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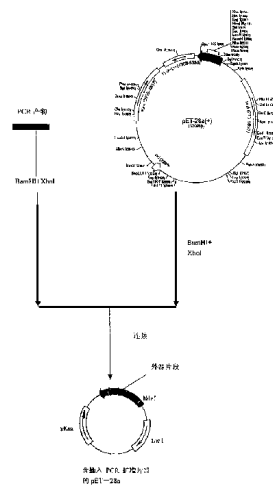
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[54] 发明名称 非典型性肺炎病毒特异蛋白质和临床检测的方法及试剂盒

## [57] 摘要

本发明公开了一种非典型性肺炎病毒特异蛋白质和临床检测的方法及试剂盒。它提供了非典型性肺炎病毒特异蛋白质，或其具有结合人免疫球蛋白之免疫活性的片段或衍生物；并利用该通式蛋白质免疫检测人非典型性肺炎病毒的方法及试剂盒。本发明解决了临床对非典型性肺炎病毒感染者的早期快速诊断问题，具有较高的准确性，为临床检测本病提供了快速、准确的诊断方法和试剂盒。



I S S N 1 0 0 8 - 4 2 7 4

1、一种非典型性肺炎病毒特异蛋白质,其特征在於:具有序列Seq. ID No. 1--Seq. ID No. 118的氨基酸序列之一。

2、根据权利要求1所述的蛋白质相对应的抗体,其特征在於:所述的蛋白质相对应的抗体是单克隆抗体,或是多克隆抗体。

3、一种非典型性肺炎病毒特异蛋白质临床检测方法,其特征在於其具体步骤如下:

1) 制备如权利要求1所述的蛋白质;

通过本领域技术人员周知的PCR扩增技术和重组DNA技术,具体如下:

A、设计相应的PCR引物,同时在所用PCR引物中添加编码相应数目氨基酸残基对应的碱基,分别从临床非典型性肺炎病毒标准株中扩增编码上述蛋白质的DNA片段;

B、将所得PCR产物导入合适的表达载体,构建重组DNA;

C、用所得重组DNA转化合适的宿主细胞,在适于目标蛋白质表达的条件下培养如此转化的宿主细胞;

D、回收并纯化目标蛋白质;

2) 用纯化的如权利要求1所述的蛋白质,或如权利要求2所述的抗体包被一种固相支持物;

3) 用比色法、分光光度法或荧光法测定的酶标记如权利要求1所述的蛋白质或权利要求2所述的抗体,或权利要求2所述的抗体的第二抗体,或使用胶体金,或放射性同位素作为标记;

4) 将待检测个体的生物学样本及由步骤3)标记的蛋白质加入经包被的固相支持物上,在适合形成抗原抗体免疫结合复合物的条件下孵育一段时间;

5) 清洗去除任何未结合的非典型性肺炎病毒抗体;

6) 定量检测孵育混合物中抗原抗体免疫复合物的存在。

4、根据权利要求3所述的一种非典型性肺炎病毒特异蛋白质临床检测方法,其特征在於:所用的标记酶包括氧化还原酶类,该氧化还原酶为催化酶、过氧化物酶、辣根过氧化物酶、葡萄糖氧化酶或 $\beta$ -半乳糖苷酶;碱性磷酸酶;乙酰胆碱酯酶。

