA

<213> *Listeria seeligeri* (NCTC 11856)

<400> 151

acagggatag ttccagcttg agttgcgagt cggggggatc gtctctgtta ttaacgtcaa 60
agccaataat aactggcaaa gaaaaacaaa acctagcttt cgcgcctaa taagcagtag 120
catagctgat cctccgtgca tgcgccatgt gctacggaaa gggctctact ttaagtgggc 180
tacactaaat aatctccgtc tggggttagt tagaagagct taatcagact agctgaatgg 240
aagcctgtta cgggctgat gtttatgca aatactaata cggtgactac gctcgtagat 300
atttaagtgc ccatatttct gg 322

<210> 152

<211> 322

<212> RNA

[0047]

<213> *Listeria seeligeri* (NCTC 11856)

<400> 152

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acagggauag uucgagcuug aguugcgagu cggggggauc guccucguua ucaacgucaa 60
agccaauaa uacuggcaaa gaaaaacaaa accuagcuuu cgcugccuaa uaagcaguag 120
cauagcugau ccuucgugca ucgcceaugu gcuacggaaa gggucucacu uuaagugggc 180
uacacuaaa uaucuccguc ugggguuagu uagaagagcu uauacagacu agcugaauagg 240
aagccugua cgggcugau guuuaugega aauacuaaia cggugacuac gcucguagau 300
auuuaguge ccuuuuucu gg 322
```

<210> 153

<211> 314

<212> DNA

<213> *Salmonella enteritidis*

<400> 153

```
acgggatttg cgaaccccaa ggtgcatgcc gagggcggt tggcctcgta aaaagccgca 60
aaaaaatagt cgcaaacgac gaaacctacg ctttagcage ttaataacct gcttagagcc 120
ctctctccct agcctccgct cttaggacgg ggaacaagag aggtcaaacc caaaagagat 180
cgcgtggatg cctgcctgg ggttgaagcg ttaaaacgaa tcagctagt ctggtagtgg 240
cgtgtccgtc cgcagggtgc aggcgaatgt aaagactgac taageatgta gtaccgagga 300
ttaggaatt tcgg 314
```

<210> 154

<211> 314

<212> RNA

<213> *Salmonella enteritidis*

<400> 154

```
acgggaauug cgaaccccaa ggugcaugcc gagggcggu ugccucgua aaaagccgca 60
aaaaauagu cgcaaacgac gaaaccuacg cuuagcagc uuaauaaccu gcuuagagcc 120
cucucucccu agccuccgcu cuuaggacgg ggaucaagag aggucaaacc caaaagagau 180
cgcguggaug ccucgccugg gguugaagcg uuaaaacgaa ucagguagu cugguagugg 240
cguguccguc cgcaggugcc aggcgaauuu aaagacugac uaagcaugua guaccgagga 300
uguaggaauu ucgg 314
```

<210> 155

<211> 313

<212> DNA

<213> *Staphylococcus epidermidis* (NCTC 11047)

<400> 155

```
acaggggtcc cccgagctta ttaagegtgt cggagggttg getccgtcat caacacattt 60
cggttaaata taactgacaa atcaacaat aatttcgcag tagctgcgta atagccaactg 120
```

[0048]

catgcgctaa cagcatctcc tacgtgctgt taacgcgatt caacctagt aggatatgct 180
 aaacactgcc gcttgaagtc tgtttagatg aaatataatc aagctagtat catgttggtt 240
 gtttattgct tagcatgatg cgaaaattat caataaacta cacacgtaga aagatttgta 300
 tcaggacctc tgg 313

<210> 156

<211> 313

<212> RNA

<213> *Staphylococcus epidermidis* (NCTC 11047)

<400> 156

acaggggucc cccgagcuua uuaagcgugu cggaggguug gcuccgucan caacacauuu 60
 cgguaaaaua uaacugacaa aucaacaau aauuucgcag uagcugcgua auagccacug 120
 caucgcuuaa cagcaucucc uacgugcugu uaacgcgauu caaccuagu aggauaugcu 180
 aaacacugcc gcugaaguc uguuuagaug aaauauaauc aagcuaguau cauguugguu 240
 guuuauugcu uagcaugaug cgaaaauuau caauaaua caacacguaga aagauuugua 300
 ucaggaccuc ugg 313

<210> 157

<211> 302

<212> DNA

<213> *Streptococcus agalactiae* (NCTC 8181)

<400> 157

acaggcatta tgaggatat tttgcgactc atcggcagat gtaaaatgcc agttaaatat 60
 aactgcacaaa aatacaaaatt cttaacgcat agctgcctaa aaaacagcc tgcgtgatctt 120
 cacaagattg tttgcgtttt gctagaaggt ctattttatc agcaaaactac gtttgctac 180
 tgtctagtta gttaaaaaga gatttataga ctcgctatgt gagggcttga gttatgtgtc 240
 atcacctagt taaatcaata cataacctat agttgtagac aaatatatta gcagatgttt 300
 gg 302

<210> 158

<211> 302

<212> RNA

<213> *Streptococcus agalactiae* (NCTC 8181)

<400> 158

acaggcauua ugagguauau uuugcgacuc aucggcagau guaaaaugcc aguuaauuu 60
 aacugcaaaa aaauacaaau cuuacgcauu agcugccuaa aaaacagccu gcgugaucuu 120
 cacaagauug uuugcguuuu gcuaagaaggu cuuauuuuac agcaaacuac guuuggcuac 180
 ugucuauguu guuaaaaaga gauuuauaga cucgcuaugu gagggcuuga guuauguguc 240
 aucaaccuagu uaaaucaaua cauaaccuau aguuguagac aaauauuuu gcagauguuu 300
 gg 302

[0049]

<210> 159

<211> 168

<212> DNA

<213> *Bordetella bronchiseptica*

<400> 159

```

ggggcggatc cggattcgac gtgggtcatg aaacagctca aggcattgcc agcaccagta 60
agctcgttaa tccactggaa cactacaaac gccaacgacg agcgtttcgc tctcgccgct 120
taagcgggtga gccgctgcac tgatctgtcc ttgggtcacg cgggggaa 168

```

<210> 160

<211> 168

<212> RNA

<213> *Bordetella bronchiseptica*

<400> 160

```

ggggcggauc cggauucgac gugggucaug aaacagcuca aggcattgcc agcaccagua 60
agcucguuaa uccacuggaa cacuacaaac gccaacgacg agcguuucgc ucucgccgcu 120
uaagegguga gccgcugcac ugaucugucc uugggucaug cgggggaa 168

```

<210> 161

<211> 426

<212> DNA

<213> *Chlamydia pneumoniae* (CWL029)

<400> 161

```

gggggtgtat aggtttcgac ttgaaaatga agtgtaatt gcatcgaggag ggcgttggct 60
ggcctctctaa aaagccaaca aaacaataaa tgcgaacct aagctgaat gcgaaattat 120
tagcttggtt gactcagtag aggaagaact agctgcttaa ttagcaaaag ttgttagcta 180
gataatctct aggttaaccg gtatctgaga gctccaccag aggettcaa aatacgtca 240
tttatctggt tgaacttac ttctctaat tctcaaggaa gttcgttcca gatttttgag 300
agtcattgga tgcctatagag gcttctagct aaggagctcc aatgtaaca attctagaag 360
ataagcatgt agaggtttagc agggagtttg tcaaggacga gatttcgagt ctctccacct 420
ccacca 426

```

<210> 162

<211> 426

<212> RNA

<213> *Chlamydia pneumoniae* (CWL029)

<400> 162

```

ggggguguan agguuucgac uugaaauga aguguaauu gcaugcggag ggcguuggcu 60
ggcuccuuaa aaagccaaca aaacaauaaa ugccgaaccu aaggcugaau gcgaaauuu 120
uagcuuguuu gacucaguag aggaagacuu agcuuauuaa uuagcaaaag uuguuagcua 180

```

[0050]

gauaaucucu agguaaacccg guaucugcga gcuccaccag aggcuuugcaa aauiaceguca 240
 uuuauucuggu uggaacuuac uuucucuaau ucucuaaggaa guucguucga gaaaauuagag 300
 agucuuuggc ugcuaauagag gcuuuagcu aaggagagucc aauguaaaca auucuaagaag 360
 auuagcaugu agagguuagc agggaguuug ucaaggacga gaguucgagu cucuccaccu 420
 ccacca 426

<210> 163

<211> 421

<212> DNA

<213> Francisella tularensis

<400> 163

gggggcgaat atggtttcga catgaatgtc aaaatctaag gtgcatgccg aggaagtacc 60
 gtaacctgt taataacagt acaaatgcca ataataactg gcaacaaaa agcaaaccgc 120
 gtagcggcta acgacagcaa ctttctgtct gttgctaaag ctgcctagtc tagcttaata 180
 atctagatgc gcacggatat gatagtcttt cttatgacac tatctataca tccgttcata 240
 ttccgcataa gacggtcttt gctttttgtc tgggagttaa ggctgtatit aacagactcg 300
 ctaactatta ccctggctaa ttggggaata gtcaagctaa actcaaatag attagcctaa 360
 gcatgtagat ccaaagatct agagtttgtg gacgcgggtt caaatcccgc cgcctccacc 420
 a 421

<210> 164

<211> 421

<212> RNA

<213> Francisella tularensis

<400> 164

gggggcgaau augguuticga caugaauguc aaaauuaag gugcaugccg aggaaguacc 60
 guaaaccucgu uauuaacagu acaaaugcca auuauaacug gcaacaaaa agcaaaccgc 120
 guageggcua acgacagcaa cuuugcugcu guugcuuaag cugccuaguc uagcuuaaua 180
 aucuagauuc gcacggauau gauagucuuu cuuauagacac uaucuauaca uccguucaua 240
 uuccgcuaaa gacggucuuu gcuuuuuguc ugggaguuaa ggcuguauiuu aacagacucg 300
 cuaacuauua ccuuggcuua uuggggaaua gucaagcuua acucuuuag auuagccuua 360
 gcauguagau ccaaagaucU agaguuuugug gacgcggguu caaauccegc cgcuccacc 420
 a 421

<210> 165

<211> 330

<212> DNA

<213> Guillardia theta (质体)

<400> 165

ggggetgatt tggattegac atataaatit gcgtgtttca ttatgaagca agtcaagttt 60
 aatgatcttg taaaaaacat taaagtacaa ataatgcaa gcaatatagt ttcatttagt 120

[0051]

```
tcaaaacggt tagtctcttt tgcataagca aaatgtgtta ataactttct tagtagaat 180
tggagaagtt tactaagatt tataatttact ccataattat tttaaagatg gtaaaaaggt 240
gattcatcat ttgtatgttt ctaaactttg tgaaagaata gtgggcacca ttataatga 300
acgtgggttc aaatcccacc agctccacca 330
```

<210> 166

<211> 330

<212> RNA

<213> *Guillardia theta* (质体)

<400> 166

```
ggggcugauu uggauucgac auauaaaauu geguguuuca uuaugaagca agucaaguuu 60
aaugaucuuu uaaaaaacau uaaaguacaa auaaaugcaa gcaauauagu uucauuuagu 120
ucaaaacguu uagucuuuuu ugcuaaagca aaauuguuua auaacuuuc uaguagaaau 180
uggagaaguu uacuaagauu uauuuuuacu ccuaauuuuu uuuaaagauu guaaaaaggu 240
gauucaucau uuuguuuuuu cuaaacuuug ugaaagaaua gugggcucca uuuaaauga 300
acguggguuc aaaucccacc agcuccacca 330
```

<210> 167

<211> 348

<212> DNA

<213> *Thalassiosira Weissflogii* (质体)

<400> 167

```
ggggttgatt tggtttcgac atttaaaact tctttctatg tgtcaggta aagtttgtat 60
tctttgtaaa aaaataactaa aataactaata aatgctaata atataatacc gtttatttt 120
aaagcagtaa aaacaaaaaa agaagcaatg gctttaaatt ttgctgtata gttcattaac 180
ttaggttatt aaatatitit tcatitataac tggacttttc tetagtttat agtttagaat 240
aaattttaat ttgcaaaac tegttcgaaa attttcgggc taaacctgta aacgcaataa 300
ctaagaaatt ttagatggac atgggttcaa ttcccatcag ttccacca 348
```

<210> 168

<211> 348

<212> RNA

<213> *Thalassiosira Weissflogii* (质体)

<400> 168

```
ggggcugauu ugguuucgac auuuuuuacu ucuuuuauug ugucaggua aaguuuuguau 60
ucuuuuguaaa aaaaauacuaa auuacuaaua aaugcuauua auuuuuuacc guuuuuuuuu 120
aaagcaguua aaacaaaaaa agaagcaaug gcuuuuuuuu uugcuguaua guucauuuac 180
uuagguuuuu aaauuuuuuu ucauuuuuac uggacuuuuu ucuaguuuau aguuuagaa 240
aaauuuuuuu uuugcaaaac ucuuucgaaa auuuuucgggc uaaaccugua aacgcaaua 300
cuaagaaauu uuagauggac auggguucaa uucccacag uuccacca 348
```

[0052]

<210> 169	
<211> 19	
<212> DNA	
<213> 人工序列	
<220>	
<223> 人工序列的描述:V. cholerae tmRNA 特异性探针	
<400> 169	
aacgaatggc taacctgaa	19
<210> 170	
<211> 17	
<212> DNA	
<213> 人工序列	
<220>	
<223> 人工序列的描述:通用 ssrA/tmRNA 5' 体外扩增引物	
<400> 170	
gggmytaegg wttegac	17
<210> 171	
<211> 18	
<212> DNA	
<213> 人工序列	
<220>	
<223> 人工序列的描述:通用 ssrA/tmRNA 3' 体外扩增引物	
<400> 171	
gggartcgaa ccrsgtec	18
<210> 172	
<211> 18	
<212> DNA	
<213> 人工序列	
<220>	
<223> 人工序列的描述:5' Listeria 属特异性 PCR 扩增引物	
<400> 172	
aaagccaata ataactgg	18
<210> 173	
<211> 18	
<212> DNA	
<213> 人工序列	

[0053]

<220>

<223> 人工序列的描述:3' *Listeria* 属特异性扩增引物

<400> 173

ccagaaatat eggcaett 18

<210> 174

<211> 18

<212> DNA

<213> 人工序列

<220>

<223> 人工序列的描述:*Listeria* 属特异性杂交探针

<400> 174

gtgagaccct taccgtag 18

<210> 175

<211> 18

<212> DNA

<213> 人工序列

<220>

<223> 人工序列的描述:*Listeria monocytogenes* 种特异性杂交探针

<400> 175

tctatttaac cccagacg 18

<210> 176

<211> 348

<212> DNA

<213> *Helicobacter pylori*

<400> 176

tggggatgtt acggtttcga caggggtagt tcgagcttag gtggcgagtc gaggggatcg 60
gectcgttaa aacgtcaaag cctataactg gcaaacaaca aaacaacttc getttagcag 120
cttaataagc tcttagcggg tctecctcc atcgcccatg tggtagggtg agggactcaa 180
attaagtggg ctacgtgga ttccaccgtc tgaggatgaa agaagagAAC aaccagacta 240
gtaccceggg cgcccgtcga taggcagatg gagtagcgaa tcgcgaatat atcgactaca 300
ctcgtagaag cttaagtgcc gatattcttg gacgtgggtt cgactccc 348

<210> 177

<211> 348

<212> RNA

<213> *Helicobacter pylori*

[0054]

<400> 177

ugggggauguu acgguuucga cagggguagu ucgagcuuag guggcgaguc gaggggaucg 60
 gccucguuaa aacgucaaag ccuaauaacug gcaaacaaca aaacaacuuu gcuuuagcag 120
 cuuaauaage ucuuagcggg uccuccuucc aucgcccuaug ugguagggua agggacucua 180
 auuaaguggg cuacgcugga uuccaccguc ugaggauaag agaagagaac aaccagacua 240
 guuaccggga cgccegcuga uaggcagauu gaguagcgaa ucgcgaauuu aucgacuaa 300
 cucguagaag cuuaagugcc gauauucuuu gacguggguu cgacucce 348

<210> 178

<211> 344

<212> DNA

<213> *Helicobacter pylori*

<400> 178

tggggacgtt acggtttcga cagggatagt tgcagcttag gtgcgagtc gaggggacgc 60
 gccctgttaa aacgtcaaag cctataattg gcaaacaata caatctttct ttagctgctt 120
 aattgcacta aaggttcttc cctccatcgt ccatgtggta gggtaaggga ctcaaacuaa 180
 gtggactacg ccggagttag ccgtctgagg acaaaggaag agaacaacca gactagcaac 240
 ttggaagcct gtgcgtaggc cgaagagttc gcgaaatgct aatataatga ctacactcgt 300
 agaagcttaa gtgcgatat ttttggacgt gggttcgatt ccct 344

<210> 179

<211> 344

<212> RNA

<213> *Helicobacter pylori*

<400> 179

uggggacguu acgguuucga cagggauagu ucgagcuuag guugcgaguc gaggggaucg 60
 gccucguuaa aacgucaaag ccuaauauug gcaaacaata caaucuuuuu uuagcugcuu 120
 aaaugcacua aagguuccuc cuccaucgu ccauguggua ggguaaggga cucaaacuaa 180
 guggacuacg ccggaguucg ccgucugagg acaaaggaag agaacaacca gacuagcaac 240
 uuggaagccu gucgauaggc cgaagaguuc gcgaaugcu aaauauucga cuacacucgu 300
 agaagcuuaa gugccgauau uuuggacgu ggguucgauu cccu 344

<210> 180

<211> 322

<212> DNA

<213> *Listeria seeligeri* (NCTC 11856)

<400> 180

acaggatag ttgcagcttg agttgcagat oggggggacg gtcctcgta tcaacgtcaa 60
 agccaataat aactggcaaa gaaaaacaaa acctagcttt cgtgcctaa taagcagtag 120
 catagctgat cctccgtgca tgcgccatgt gctacggaaa gggctcact ttaagtgggc 180
 tacactaaat aatctcgtc tggggttagt tagaagagct taatcagact agctgaatgg 240

[0055]

aagcctgtta ccgggctgat gtttatgca aatactaata cggtgactac gctcgtagat 300
atttaagtgc ccatatttct gg 322

<210> 181

<211> 322

<212> RNA

<213> *Listeria seeligeri* (NCTC 11856)

<400> 181

acagggauag uucgagcuug aguugcgagu cgggggggauc guccucguua ucaacgucaa 60
agccaauaa uacuggcaaa gaaaaacaaa accuagcuuu cgcugccuaa uaagcaguag 120
cauagcugau ccuccgugca ucgcccagug gcuacggaaa gggucucacu uuaagugggc 180
uacacuaaa uaucuccguc ugaggguuagu uagaagagcu uauacagacu agcugaauagg 240
aagccuguaa ccgggcugau guuuuugcga aauacuaaa cggugacuaa gcucguagau 300
auuaagugc ccauuuuuc gg 322

<210> 182

<211> 322

<212> DNA

<213> *Listeria ivanovii* (NCTC 11846)

<400> 182

acagggatag ttcgagcttg agttgcagat cgggggggato gtcctcgta ttaacgtcaa 60
agccaataat aatggcaaa gaaaaacaaa acctagcttt cgtgcctaa taagcagtag 120
catagctgat cctccgtgca tcgcccagtg gctacggtaa gggctcact ttaagtgggc 180
tacactaaat aatctccgtc tggggttagt tagaagagct taatcagact agctgaatgg 240
aagcctgtta ccgggctgat gtttatgca aatgctaata cggtgactac gctcgtagat 300
atttaagtgc cgatatttct gg 322

<210> 183

<211> 321

<212> RNA

<213> *Listeria ivanovii* (NCTC 11846)

<400> 183

acagggauag uucgagcuug aguugcgagu cgggggggauc guccucguua uuaacgucaa 60
agccaauaa uacuggcaaa gaaaaacaaa accuagcuuu cgcugccuaa uaagcaguag 120
cauagcugau ccuccgugca ucgcccagug gcuacgguaa gggucucacu uuaagugggc 180
uacacuaaa uaucuccguc ugaggguuagu uagaagagcu uauacagacu agcugaauagg 240
aagccuguaa ccgggcugau guuuuugcga aaugcuaaa cggugacucg cucguagaa 300
uuuaagugc gaaauuucug g 321

<210> 184

<211> 319

[0056]

<212> DNA

<213> *Mycobacterium africanum*

<400> 184

```

acttcgcgca tccaatcaag ggaagcgtgc cgggtgcaggc aagagaccac cgtaagegtc 60
gttgcgacca aataagegcc gattcacatc agcgcgacta cgtctctcgtt gccaaagega 120
cggctagtct gtcagaccgg gaacgccctc ggcccgacc cttggcatcag cttagaggat 180
ccaccgatga gtccggtcgc gggactctc gggacaacca cagcgactgg gatcgtcctc 240
tcggctagtt cgcgtgaccg ggagatccga gcagaggcat agcgaactgc gcacggagaa 300
gccttgaggg aatgccgta 319

```

<210> 185

<211> 319

<212> RNA

<213> *Mycobacterium africanum*

<400> 185

```

acuucgcgca ucgaaucaag ggaagcgugc cggugcaggc aagagaccac cguaagcguc 60
guugcgacca aauaagegcc gauucacauc agcgcgacua cgcucucgcu gccuaagega 120
cggcuagucu gucagaccgg gaacgccctc ggcccgacc cuggcaucag cuagagggau 180
ccaccgauga guccggucgc gggacuccuc gggacaacca cagcgacugg gaucgucauc 240
ucggcuaguu cgcgugaccg ggagauccga gcagaggcau agcgaacugc gcacggagaa 300
gccuugaggg aaugccgua 319

```

<210> 186

<211> 319

<212> DNA

<213> *Mycobacterium gordonae*

<400> 186

```

acttcgcgca tccaatcaag ggaagcgtgc cgggtgcaggc aagagaccac cgtaagegtc 60
gttgcaccca tataagegcc gattcacatc agcgcgacta cgtctctcgtt gccaaagega 120
cggctagtct gtcggaccgg gaacgccctc ggcccgacc cttggcatcag cttagaggat 180
caaccgatga gtteggctgc gggactctc gggacaccaa cagcgactgg gatcgtcctc 240
ctggctagtc cgtgtgacca ggagatccga gcagagacat agcggactgc gcacggagaa 300
gccttgaggg aatgccgta 319

```

<210> 187

<211> 319

<212> RNA

<213> *Mycobacterium gordonae*

<400> 187