5、根据权利要求3所述的非典型性肺炎病毒特异蛋白质临床检测方法,其

特征在于：所用的第二抗体是IgG和/或IgM和/或IgA。

6、根据权利要求3所述的非典型性肺炎病毒特异蛋白质临床检测方法，其特征在于：所述的固相支持物包括本领域周知的有机和无机多聚物，或用胶体金的相关技术包被到试纸上。

7、根据权利要求6所述的一种非典型性肺炎病毒特异蛋白质临床检测方法，其特征在于：所述的有机多聚物为葡聚糖、天然或经修饰的纤维素、聚乙烯、聚苯乙烯。

8、一种非典型性肺炎病毒特异蛋白质临床检测的试剂盒，其特征在于包括：

1) 包被有纯化的如权利要求1所述的蛋白质的固相支持物；相应的经标记的如权利要求1所述的蛋白质和使用该试剂盒的说明；

或2) 包被有纯化的如权利要求2所述的抗体的固相支持物；相应的经标记的如权利要求2所述的抗体和使用该试剂盒的说明；

或3) 包被有纯化的如权利要求1所述的蛋白质的固相支持物；如权利要求3中所述的经标记的第二抗体和使用该试剂盒的说明。

## 非典型性肺炎病毒特异蛋白质和临床检测的方法及试剂盒

### 技术领域

本发明涉及人类医学卫生领域，具体地说是一种非典型性肺炎病毒特异蛋白质和临床检测的方法及试剂盒。

### 背景技术

非典型性肺炎病毒，即 SARS 病毒是一种引起严重急性呼吸道疾病综合症 (Severe Acute Respiratory Syndrome, SARS)，又称非典型性肺炎的病毒，属冠状病毒 (coronavirus) 类病毒，基因组共含 29,737 个核苷酸。造成感染严重时可致人于死，病死率高达 4.9%。主要通过近距离空气飞沫和密切接触传播。该病毒目前还没有有效的免疫化学检测方法，只能根据临床症状（高热、干咳、肺部 X 光检测有阴影等）来诊断，受到很大的局限，只能在受感染者发病后才能作出诊断，且不易与其它肺炎和一般流感区别。本发明根据该病毒的基因组序列分析结果，选取该病毒特有蛋白质和多肽片断，建立一种检测非典型性肺炎病毒抗体的免疫学方法和含有它们的试剂盒。

### 发明内容

本发明的目的是提供一种非典型性肺炎病毒特异蛋白质和临床检测的方法及试剂盒。

本发明采用的技术方案如下：

1、一种非典型性肺炎病毒特异蛋白质，具有Seq. ID No. 1-- Seq. ID No. 118 的氨基酸序列之一。

所述的蛋白质相对应的抗是单克隆抗体，或是多克隆抗体。

2、一种非典型性肺炎病毒特异蛋白质临床检测方法，其具体步骤如下：

1) 制备上述的蛋白质；

通过本领域技术人员周知的PCR扩增技术和重组DNA技术，流程见附图1，具体如下：

A、设计相应的PCR引物，同时在使用PCR引物中添加编码相应数目氨基酸残基对应的碱基，分别从临床非典型性肺炎病毒标准株中扩增编码上述蛋白质的DNA片段；

B、将所得PCR产物导入合适的表达载体，构建重组DNA；

C、用所得重组DNA转化合适的宿主细胞，在适于目标蛋白质表达的条件下培养如此转化的宿主细胞；

D、回收并纯化目标蛋白质；

2) 用纯化的如以上第1点所述的蛋白质，或以上第1点所述的抗体包被一种固相支持物；

3) 用比色法、分光光度法或荧光法测定的酶标记如权利要求1所述的蛋白质或以上所述的抗体，或以上所述的抗体的第二抗体，或使用胶体金，或放射性同位素作为标记；

4) 将待检测个体的生物学样本及由步骤3) 标记的蛋白质加入经包被的固相支持物上，在适合形成抗原抗体免疫结合复合物的条件下孵育一段时间；所述的“适合形成抗原抗体免疫复合物的条件”是指在适当的温度及时间条件下孵育抗原与含抗体的样品的混合物，例如在约0-50摄氏度，标记约30分钟至约48小时。

5) 清洗去除任何未结合的非典型性肺炎病毒抗体；所用清洗液一般为pH约5-8的磷酸盐缓冲溶液。

6) 定量检测孵育混合物中抗原抗体免疫复合物的存在。可采用多种本领域周知的方法定量检测抗原抗体复合物的形成，如以过氧化物溶液为A液及联苯胺类物质为B液的底物与带有含标记的辣根过氧化物酶的抗原抗体免疫复合物作用，显色后在波长为450nm（参比波长630nm）酶标仪读取吸光值；将所得读数与阴性对照的读数加以比较，判断所测样本的结果。