```

acuucgcgca ucgaaucaag ggaagcgugc cggugcaggc aagagaccac cguaageguc 60

```

[0057]

guugcaacca uauaagcgcc gauucacauc agcgcgacua cgcucucgcu gccuaagcga 120
 eggcuagucu gucggaccgg gaacgcccuu gccccggacc ccggcaucag cuagagggau 180
 caaccgauga guucggucgc gggacucauc gggacaccaa cagcgacugg gaucgucauc 240
 cuggcuaguc cgugugacca ggagauccga gcagagacau agcggacugc gcacggagaa 300
 gccuugaggg aaugccgua 319

<210> 188

<211> 319

<212> DNA

<213> Mycobacterium kansasii

<400> 188

acttcgcgca tcgaatcaag ggaagegtgc cgggtgcagge aagagaccac cgtaagcgtc 60
 gtigcaacca aataagcgcc gattcacatc agcgcgacta cgtctctcgt gcctaagcga 120
 eggctagtct gtcagaccgg gaccgccctc gaccggact ctggcatcag cttagaggat 180
 caaccgatga gttcggtcgc gggactcgtc gggacaccaa cagcgactgg gatcgtcatc 240
 ctggctagtt cgcgtgacca ggagatccga gcagaggcat agcgaactgc gcacggagaa 300
 gccttgaggg aatgccga 319

<210> 189

<211> 319

<212> RNA

<213> Mycobacterium kansasii

<400> 189

acuucgcgca ucgaaucaag ggaagegucg cggugcagge aagagaccac cguaagcguu 60
 guugcaacca aauaagcgcc gauucacauc agcgcgacua cgcucucgcu gccuaagcga 120
 eggcuagucu gucagaccgg gaccgcccuu gaccggacu cuggcaucag cuagagggau 180
 caaccgauga guucggucgc gggacucguc gggacaccaa cagcgacugg gaucgucauc 240
 cuggcuaguu cgcgugacca ggagauccga gcagaggeau agcgaacugc gcacggagaa 300
 gccuugaggg aaugccgua 319

<210> 190

<211> 320

<212> DNA

<213> Mycobacterium chelonae

<400> 190

acagegagtc tcgacttaag ggaagegtgc cgggtgcagge aagagaccac cgtaagcgtc 60
 attgcaacca attaagcgcc gattctcatc agcgcgacta cgcactcgtc gcctaagcga 120
 ctgctgtctt gtcagaccgg gaccgccctc agccggacc ctggcatcag cttagaggac 180
 aaactacggg ttccggtcgc ggaccgtag ggacatcaaa cagcgactgg gatcgtcatc 240
 tcggcttgtt cgcgggaccg agagatccaa gtagaggcat agcgaactgc gcacggagaa 300
 gccctaatga acggccgttg 320

[0058]

<210> 191
 <211> 320
 <212> RNA
 <213> *Mycobacterium chelonae*

<400> 191
 acagcgaguc ucgacuuuag ggaagcgugc cggugcagge aagagaccac cguaageguc 60
 auugcaacca auuaagcgcc gauucucauc agcgcgacua cgcacuegcu gccuaagcga 120
 cugcgugucu gucagaccgg gagegccuc agcccgacc cuggcaucag cuagaggga 180
 aaacuacggg uucggucgcg ggaccguag ggacaucaaa cagcgacugg gaucgucauc 240
 ucgguuguu cggggaccg agagaucuaa guagaggcau agogaacugc gcacggagaa 300
 gccuuuanga acggccguug 320

<210> 192
 <211> 320
 <212> DNA
 <213> *Mycobacterium szulgai*

<400> 192
 acttcgcga tcgaatcaag ggaagcgtgc cggtcagge aagagaccac cgtaagegtc 60
 gttgcaacca attaagegcc gagaacaetc agegcgactt cgtctctctt gcctaagcga 120
 cageaagtec gtcagaccgg gaaagccctc gacccgacc ctggcgctat ctagaggga 180
 ccaccggtga gttcggtgc gggactcact gggacaccaa cagcgactgg gatcgctate 240
 ctggctagtt cgcgtgacca ggagatccga gtagagacat agcgaactgc gcacggagaa 300
 gccttgaggg aatgccgtag 320

<210> 193
 <211> 320
 <212> RNA
 <213> *Mycobacterium szulgai*

<400> 193
 acuucgcga ucgaucaag ggaagcgugc cggugcagge aagagaccac cguaageguc 60
 guugcaacca auuaagcgcc gagaacacuc agegcgacuu cgcucuegcu gccuaagcga 120
 cageaagucc gucagaccgg gaaagccctc gacccgacc cuggcgucan cuagaggga 180
 ccaccgguga guucggucgc gggacucauc gggacaccaa cagcgacugg gaucgucauc 240
 cuggcuaguu cgcgugacca ggagaucgga guagagacau agcgaacugc gcacggagaa 300
 gccuugaggg aaugccguag 320

<210> 194
 <211> 320
 <212> DNA
 <213> *Mycobacterium malmoense*

[0059]

<400> 194

```

acttegcgca tcgaatcaag ggaagcgtgc cgggtgcaggc aagagaccac cgtaagcgtc 60
gttgcacca tataagcgc gtttcaacac agcgcgacta cgtctctcgt gcctaagcga 120
cagctagtc gtcagaccgg gaacgccctc gaccgcggagc ctggcgctcag ctggagggat 180
ccaccgggtga gtccgggtcgc gggactcacc gggacataca cagcgactgg gatcgtcacc 240
ctggtctggtt cgcgtgaccg ggagatccga gcagaggcat agcgaactgc gcacggagaa 300
gccttgaggg aatgccgtag                                     320

```

<210> 195

<211> 320

<212> RNA

<213> *Mycobacterium malmoense*

<400> 195

```

acuucgcgca ucgaaucaag ggaagcgugc cggugcaggc aagagaccac cguaagcguc 60
guugcaacca uauaagcgc guuucacac agcgcgacua cgcucucgcu gccuaagcga 120
cagcuaguc gucagaccgg gaacgccuc gaccgcggagc cuggcgucag cuggagggau 180
ccaccgguga guccggucgc gggacucauc gggacauaca cagcgacugg gaucgucauc 240
cuggcugguu cgcgugaccg ggagauccga gcagaggcau agcgaacugc gcacggagaa 300
gccuugaggg aaugccguag                                     320

```

<210> 196

<211> 321

<212> DNA

<213> *Mycobacterium flavescens*

<400> 196

```

acttcgagcg tcgaatcaag ggaagcgtgc cgggtgcaggc aagagaccac cgtaagcgtc 60
gttgcacca attaagcgc gattccaatc agcgcgacta cgcactcgtc gcctaagcga 120
ctgcgtgtct gtcagcccg gagagccctc gaccgcgtgt ctggcatcag ctagagggat 180
aaaccgggtg gtccgggtcgc gggactcacc gggacatcaa acagcgactg ggatcgtcat 240
cctgaattgt tcgcgtgac aggagatccg agtagagaca tagcgaactg cgcacggaga 300
agccttgagg gaacgccgta g                                     321

```

<210> 197

<211> 321

<212> RNA

<213> *Mycobacterium flavescens*

<400> 197

```

acuucgcgagc ucgaaucaag ggaagcgugc cggugcaggc aagagaccac cguaagcguc 60
guugcaacca auuaagcgc gauuccaauc agcgcgacua cgcacucgcu gccuaagcga 120
cugcgugucu gucagcccg gagagccuc gaccgcggugu cuggeaucag cuagagggau 180

```

[0060]

aaaccggugg guccgguegc gggacucauc gggacaucaa acagcgacug ggaucgucau 240
 ccugacuugu ucgcgugauc aggagauccg aguagagaca uagcgaacug cgcaaggaga 300
 agccuugagg gaacgccgua g 321

<210> 198

<211> 320

<212> DNA

<213> *Mycobacterium marinum*

<400> 198

acttegcgea tegaatcaag ggaagegtgc cgggtgcaggc aagagaccac cgtaagegtc 60
 gatgcaacta gataagegcc gattcacatc agegcgacta cgtctctcgt gcttaagega 120
 cggctagtct gtccgaccgg gaacgccctc gccccggacc ccggcatcag cttagaggat 180
 caaccgatga gtteggtegc ggggtctatc gggacatcaa cagcgactgg gatcgtcctc 240
 ctggctagtt cgcgtgacca ggagatccga gcagagacct ageggactgc gcacggagaa 300
 gccctgaggg aatgccgtag 320

<210> 199

<211> 320

<212> RNA

<213> *Mycobacterium marinum*

<400> 199

acuucgcgea ucgaaucaag ggaagecugc cggugcaggc aagagaccac cguaagecuc 60
 gaugcaacua gaaagegcc gauucacauc agegcgacua cgcucucgu gcttaagega 120
 cggcuagucu guccgaccgg gaacgccctc gccccggacc ccggcaucag cuagagggau 180
 caaccgauga guccggucgc ggggcucauc gggacaucaa cagcgacugg gaucgucauc 240
 cuggcuaguu cgcgugacca ggagaucgga gcagagaccu ageggactgc gcacggagaa 300
 gccuugaggg aaugccguag 320

<210> 200

<211> 319

<212> DNA

<213> *Mycobacterium microti*

<400> 200

acttegcgea tegaatcaag ggaagegtgc cgggtgcaggc aagagaccac cgtaagegtc 60
 gttgcgacca aataagegcc gattcacatc agegcgacta cgtctctcgt gcttaagega 120
 cggctagtct gtcagaccgg gaacgccctc gccccggacc ctggcatcag cttagaggat 180
 ccaccgatga gtccggtegc gggactctc gggacagcca cagcgactgg gatcgtcctc 240
 tcggctagtt cgcgtgaccg ggagatccga gcagaggcat agcgaactgc gcacggagaa 300
 gccctgaggg aatgccgta 319

<210> 201

[0061]

<211> 319

<212> RNA

<213> *Mycobacterium microti*

<400> 201

```

acuucgcgca ucgaaucaag ggaagcgugc cggugcaggc aagagaccac cguaagcguc 60
guugcgacca aauaagegcc gauucacauc agcgcgacua cgcucucgu gccuaagcga 120
cggcuagucu gucagaccgg gaacgccuc ggcccgacc cuggcaucag cuagagggau 180
ccaccgauga guccggugc gggacuccuc gggacagcca cagcgacugg gaucgucauc 240
uoggcuaguu cgcgugaccg ggagauccga gcagaggcau agcgaacugc gcacggagaa 300
gccuugaggg aaugccgua                                     319

```

<210> 202

<211> 321

<212> DNA

<213> *Mycobacterium smegmatis*

<400> 202

```

acttegagca tcgaatccag ggaagcgtgc cgggtcaggc aagagaccac cgtaagcgtc 60
gttgcaacca attaagegcc gattccaatc agcgcgacta cgcctcgct gccuaagcga 120
cggttggtct gtcagaccgg gattgcctc ggcccgatc ctggcatcag ctagagggac 180
ccaccacgg gttcggtcgc gggacctgtg gggacatcaa acagegactg ggategcat 240
ctcggttgt tegtgtgacc gggagatccg agtagagaca tagcgaactg cgcacggaga 300
agctcgagg acatgccgtg g                                     321

```

<210> 203

<211> 321

<212> RNA

<213> *Mycobacterium smegmatis*

<400> 203

```

acuucgagca ucgaauccag ggaagcgugc cggugcaggc aagagaccac cguaagcguc 60
guugcaacca aauaagegcc gauuccaau cgcgcgacua cgcucucgu gccuaagcga 120
cggcuggucu gucagaccgg gagugccuc ggcccggauc cuggcaucag cuagagggac 180
ccaccacgg guucggugc gggaccugug gggacaucaa acagegacug ggaucgucau 240
cucggcuugu ucgugugacc gggagauccg aguagagaca uagegaacug cgcacggaga 300
agccucgagg acaugccgua g                                     321

```

<210> 204

<211> 320

<212> DNA

<213> *Mycobacterium xenopi*

<400> 204

[0062]

```

acttcgcgca tcgaatcaag ggaagcgtgc cgggtgcaggc aagagaccac cgtaagcgtc 60
gttgcaacta aataagcgcc gattcacatc agegcgacta cgctctcgtt gccaaagcga 120
cagctagtcg gtcaggccgg gagttccctc gacccgagtc ctggcgtagc ctgagaggat 180
ccaccgatgg gttcgggtgc gggacccatc gggacaccac acagegactg ggatcgccgt 240
cccggctagt tcgcgagacc gggagatccg agtaagggca aagcgaactg cgcacggaga 300
agccttgagg gtatgcegtg                                     320

```

<210> 205

<211> 320

<212> RNA

<213> *Mycobacterium xenopi*

<400> 205