所用的标记酶包括氧化还原酶类，该氧化还原酶为催化酶、过氧化物酶、辣根过氧化物酶、葡萄糖氧化酶或 $\beta$ -半乳糖苷酶；碱性磷酸酶；乙酰胆碱酯酶。

所用的第二抗体是IgG和/或IgM和/或IgA。

所述的固相支持物包括本领域周知的有机和无机多聚物，或用胶体金的相关技术包被到试纸上；

所述的有机多聚物为葡聚糖、天然或经修饰的纤维素、聚乙烯、聚苯乙烯。

3、一种非典型性肺炎病毒特异蛋白质临床检测的试剂盒，包括：

1) 包被有纯化的蛋白质的固相支持物；相应的经标记的蛋白质和使用该试剂盒的说明（双抗原夹心法）；

或2) 包被有纯化的抗体的固相支持物；相应的经标记的抗体和使用该试剂盒的说明（双抗体夹心法）；

或3) 包被有纯化的蛋白质的固相支持物；相应的第二抗体和使用该试剂盒

的说明 (Elisa法)。

所说的快速检测非典型性肺炎病毒的试纸, 是由喷涂过的蛋白或抗体, 及喷涂有胶体金的试纸基质粘合而成;

在上述检测试剂盒中, 经标记的非典型性肺炎病毒蛋白质是液体的形式包装在容器中, 或便于重构的冻干物的形式置于的包装中。在后一种情况中, 检测试剂盒中还优选含有用于重构经标记的非典型性肺炎病毒蛋白质的缓冲液;

在上述检测试剂盒中, 还含有提供判断检测结果的相应的范围。

本发明与背景技术相比具有的有益效果是: 它解决了临床对非典型性肺炎病毒感染者的早期快速诊断问题, 具有较高的准确性, 为临床检测本病提供了快速、准确的诊断方法和试剂盒。

### 附图说明

图 1 是将 PCR 产物与载体连接构建重组 DNA 示意图;

图 2 是高压液相色谱 (HPLC) 图。

### 具体实施方式

实施例1、

一、制备蛋白质:

A、设计相应的 PCR 引物, 同时在使用 PCR 引物中添加编码相应数目氨基酸残基对应的碱基, 其中之一的引物如下: A1L: CGGGATCCGAACCTTTAAAATCTGTGTAGC A1R: CCGCTCGAGATTTCTGCAACCAGCTCAAC

分别从临床非典型性肺炎病毒标准株中提取 RNA 和扩增编码上述蛋白质的 DNA 片段; 提取 RNA 的方法可采用普通分子生物学实验手册, 如“分子克隆”介绍的方法, 也可以采用商业试剂盒, 如 Trizol<sup>R</sup>, 按说明书进行, 然后加入反向引物和逆转录酶, 合成 cDNA; 采用商品化试剂盒, 如 Invitrogen<sup>TM</sup> 公司的 SuperScript 试剂盒, 按说明书步骤合成 cDNA; 再利用 PCR 技术扩增编码上述蛋白质的 DNA 片段。PCR 反应体系的组成为一般的标准组成, 包括: PCR 反应缓冲液 (Tris.Cl 125mM PH 8.1; (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> 125mM; MgCl<sub>2</sub> 12.5mM; BSA 1mg/ml; Formamide 25%); 反应条件指: 模板变性温度为 92°C -98°C, 优选的: 95°C, 时间为 10 秒-10 分钟, 优选的: 30 秒; 模板退火温度为 45°C --65°C, 优选的: 52°C, 时间为 10 秒-10 分钟, 优选的: 30 秒; 模板延伸温度为 65°C --85°C, 优选的: 70°C, 时间为 10 秒-10 分钟, 优选的: 40 秒; 循环 20--40 次, 优选的: 30 次。

B、将所得 PCR 产物导入合适的表达载体, 如附图 1 所示的 pET-28 质粒, 构建

重组DNA;

1 $\mu$ g 的质粒DNA于37 $^{\circ}$ C下经NdeI和XhoI酶完全酶切,酚/氯仿抽提, -20 $^{\circ}$ C下无水乙醇沉淀过夜。离心后沉淀溶于13 $\mu$ l H<sub>2</sub>O。经过NdeI和XhoI酶充分酶切的PCR产物与上述预酶切的质粒连接。

C、用所得重组DNA转化合适的宿主细胞,在适于目标蛋白质表达的条件下培养如此转化的宿主细胞;