```

acuuegcgca ucgaaucaag ggaagcgugc cggugcaggc aagagaccac cguaagcguc 60
guugcaacua aauaagcgcc gattcacatc agegcgacta cgcucucgtt gccaaagcga 120
cagcuagucc gtcaggccgg gagttccctc gacccgagtc ctggcgtagc ctgagaggat 180
ccaccgaugg guucgggtgc gggacccatc gggacaccac acagegacug ggaucgccgt 240
cccggcuagu ucgcgagacc gggagaucgg aguaagggca aagcgaacug cgcacggaga 300
agccuugagg guaugcegua                                     320

```

<210> 206

<211> 320

<212> DNA

<213> *Mycobacterium intracellulare*

<400> 206

```

acttcgcgca tcgaatcaag ggaagcgtgc cgggtgcaggc aaccgaccac cgtaagcgtc 60
gttgcaaaaca gataagcgcc gattcacatc agegcgacta cgctctcgtt gccaaagcga 120
cagctagtcg gtcagaccgg gaacgccctc gacccgagtc ctggcgtagc ctgagaggat 180
ccaccgatga gtcgggtgc gggacttacc gggacaccaa cagcgaactg gatcgctacc 240
tcggcttggt cgcgtgaccg ggagatccga gtagaggcat agcgaactgc gcacggagaa 300
gtcttgaggg aatgcgtagg                                     320

```

<210> 207

<211> 320

<212> RNA

<213> *Mycobacterium intracellulare*

<400> 207

```

acuuegcgca ucgaaucaag ggaagcgugc cggugcaggc aaccgaccac cguaagcguc 60
guugcaaaaca gaaagcgcc gattcacatc agegcgacta cgcucucgtt gccaaagcga 120
cagcuagucc gtcagaccgg gaacgccctc gacccgagtc ctggcgtagc ctgagaggat 180
ccaccgauga gucgggtgc gggacuuatc gggacaccaa cagcgaactg ggaucguatc 240
ucggcuuguu cgcgugaccg ggagaucgga guagaggcat agcgaacugc gcacggagaa 300

```

[0063]

gucuuagagg aaugccguag 320

<210> 208

<211> 320

<212> DNA

<213> *Mycobacterium scrofulaceum*

<400> 208

acatgcgcga tcgaatcaag ggaagcgtgc cgggtgcaggc aagagaccac cgtaagcgtc 60
 gttgcaacca attaagcgcc gattcacatc agcgcgacaa cgcctctcgt gccaaagcga 120
 cagctagtc gtcagaccgg gaaagccctc gaccggagc ctggcgtag ctagagggat 180
 caaccgatga gttaggtcgc gggactcacc gggacaccaa cagcgactgg gatcgtcacc 240
 ctggctagtc cgcgtgacca ggagatccga gcagaggcat agcggactgc gcacggagaa 300
 gtcttgaggg aatgcggtg 320

<210> 209

<211> 320

<212> RNA

<213> *Mycobacterium scrofulaceum*

<400> 209

acaucgcgcga ucgaaucaag ggaagcgugc cggugcaggc aagagaccac cguaagcguu 60
 guugcaacca auuaagcgcc gaucacacac agcgcgacua cgcucucgu gccuaagcga 120
 cagcuagucc gucagaccgg gaaagccuc gaccggagc cuggcgucag cuagagggau 180
 caaccgauga guucggucgc gggacucauc gggacaccaa cagcgacugg gaucgucauc 240
 cuggcuaguc cgcgugacca ggagauccga gcagaggcau agcggacugc gcacggagaa 300
 gucuagaggg aaugccguug 320

<210> 210

<211> 326

<212> DNA

<213> *Nocardia asteroides*

<400> 210

actgtgtgcg ccgaggtagg ggaagcgtgt cgggtgcaggc tggagaccac cgtaagcgt 60
 cgggcaacc aattaagcgc cgattccaat cagcgcgact acgcctcgc tgcctgatea 120
 gcgacggcta gctgtcgcc cgggttgtgt tccgaacc ggatgcggc atcatctcag 180
 ggaactcacc gtgttcgccc gtcgggacg gacacggac agcaaacagc gactgggata 240
 gtcattcgg cttgttcgct tgaccgggag atccaagtag agacatagcg gactgcacac 300
 ggagaagccc tactgactcg acacag 326

<210> 211

<211> 325

<212> RNA

[0064]

<213> *Nocardia asteroides*

<400> 211

```
acugugugcg ccgagguagg ggaagcgugu cggugcaggc uggagaccac cguaaagcgu 60
cgcggcaacc aaauaagcgc cgauuccaau cagegcgacu acgccucgc ugcugauca 120
gegacggcuu gcugucggcc cggguugugu ucccgaccc ggauccggc aucaucucag 180
ggaacucacc guguucgcgc gucgcggacg gacacgggac agcaaacagc gacugggau 240
gucaucucgg cuugucgcgc ugaccgggag auccaaguag agacauagcg gcugcacacg 300
gagaagcccu acugacucga cacag 325
```

<210> 212

<211> 314

<212> DNA

<213> *Salmonella enteritidis*

<400> 212

```
acgggatttg cgaaacccaa ggtgcatgcc gagggcggt tggcctcgta aaaagccgca 60
aaaaaatagt cgaaacgac gaaacctacg ctttagcagc ttaataacct gcttagagcc 120
ctctctccct agcctccgt cttaggacgg ggatcaagag aggtcaaacc caaaagagat 180
cgcgtggatg cctgcctgg ggttgaagcg ttaaaacgaa tcaggctagt ctggtagtgg 240
cgtgtccgtc cgcagggtgc aggcgatgt aaagaactgac taagcatgta gtaccgagga 300
ttaggaatt tgg 314
```

<210> 213

<211> 314

<212> RNA

<213> *Salmonella enteritidis*

<400> 213

```
acgggaauug cgaaacccaa ggugcaugcc gagggcggu ugccucgta aaaagccgca 60
aaaaauagu cgaaacgac gaaaccuacg cuuagcagc uuaauaacu gcuuagagcc 120
cucucucccu agccuccgu cuuaggacgg ggaucaagag aggucaaacc caaaagagau 180
cgcguggaug ccugccugg gguugaagcg uaaaaacgaa ucaggcuagu cugguagugg 240
cguguccguc cgcaggugcc aggcgaaugu aaagacugac uaagcaugua guaccgagga 300
uguaggaaau ucgg 314
```

<210> 214

<211> 313

<212> DNA

<213> *Staphylococcus epidermidis* (NCTC 11047)

<400> 214