转化至大肠杆菌 ER2566,涂布含有 200 $\mu$ g/ml 氨苄青霉素的 LB 选择平板。37 $^{\circ}$ C过夜培养。构建过程参见图 1。所述连接及转化的方法和条件参见, J. 萨姆布雷奇等著的《分子克隆实验指南》(Molecular Cloning:A Laboratory Manual) P672-849(科学出版社, 1998)

从转化平板上挑取抗性菌落,提取质粒并电泳检查,筛选重组子。通过限制性内切酶 NdeI 和 XhoI 酶切分析,筛选含有正确插入的目的基因的重组子。对所得含有插入片段的重组质粒测序,确证在 PCR 过程中目的基因片段未发生变异或出现差错。

D、回收并纯化目标蛋白质;

将选定的重组子菌株接种于含200 $\mu$ g/ml氨苄青霉素的LB培养基中,置于恒温摇床培养,37 $^{\circ}$ C培养至菌液OD值约0.6后加入1mM IPTG诱导,30 $^{\circ}$ C继续培养2小时。然后将发酵培养物离心收集菌体沉淀。用超声波将所得细菌菌体破碎后再次离心,收集上清液。利用金属镍-Sephrose(Pharmacia公司)的亲层析柱进行蛋白的分离纯化(洗脱条件0.02M pH 7.4 磷酸盐缓冲溶液(PBS),洗脱速度1ml/分钟)。经充分洗涤去除非特异性结合的蛋白质后,分离并收集与金属镍-Sephrose结合的表达蛋白,进行SDS-PAGE电泳和高压液相色谱分析。

附图2为经纯化的蛋白质的高压液相色谱图。

## 二、间接法检测非典型性肺炎病毒抗体

1) 每次试验设空白对照、阴性对照和阳性对照各 1 孔。空白孔不加液体;阴、阳性对照无需稀释直接取 50  $\mu$ l 加入阴、阳性对照孔中;其余检测孔加入样品稀释液,每孔 100  $\mu$ l,再加入待测样品 10  $\mu$ l。充分混匀,贴上封口胶,置 37 $^{\circ}$ C温育 30 分钟。

2) 将 50 倍浓缩洗板液用双蒸水 50 倍稀释后用于洗涤板孔。

3) 弃去各孔中样品,每孔加满洗液,静置数秒后弃去,重复 5 次,拍干。

4) 每孔加入酶标抗人 IgG 工作液 100  $\mu$ l,贴上封口胶。置 37 $^{\circ}$ C温育 20 分钟。

5) 弃去各孔中液体, 用洗板液反复洗涤 5 次, 拍干。

6) 每孔加入底物液 A 50  $\mu$ l, 再加入底物液 B 50  $\mu$ l, 轻拍混匀, 置 37 $^{\circ}$ C 避光温育 10 分钟。

7) 显色完毕后, 每孔加入终止液 50  $\mu$ l, 轻拍混匀, 立即以空白孔调零, 置酶标仪 450nm 波长下测定 OD 值 (参考波长为 630nm)。