```
acaggggtcc cccgagetta ttaagegtgt cggagggttg gctccgtcat caaacattt 60
cgggttaata taactgacaa atcaacaat aatttcgcag tagctcgta atagecactg 120
```

[0065]

catcgccctaa cagcatctcc tacgtgctgt taacgcgatt caacctagt aggatatgct 180
 aaacactgcc gcttgaagtc tgtttagatg aaatataatc aagctagtat catgttgggt 240
 gtttattgct tagcatgatg cgaaaattat caataaacta cacacgtaga aagatttgta 300
 tcaggacctc tgg 313

<210> 215

<211> 313

<212> RNA

<213> *Staphylococcus epidermidis* (NCTC 11047)

<400> 215

acaggggucc cccgagcuua uuaagcgugu cggaggguug gcuccgucan caacacauuu 60
 cgguaaaaua uaacugacaa aucaacaau aauuucgcag uagcugcgua auagccacug 120
 caucgccuua cagcaucucc uacgugcugu uaacgcgauu caaccuagu aggauaugcu 180
 aaacacugcc gcugaaguc uguuuagaug aaauuaaauc aagcuaguau cauguugguu 240
 guuuauugcu uagcaugaug cgaaaauuau caauaaua caacacguaga aagauuugua 300
 ucaggaccuc ugg 313

<210> 216

<211> 302

<212> DNA

<213> *Streptococcus agalactiae* (NCTC 8181)

<400> 216

acaggcatta tgaggatat tttgcgactc atcggcagat gtaaaatgcc agttaaatat 60
 aactgcacaaa aatacaaat cttacgcatt agctgcctaa aaaacagcc cgcgtgatctt 120
 cacaagattg tttgcgtttt gctagaaggt cttatttate agcaaaactac gtttgctae 180
 tgtctagtta gttaaaaaga gatttataga etcgctatgt gagggcttga gttatgtgtc 240
 atcacctagt taaatcaata cataacctat agttgtagac aaatatatta gcagatgttt 300
 gg 302

<210> 217

<211> 302

<212> RNA

<213> *Streptococcus agalactiae* (NCTC 8181)

<400> 217

acaggcauua ugagguauau uuugcgacuc aucggcagau guaaaaugcc aguuaauuu 60
 aacugcaaaa aaauacaaau cuuacgcuuu agcugccuaa aaaacagccu gcgugaucuu 120
 cacaagauug uuugcguuuu gcuaagaaggu cuuauuuuac agcaaacuac guuuggcua 180
 ugucuauguu guuaaaaaga gauuuauaga cucgcuaugu gagggcuuga guuauguguc 240
 aucaaccuagu uaaaucaaua cauaaccuau aguuguagac aaauauuuu gcagauguuu 300
 gg 302

[0066]

- <210> 218
<211> 21
<212> DNA
<213> 人工序列
- <220>
<223> 人工序列的描述: Salmonella 属特异性探针
- <400> 218
cgaatcaggc tagtctggta g 21
- <210> 219
<211> 23
<212> DNA
<213> 人工序列
- <220>
<223> 人工序列的描述: 检测肺结核复合体的寡核苷酸探针
- <400> 219
actccteggg acarccacag cga 23
- <210> 220
<211> 20
<212> DNA
<213> 人工序列
- <220>
<223> 人工序列的描述:检测 M. avium 和 M. Paratuberculosis 序列的寡核苷酸探针
- <400> 220
gttgcaaata gataagcgcc 20
- <210> 221
<211> 20
<212> DNA
<213> 人工序列
- <220>
<223> 人工序列的描述:检测 M. Avium 和 M. paratuberculosis 序列的寡核苷酸探针
- <400> 221
tccgtcagcc cgggaacgcc 20
- <210> 222
<211> 18
<212> DNA

[0067]

<213> 人工序列

<220>

<223> 人工序列的描述:在对 *Listeria* 菌细胞进行热杀灭处理后在 tmRNA 完整性的测定中所用寡核苷酸探针

<400> 222

tittgttttt ctttgcca

18

<210> 223

<211> 18

<212> DNA

<213> 人工序列

<220>

<223> 人工序列的描述:在对 *Escherichia coli* 细胞进行热杀灭处理后在 tmRNA 完整性的测定中所用的寡核苷酸探针

<400> 223

agttttcgtc gtttgcca

18

<210> 224

<211> 20

<212> DNA

<213> 人工序列

<220>

<223> 人工序列的描述:用于扩增所有分支杆菌序列的简并寡核苷酸引物

<400> 224

caggcaashg accaccgtaa

20

<210> 225

<211> 23

<212> DNA

<213> 人工序列

<220>

<223> 人工序列的描述:用于扩增所有分支杆菌序列的简并寡核苷酸引物

<400> 225

ggatctccyg rtewercgra cwa

23

<210> 226

<211> 18

<212> DNA

<213> 人工序列

<220>

[0068]

<223> 人工序列的描述:用于扩增 *M. avium* 和 *M. paratuberculosis* 序列的寡核苷酸引物

<400> 226

tgccggtgca ggcaactg

18

<210> 227

<211> 18

<212> DNA

<213> 人工序列

<220>

<223> 人工序列的描述: 用于扩增 *M. avium* 和 *M. Paratuberculosis* 序列的寡核苷酸引物

<400> 227

cacgcgaaca agccagga

18

<210> 228

<211> 23

<212> DNA

<213> 人工序列

<220>

<223> 人工序列的描述: 用于检测 *Listeria* *ssrA* 基因序列的寡核苷酸探针

<400> 228

cattaaactt tagcaaggaa gtg

23

1

1

1

大肠杆菌	GGGGCTGATTCTGGATTTCGACGGGATTTGCGAAACCCAAGGTGCATGCCG
霍乱弧菌	GGGGCTGATTTCAGGATTCGACGGGAATTTTGCAGTCTGAGGTGCATGCCG

大肠杆菌	AGGGGCGGTTGGCCTCGTAAA-AAGCCGCAAAAAA-TAGTCGCAAACGAC
霍乱弧菌	AGGTGCGGTAGGCCTCGTTAACAAACCGCAAAAAAATAGTCGCAAACGAC

大肠杆菌	GAAAACTACGCTTTAGCAGCTTAATAACCTGCTTAGAGCCCTCTCTCCCT
霍乱弧菌	GAAAACTACGCACTAGCAGCTTAATACCCTGCTCAGAGCCCTTCCTCCCT

大肠杆菌	AGCCTCCGCTCTTAGGACGGGGAT-CAAGAGAGGTCAAACCCAAAAGAGA
霍乱弧菌	AGCTTCCGCTTGTAAGACGGGGAAATCAGGAAGGTCAAACCAAATCAAGC

大肠杆菌	TCGCGTGGAAGCCCT-GCCTG-GGGTTGAAGCGTTAAACTTAATCAGGC
霍乱弧菌	TGGCGTGGATTCCCCACCTGAGGGATGAAGCGCGAGATCTAATTCAGGT

大肠杆菌	TAGTTTGTTAGTGGCGTGTCGTCGCGAGCTGGCAAGCGAATGTAAAGAC
霍乱弧菌	TAGCCATTCGTTAGCGTGTCGGTTTCGCAGGCGGTG-GTGAAATTAAAGAT

大肠杆菌	TGACTAAGCATGTAGTACCGAGGATGTAGGAATTTTCGGACGCGGGTTCAA
霍乱弧菌	CGACTAAGCATGTAGTACCAAAGATGAATGGTTTTTCGGACGCGGGTTCAA

大肠杆菌	CTCCCGCCAGCTCCACCAAAATTCTCCA
霍乱弧菌	CTCCCCCAGCTCCACCA-----

图 1

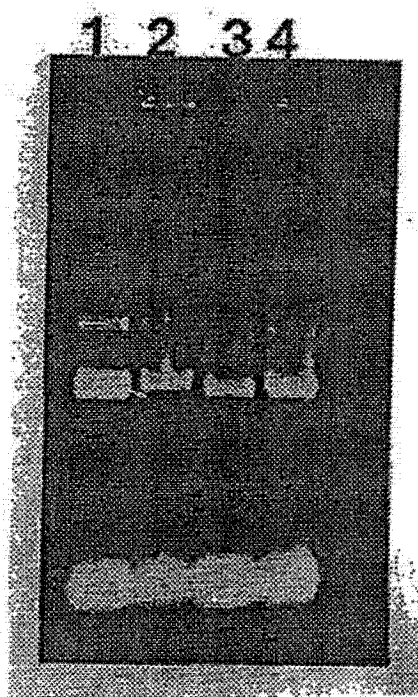


图 2

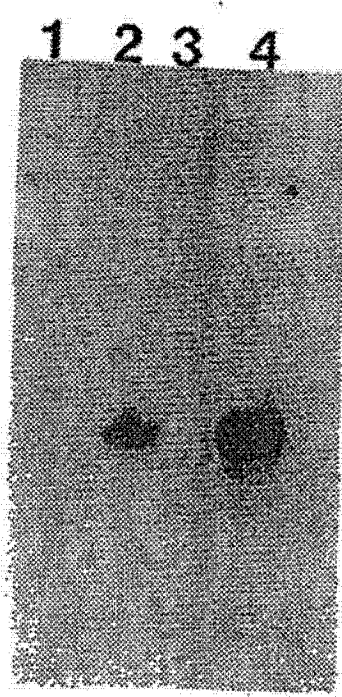


图 3

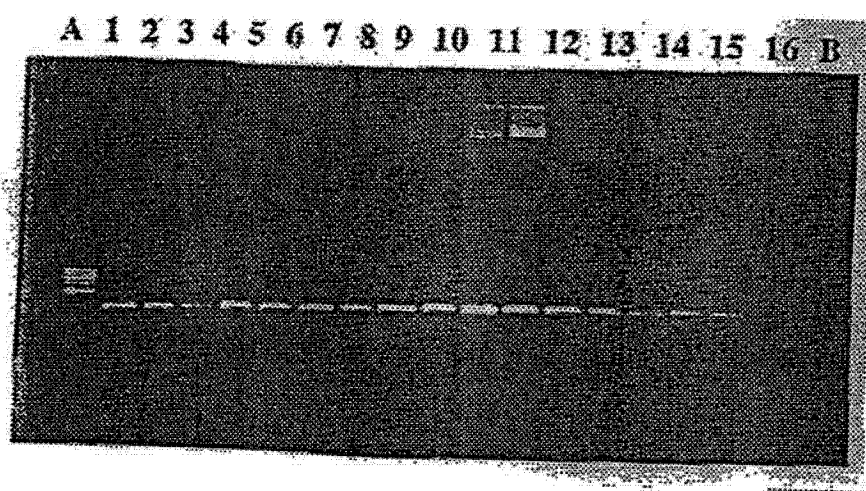


图 4

单核细胞增多性李斯特氏菌	ACAGGGATAGTTTCGAGCTTGAGTTGCGAGTCGGGGGGATCGTCCTCGTTA		
无害李斯特菌	ACAGGGATAGTTTCGAGCTTGAGTTGCGAGTCGGGGGGATCGTCCTCGTTA		
墨氏李斯特氏菌	ACAGGGATAGTTTCGAGCTTGAGTTGCGAGTCGGGGGGATCGTCCTCGTTA		
威氏李斯特氏菌	ACAGGGATAGTTTCGAGCTTGAGTTGCGAGTCGGGGGGATCGTCCTCGTTA		
格氏李斯特氏菌	ACAGGGATAGGTCGAGCTTGAGTTGCGAGCCGGGGGGATCGGCC-CGTCA		

	Ltm1		
单核细胞增多性李斯特氏菌	TCAACGTC	AAAGCCAATAATAACTGG	CAAAGAAAAACAAAACCTAGCTTT
无害李斯特菌	TCAACGTC	AAAGCCAATAATAACTGG	CAAAGAAAAACAAAACCTAGCTTT
墨氏李斯特氏菌	TCAACGTC	AAAGCCAATAATAACTGG	CAAAGAAAAACAAAACCTAGCTTT
威氏李斯特氏菌	TCAACGTC	AAAGCCAATAATAACTGG	CAAAGAAAAACAAAACCTAGCTTT
格氏李斯特氏菌	TCAACGTC	AAAGCCAATAATAACTGG	CAAACAAAACAACAATTTAGCTTT
	*****	*****	*****
单核细胞增多性李斯特氏菌	CGCTGCCTAATAAGCAGTA-GCATAGCTGATCCTCCGTGCATCGCCCATG		
无害李斯特菌	CGCTGCCTAATAAGCAGTA-GCATAGCTGATCCTCCGTGCATCGCCCATG		
墨氏李斯特氏菌	CGCTGCCTAATAAGCAGTA-GCATAGCTGATCCTCCGTGCATCGCCCATG		
威氏李斯特氏菌	CGCTGCCTAATAAGCAGTA-GCATAGCTGATCCTCCGTGCATCGCCCATG		
格氏李斯特氏菌	CGCTGCCTAATA-GCAGTCTGAATAGCTGATCCTCCGTGCATCACCCATG		

	LQtm		
单核细胞增多性李斯特氏菌	TG	CTACGGTAAGGGTCTCAC	TCT-AAGTGGGCTACACTAGTTAATCTCCG
无害李斯特菌	TG	CTACGGTAAGGGTCTCAC	TCT-AAGTGGGCTACACTAGTTAATCTCCG
墨氏李斯特氏菌	TG	CTACGGTAAGGGTCTCAC	TCT-AAGTGGGCTACACTAGTTAATCTCCG
威氏李斯特氏菌	TG	CTACGGTAAGGGTCTCAC	TCT-AAGTGGGCTACACTGGCTAATCTCCG
格氏李斯特氏菌	TG	CTACGGTAAGGGTCTCAC	TTTAAAGTGGGTACGCTGGCTTATCTCCG
	**	*****	*****

图 5A

	L8tm
单核细胞增多性李斯特氏菌	<u>TCTGGGGTTAAATAGA</u> AAGAGCTTAATCAGACTAGCTGAATGGAAGCCTGT
无害李斯特菌	TCTGAGGTTAAATAGAAGAGCTTAATCAGACTAGCTGAATGGAAGCCTGT
墨氏李斯特氏菌	TCTGAGGTTAAATAGAAGAGCTTAATGAGACTAGCTGAATGGAAGCCTGT
威氏李斯特氏菌	TCTGAGGTTAGTTGGAAGAGCTTAATCAGACTAGCTGAATGGAAGCCTGT
格氏李斯特氏菌	TCTGGGGCAAACGAGAAGAGCATAATCAGACTAGCTAGATAGAGCCCTGA

单核细胞增多性李斯特氏菌	TACCGGGCCGATGTTTATGCGAAATGCTAATACGGTGACTACGCTCGTAG
无害李斯特菌	TACCGGGCTGATGTTTATGCGAAATGCTAATACGGTGACTACGCTCGTAG
墨氏李斯特氏菌	TACCGGGCTGATGTTTATGCGAAATGCTAATACGGTGACTACGCTCGTAG
威氏李斯特氏菌	TACCGGGCCGATGTTTATGCGAAATGCTAATACGGTGACTACGCTCGTAG
格氏李斯特氏菌	CGCCGGGCAGACATCTATGCGAAATCCAAATACGGCAACTACGCTCGTAG

	Ltm2
单核细胞增多性李斯特氏菌	ATATTT AAGTGCCGATATTTCTGG
无害李斯特菌	ATATTC AAGTGCCGATATTTCTGG
墨氏李斯特氏菌	ATATTC AAGTGCCGATATTTCTGG
威氏李斯特氏菌	ATATTT AAGTGCCGATATTTCTGG
格氏李斯特氏菌	ATGCTC AAGTGCCGATATTTCTGG

图 5B

枯草芽孢杆菌	ACAGGGATGGATCGAGCTTGAGCTGCGAGCCGAGAGG--CGATCTCGTAA
单核细胞增多性李斯特氏菌	ACAGGGATAGTTCGAGCTTGAGTTGCGAGTCGGGGGGATCGTCCTCGTTA ***** * ***** * * * * *
枯草芽孢杆菌	ACACGCACTTAAATATAACTGGCAAACTAACAGTTTAAACCAAACGTA
单核细胞增多性李斯特氏菌	TCA-ACG-TCAAAGCCAA-TAATA--ACTGGCAAAGAAAAACAAACCTA * * * * * * * * * * * * * * *
枯草芽孢杆菌	GCATTAGCTGCCTAATAAGC-GCAGCGAGACT--CTTCCTGACATTGCC
单核细胞增多性李斯特氏菌	GCTTTCGCTGCCTAATAAGCAGTAGCATAGCTGATCCTCCGTGCATCGCC * * * * * * * * * * * * * * *
枯草芽孢杆菌	TATGTGT--CTGTGAAGAGCACA-TCCAAGTAGGCTACGCTTGC--GTTC
单核细胞增多性李斯特氏菌	CATGTGCTACGGTAAGGGTCTCACTCTAAGTGGGCTACACTAGTTAATCT ***** * * * * * * * * * * * * *
枯草芽孢杆菌	CCGTCTGAGAACGTA-AGAAGAGATGAA-CAGACTAGCTCTCGGAAGGCC
单核细胞增多性李斯特氏菌	CCGTCTGGGGTTAAATAGAAGAGCTTAATCAGACTAGCTGAATGGAAGCC ***** * * * * * * * * * * * * *
枯草芽孢杆菌	CGCCCGCAGGCAAGAAGATGAGTGAAACCATAAATATGCAGGCTACGCTC
单核细胞增多性李斯特氏菌	TGTTACCGGGCCGATGTTTATGCGAAAT-GCTAATACGGTGACTACGCTC * * * * * * * * * * * * * * *
枯草芽孢杆菌	G-AGACGCTTAAGTTAATCGATGTTTCTGG
单核细胞增多性李斯特氏菌	GTAGATATTTAAGT--GCCGATATTTCTGG * * * * * * * * * * * * * * *

图 6

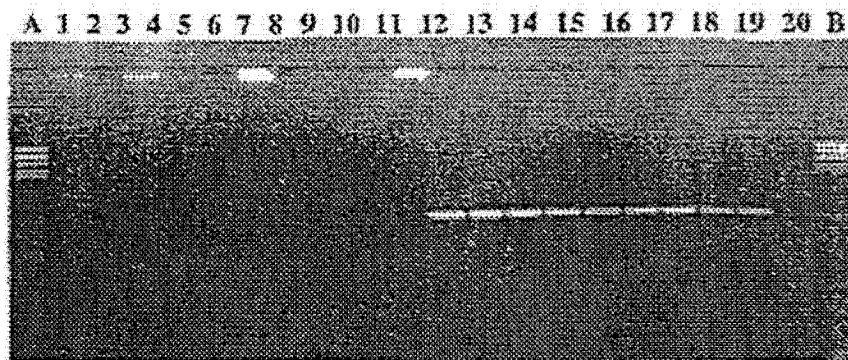


图 7

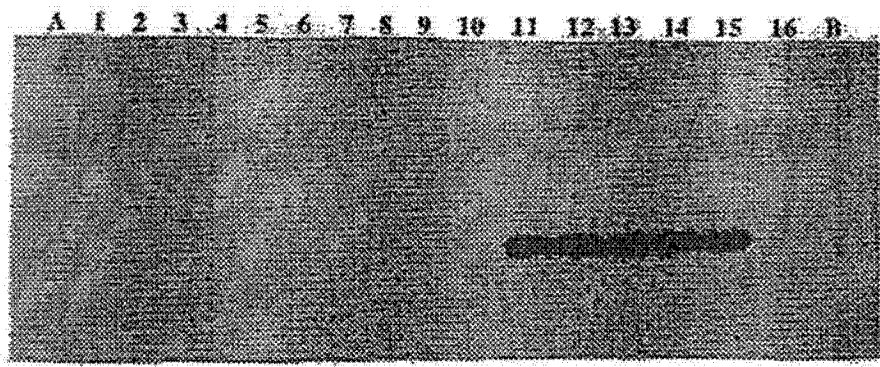


图 8

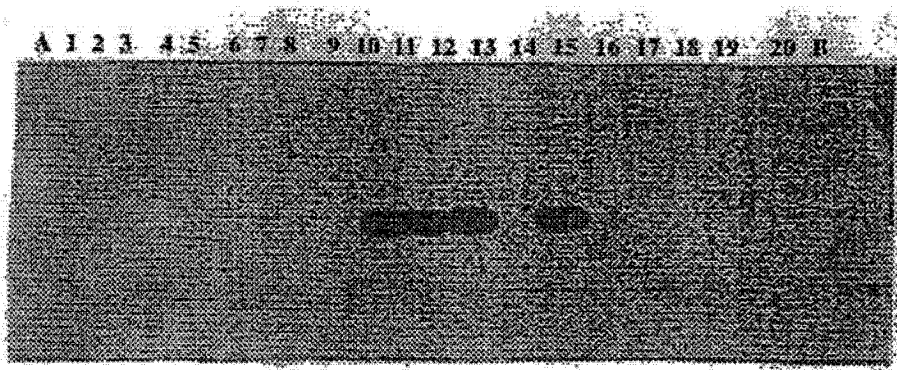


图 9

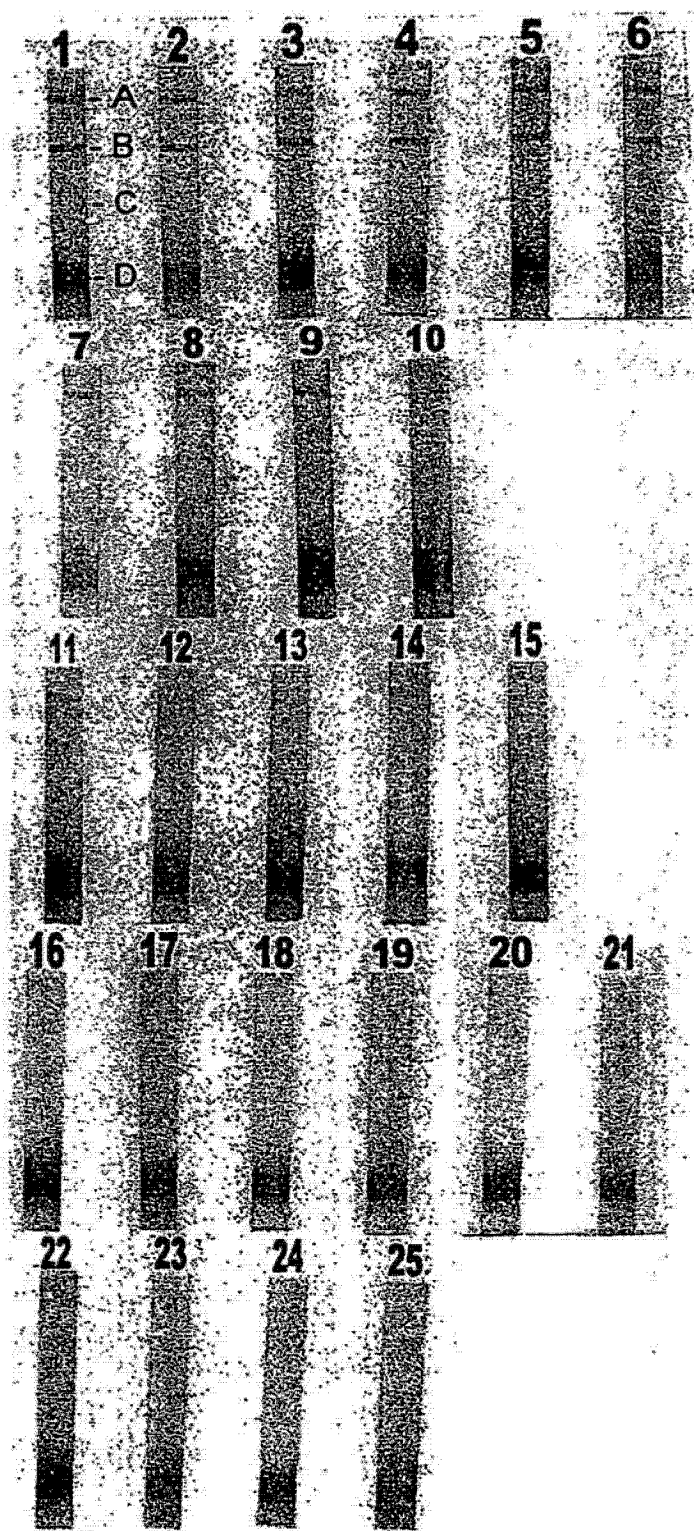


图 10

沙眼衣原体菌株 1	GGGGGTGTAAAGGTTTCGACTTAGAAATGAAGCGTTAATTGCATGCGGAG
沙眼衣原体菌株 2	GGGGGTGTAAAGGTTTCGACTTAGAAATGAAGCGTTAATTGCATGCGGAG

沙眼衣原体菌株 1	GGCGTTGGCTGGCCTCCTAAAAAGCCGACAAAACAATAAATGCCGAACCT
沙眼衣原体菌株 2	GGCGTTGGCTGGCCTCCTAAAAAGCCGACAAAACAATAAATGCCGAACCT

沙眼衣原体菌株 1	AAGGCTGAATGCGAAATTATCAGCTTCGCTGATCTCGAAGATCTAAGAGT
沙眼衣原体菌株 2	AAGGCTGAATGCGAAATTATCAGCTTCGCTGATCTTAATGATCTAAGAGT
	***** * *****
沙眼衣原体菌株 1	AGCTGCTTAATTAGCAAAGTTGTTACCTAAATACGGGTGACCCGGTGTTTC
沙眼衣原体菌株 2	TGCTGCTTAATTAGCAAAGTTGTTACCTAAGTACTGGTAACCCGGTGTTTC
	***** ** *
沙眼衣原体菌株 1	GCGAGCTCCACCAGAGGTTTTCGAAACACCGTCATGTATCTGGTTAGAAC
沙眼衣原体菌株 2	GCGAGCTCCACCAGAGGTTTTCGAAACGCCGTCATTTATCTGGTTAGAAT
	***** *****

图 11A

沙眼衣原体菌株 1	TTAGGTCCTTTAATTCTCGAGGAAATGAGTTTGAAATTTAATGAGAGTCG
沙眼衣原体菌株 2	TAGGGCCTTTTAACTCTCAAGGGAATAATTTGAATTTAATGAGAGTCG
	* ** * ***** ** * *****
沙眼衣原体菌株 1	TTAGTCTCTATAGGGGTTTCTAGCTGAGGAGACATAACGTATAGTAC-CT
沙眼衣原体菌株 2	TTGGTCTCTATAGAGGTTTCTAGCTGAGGAGATATAACGTAAAATATTCT
	** ***** * ** *
沙眼衣原体菌株 1	AGGAACTAAGCATGTAGAGGTTAGCGGGGAGTTTACTAAGGACGAGAGTT
沙眼衣原体菌株 2	AGAACTAAGCATGTAGAGGTTAGCGGGGAGTTTACTAAGGACGAGAGTT
	** *****
沙眼衣原体菌株 1	CGACTCTCTCCACCTCCACCA
沙眼衣原体菌株 2	CGAATCTCTCCACCTCCACCA
	*** *****

图 11B

幽门螺杆菌菌株 1	AGATTTCTTGTCGCGCAGATAGCATGCCAAGCGCTGCTTGTA AACACAGCA
幽门螺杆菌菌株 2	AGATTTCTTGTCGCGCAGATAGCATGCCAAGCGCTGCTTGTA AACACAGCA

幽门螺杆菌菌株 1	ACAAAAATAACTGTAAACAACACAGATTACGCTCCAGCTTACGCTAAAGC
幽门螺杆菌菌株 2	ACAAAAATAACTGTAAACAACACAGATTACGCTCCAGCTTACGCTAAAGC

幽门螺杆菌菌株 1	TGCGTGAGTTAATCTCCTTTTGGAGCTGGACTGATTAGAATTTCTAGCGT
幽门螺杆菌菌株 2	TGCGTGAGTTAATCTCCTTTTGGAGCTGGACTGATTAGAATTTCTAGCGT

幽门螺杆菌菌株 1	TTTAATCGCTCCATAACCTTAAGCTAGACGCTTTTAAAAGGTGGTTCGCC
幽门螺杆菌菌株 2	TTTAATCGCTCCATAACCTTAAGCTAGACGCTTTTAAAAGGTGGTTCGCC

幽门螺杆菌菌株 1	TTTTAAACTAAGAAACAAGAACTCTTGAAACTATCTTAAGGTTTTAGAAA
幽门螺杆菌菌株 2	TTTTAAACTAAGAAACAAGAACTCTTGAAACTATCTCAAGGTTTTAGAAA

幽门螺杆菌菌株 1	GTTGGACCAGAGCTAGTTTTAAGGCTAAAACTAACCAATTTTCTAAGC
幽门螺杆菌菌株 2	GTTGGACCAGAGCTAGTTTTAAGGCTAAAACTAACCAATTTTCTAAGC

幽门螺杆菌菌株 1	ATTGTAGAAGTTTGTGTTTAGGGCAAGATTTTGGACTGGGG
幽门螺杆菌菌株 2	ATTGTAGAAGTTTGTGTTTAGGGCAAGATTTTGGACTGGGG

图 12

生殖道枝原体菌株 1	ACATAATGCTGATAGACAAACAGTAGCATTGGGGTATGCCCCCTTACAGCG
生殖道枝原体菌株 2	ACATAATGCTGATAGACAAACAGTAGCATTGGGGTATGCCCCCTTACAGCG

生殖道枝原体菌株 1	CTAGGTTCAATAACCGACAAAGAAAATAACGAAGTGTGGTAGAACC AAA
生殖道枝原体菌株 2	CTAGGTTCAATAACCGACAAAGAAAATAACGAAGTGTGGTAGATCCAAA

生殖道枝原体菌株 1	TTTGATCATTAACCAACAAGCAAGTGTTAACTTTGCTTTTGCATAAGTAG
生殖道枝原体菌株 2	TTTGATCATTAACCAACAAGCAAGTGTTAACTTTGCTTTTGCATAAGTAG

生殖道枝原体菌株 1	ATACTAAAGCTACAGCTGGTGAATAGTCATAGTTTGCTAGCTGTCATAGT
生殖道枝原体菌株 2	ATACTAAAGCTACAGCTGGTGAATAGTCATAGTTTGCTAGCTGTCATAGT

生殖道枝原体菌株 1	TTATGACTCGAGGTTAAATCGTTCAATTTAACCTTTAAAAATAGAACTTG
生殖道枝原体菌株 2	TTATGACTCGAGGTTAAATCGTTCAATTTAACCTTTAAAAATAGAACTTG

生殖道枝原体菌株 1	TTGTTTCCATGATTGTTTTGTGATCAATTGGAAACAAGACAAAAATCCAC
生殖道枝原体菌株 2	TTGTTTCCATGATTGTTTTGTGATCAATTGGAAACAAGACAAAAATCCAC

生殖道枝原体菌株 1	AAACTAAAATGTAGAAGCTGTTTGTGTGTCCTTTATGGAAACGGGTTTC
生殖道枝原体菌株 2	AAACTAAAATGTAGAAGCTGTTTGTGTGTCCTTTATGGAAACGGGTTTC

图 13

淋病奈瑟球菌菌株 1	GGGGGTTGCGAAGCAGATGCGGGCATACCGGGGTCTCAGATTCCCGTAAA
淋病奈瑟球菌菌株 2	GGGGGTTGCGAAGCAGATGCGGGCATACCGGGGTCTCAGATTCCCGTAAA *****
淋病奈瑟球菌菌株 1	ACACTGAATTCAAATAGTCGCAAACGACGAAACTTACGCTTTAGCCGCTT
淋病奈瑟球菌菌株 2	ACACTGAATTCAAATAGTCGCAAACGACGAAACTTACGCTTTAGCCGCTT *****
淋病奈瑟球菌菌株 1	AAGGCTAGCCGTTGCAGCAGTCCGGTCAATGGGCTGTGTGGCGAAAGCCAC
淋病奈瑟球菌菌株 2	AAGGCTAGCCGTTGCAGCAGTCCGGTCAATGGGCTGTGTGGTGAAGCCAC *****
淋病奈瑟球菌菌株 1	CGCAACGTCATCTTACATTGACTGGTTTCCAGCCGGGTACTTGGCAGGA
淋病奈瑟球菌菌株 2	CGCAACGTCATCTTACATTGACTGGTTTCCAGCCGGGTACTTGGCAGGA *****
淋病奈瑟球菌菌株 1	AATAAGACTTAAGGTAAGTGGTTTCCAAAAGGCCTGTTGGTCGGCATGAT
淋病奈瑟球菌菌株 2	AATAAGACTTAAGGTAAGTGGTTTCCAAAAGGCCTGTTGGTCGGCATGAT *****
淋病奈瑟球菌菌株 1	GGAAATAAGATTTTCAAATAGACACAACCTAAGTATGTAGAACGCTTTGTA
淋病奈瑟球菌菌株 2	GGAAATAAGATTTTCAAATAGACACAACCTAAGTATGTAGAACGCTTTGTA *****
淋病奈瑟球菌菌株 1	GAGGACTTTCGGACGGGGG
淋病奈瑟球菌菌株 2	GAGGACTTTCGGACGGGGG *****

图 14

单核细胞增多性李斯特氏菌菌株 1	CAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGC
单核细胞增多性李斯特氏菌菌株 2	CAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGC

单核细胞增多性李斯特氏菌菌株 1	TGATCCTCCGTGCATCGCCCATGTGCTACGGTAAGGGTCTCACTCTAAGT
单核细胞增多性李斯特氏菌菌株 2	TGATCCTCCGTGCATCGCCCATGTGCTACGGTAAGGGTCTCACTCTAAGT

单核细胞增多性李斯特氏菌菌株 1	GGGCTACACTAGTTAATCTCCGTCTGGGGTTAAATAGAAGAGCTTAATCA
单核细胞增多性李斯特氏菌菌株 2	GGGCTACACTAGTTAATCTCCGTCTGAGGTTAAATAGAAGAGCTTAATCA

单核细胞增多性李斯特氏菌菌株 1	GACTAGCTGAATGGAAGCCTGTTACCGGGCCGATGTTTATGCGAAATGCT
单核细胞增多性李斯特氏菌菌株 2	GACTAGCTGAATGGAAGCCTGTTACCGGGCCGATGTTTATGCGAAATGCT

单核细胞增多性李斯特氏菌菌株 1	AATACGGTGACTACGCTCGTAGATATTT
单核细胞增多性李斯特氏菌菌株 2	AATACGGTGACTACGCTCGTAGATATTT

图 15

单核细胞增多性李斯特氏菌菌株 1	CAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGC
单核细胞增多性李斯特氏菌菌株 2	CAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGC
无害李斯特菌菌株	CAAAGAAAAACAAAACCTAGCTTTCGCTGCCTAATAAGCAGTAGCATAGC

单核细胞增多性李斯特氏菌菌株 1	TGATCCTCCGTGCATCGCCCATGTGCTACGGTAAGGGTCTCACTCTAAGT
单核细胞增多性李斯特氏菌菌株 2	TGATCCTCCGTGCATCGCCCATGTGCTACGGTAAGGGTCTCACTCTAAGT
无害李斯特菌菌株	TGATCCTCCGTGCATCGCCCATGTGCTACGGTAAGGGTCTCACTCTAAGT

单核细胞增多性李斯特氏菌菌株 1	GGGCTACACTAGTTAATCTCCGTCTGGGGTTAAATAGAAGAGCTTAATCA
单核细胞增多性李斯特氏菌菌株 2	GGGCTACACTAGTTAATCTCCGTCTGAGGTTAAATAGAAGAGCTTAATCA
无害李斯特菌菌株	GGGCTACACTAGTTAATCTCCGTCTGAGGTTAAATAGAAGAGCTTAATCA

单核细胞增多性李斯特氏菌菌株 1	GACTAGCTGAATGGAAGCCTGTTACCGGGCCGATGTTTATGCGAAATGCT
单核细胞增多性李斯特氏菌菌株 2	GACTAGCTGAATGGAAGCCTGTTACCGGGCCGATGTTTATGCGAAATGCT
无害李斯特菌菌株	GACTAGCTGAATGGAAGCCTGTTACCGGGCTGATGTTTATGCGAAATGCT

单核细胞增多性李斯特氏菌菌株 1	AATACGGTGACTACGCTCGTAGATATTT
单核细胞增多性李斯特氏菌菌株 2	AATACGGTGACTACGCTCGTAGATATTT
无害李斯特菌菌株	AATACGGTGACTACGCTCGTAGATATTC

图 16

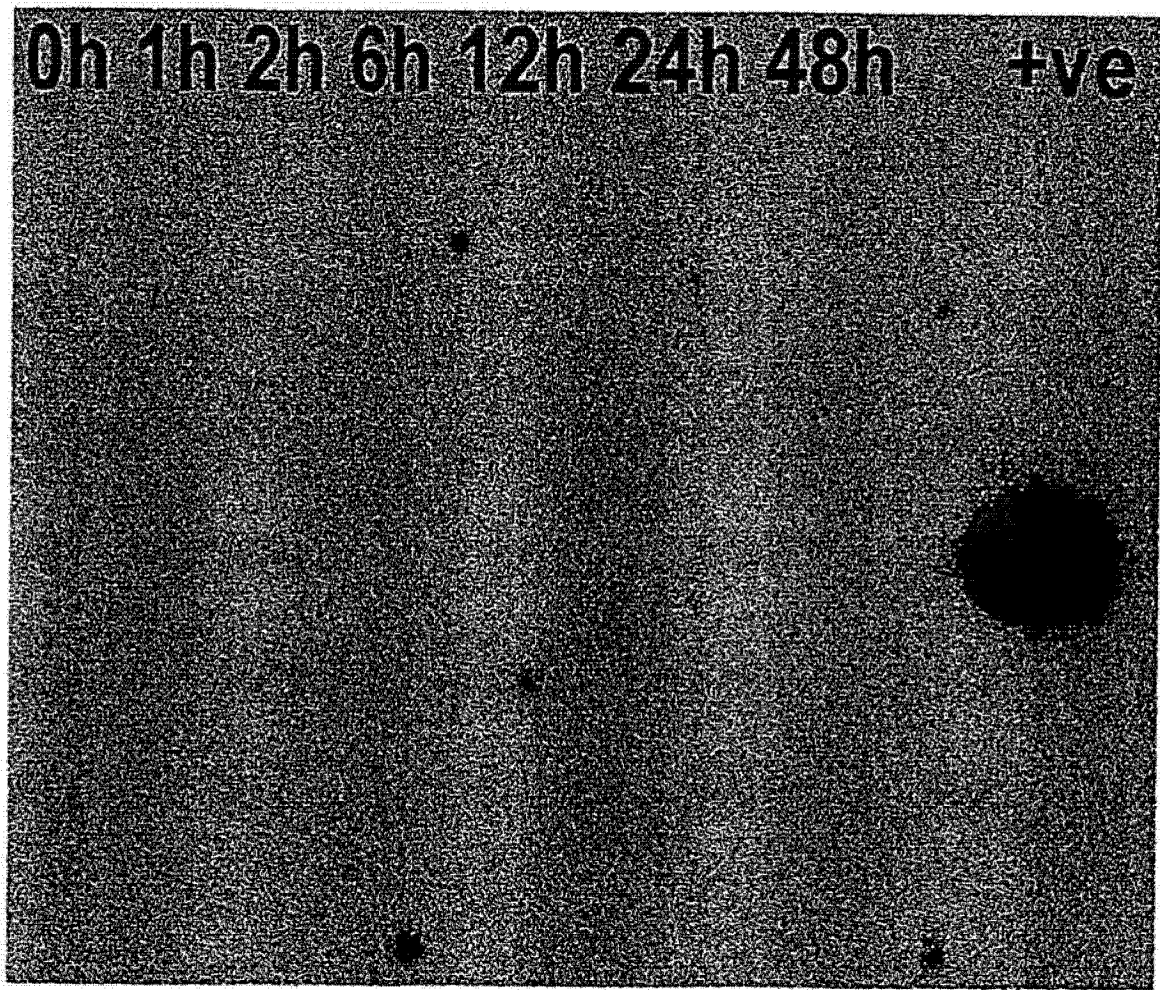


图 17

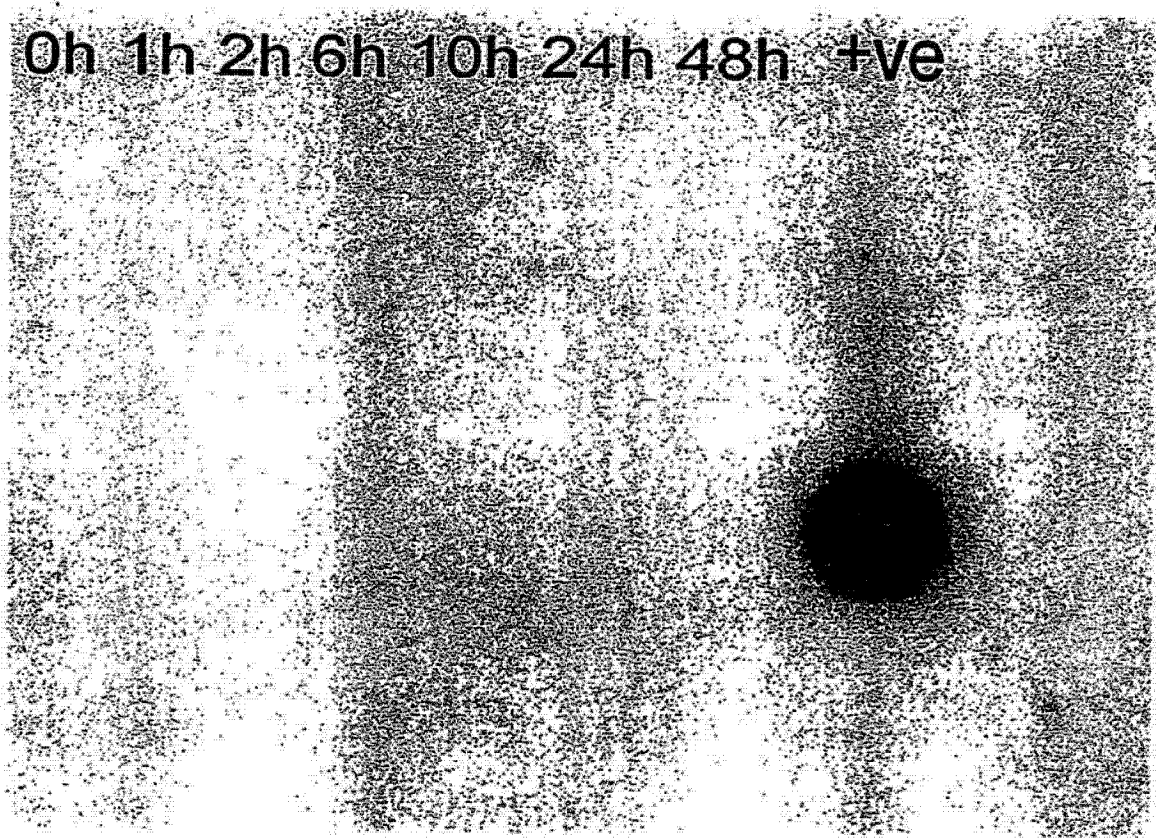


图 18

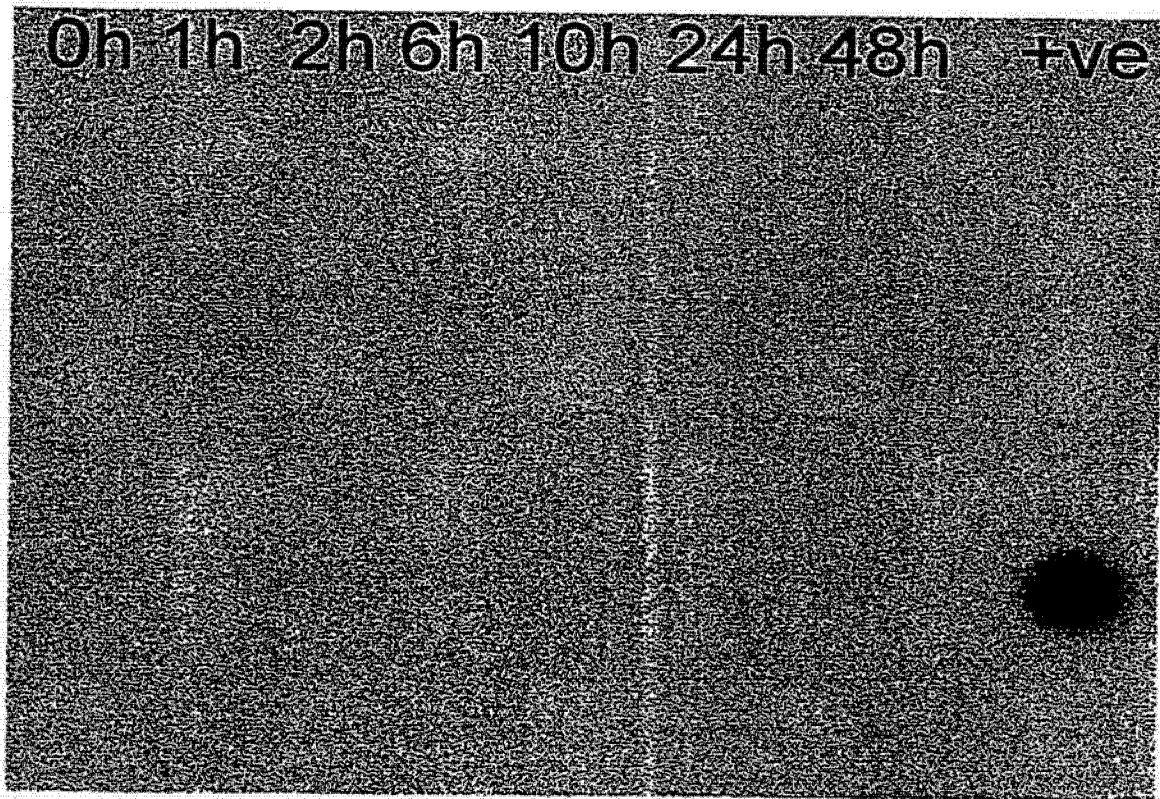


图 19

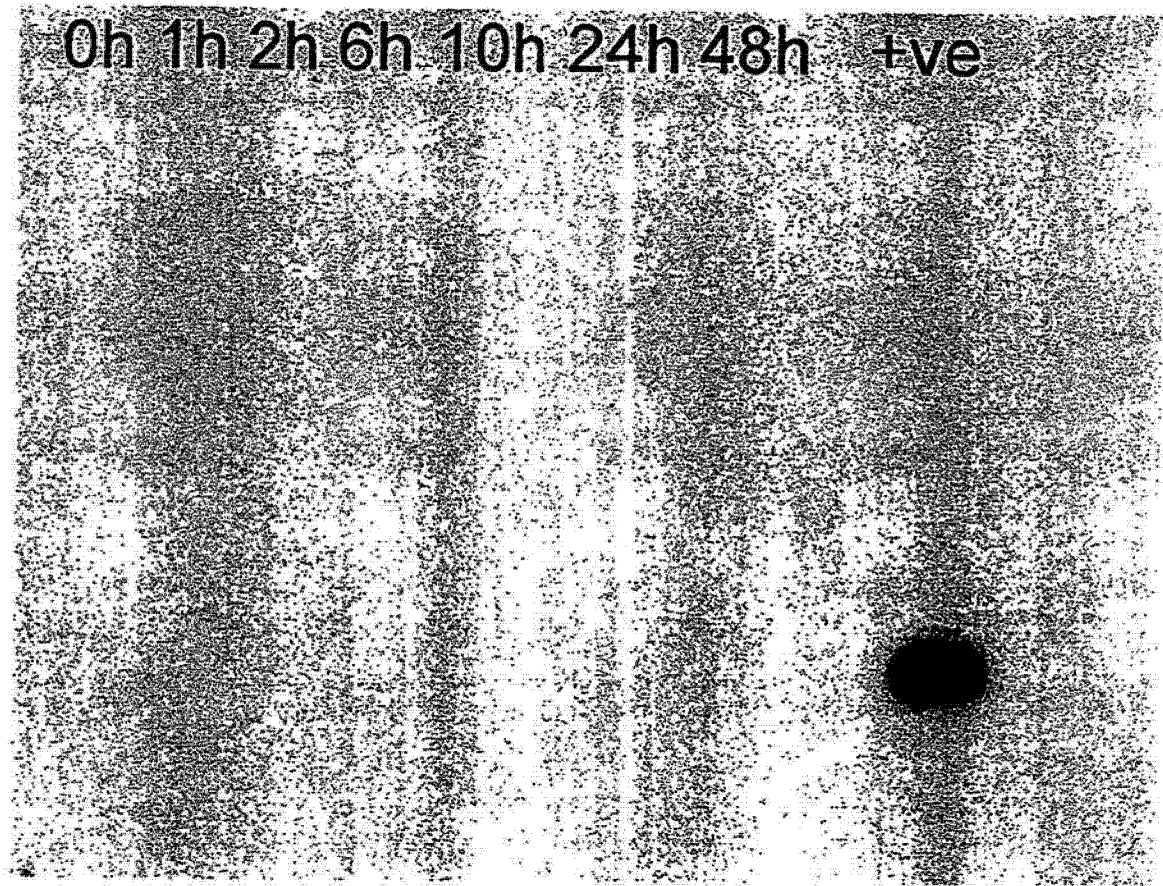


图 20

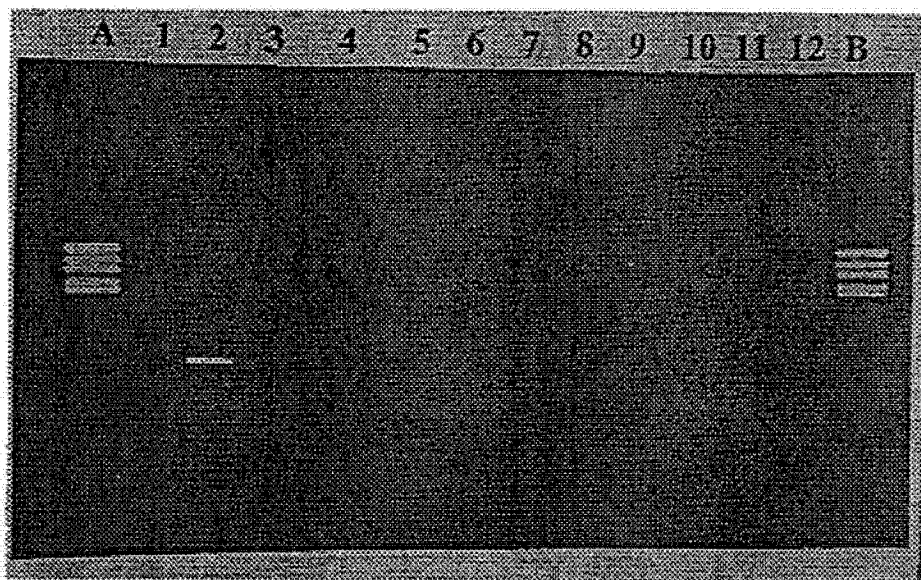


图 21