#### 实施例 2、双抗原夹心法检测非典型性肺炎病毒抗体

在 96 孔微孔反应板上加入预先用 0.02M pH9.6 的碳酸盐缓冲液 (CB) 稀释抗原至最适浓度的包被液, 4 $^{\circ}$ C 静置 24 小时, 加入含 0.1%TW-20 的 0.02M pH7.4 PBS 洗涤液 (PBS-T) 加满各孔, 静置数秒后弃去, 重复清洗两次。每孔加入 200 $\mu$ l 入 1% 牛血清白蛋白 (BSA) 和 1% 脱脂奶粉的 0.02M pH7.4 磷酸盐缓冲液 (PBS), 4 $^{\circ}$ C 下封闭 2 小时。弃去封闭液, 室温下晾干, 用铝薄袋封板, 4 $^{\circ}$ C 保藏待用。在微孔反应板孔中加入预先用酶标抗原稀释液 (20% 山羊血清, 1% 酪蛋白, 0.02M PBS, pH7.4) 以优化好的浓度稀释的 SARS 冠状病毒抗原相应的酶标抗原, 每孔 50 $\mu$ l, 再加入 15 个来自不同待检测的受试者血清, 37 $^{\circ}$ C 温育 60 分钟。然后用含 0.1%TW-20 的 0.02M PBS-T 洗涤液加满各孔, 静置数秒后弃去, 重复清洗 5 次。每孔中加入 50 $\mu$ l 由 0.06% 过氧化脲 (Sigma) 0.01M pH4.5 的醋酸盐缓冲液组成的酶作用底物 A 液以及 50 $\mu$ l 由 0.06%TMB (Sigma) 0.01M pH 4.5 的柠檬酸盐缓冲液组成的酶作用底物 B 液, 37 $^{\circ}$ C 温育 15 分钟。每孔中加入 50  $\mu$ l 的 2M H<sub>2</sub>SO<sub>4</sub> 终止反应。在酶标仪 (Dynatech MR 4100) 上读取 450nm 处的吸光值 (以 630 为参比波长)。其中阳性对照和阴性对照均为经过临床确诊及其他可能的方法复核的人血清, 根据实预先确定的阈值判定样本结果, 高于阈值的样本为非典型性肺炎病毒阳性。

#### 氨基酸列表:

<110>杭州华大基因研发中心

<120>一种检测非典型性肺炎病毒抗体的试剂盒

<160>75

<170>PatentIn Version 3.1

<210>1

<211>13

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<213>SARS coronavirus

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 Lys Asp Cys Val Met Tyr Ala Ser Ala Leu Val Leu Leu Ile Leu Met  
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 Lys Leu Glu Lys Met Ala Asp Gln Ala Met Thr Gln Met Tyr Lys Gln  
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 Tyr Lys Asn Thr Cys Asp Gly Asn Thr Phe Thr Tyr Ala Ser Ala Leu  
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 Leu Arg Gln Met Ser Cys Ala Ala Gly Thr Thr Gln Thr Ala Cys Thr  
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 Pro Lys Ser Asp Gly Thr Gly Thr Ile Tyr Thr Glu Leu Glu Pro Pro  
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 Cys Arg Phe Val Thr Asp Thr Pro Lys Gly Pro Lys Val Lys Tyr Leu  
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&lt;212&gt;PRT

&lt;213&gt;SARS coronavirus

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 35 40 45  
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 65 70 75 80  
 Glu Ala Asn Met Asp Gln Glu Ser Phe Gly Gly Ala Ser Cys Cys Leu  
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 Tyr Cys Arg Cys His Ile Asp His Pro Asn Pro Lys Gly Phe Cys Asp  
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 Val Gln Phe Cys Asp Ala Met Arg Asp Ala Gly Ile Val Gly Val Leu  
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 Thr Ser Phe Gly Pro Leu Val Arg Lys Ile Phe Val Asp Gly Val Pro  
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                   100                                  105                                  110  
 Asn Gln Asp Val Asn Leu His Ser Ser Arg Leu Ser Phe Lys Glu Leu  
                   115                                  120                                  125  
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                   20                                  25                                  30  
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                   35                                  40                                  45  
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                   50                                  55                                  60  
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 Tyr Tyr Arg Tyr Asn Leu Pro Thr Met Cys Asp Ile Arg Gln Leu Leu  
                                   85                                  90                                  95  
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                   100                                  105                                  110  
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&lt;212&gt;PRT

&lt;213&gt;SARS coronavirus

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 Thr Gln Met Asn Leu Lys Tyr Ala Ile Ser Ala Lys Asn Arg Ala Arg  
 35 40 45  
 Thr Val Ala Gly Val Ser Ile Cys Ser Thr Met Thr Asn Arg Gln Phe  
 50 55 60  
 His Gln Lys Leu Leu Lys Ser Ile Ala Ala Thr Arg Gly Ala Thr Val  
 65 70 75 80  
 Val Ile Gly Thr Ser Lys Phe Tyr Gly Gly Trp His Asn Met Leu Lys  
 85 90 95  
 Thr Val Tyr Ser Asp Val Glu Thr Pro His Leu Met Gly Trp Asp Tyr  
 100 105 110  
 Pro Lys Cys Asp Arg Ala Met Pro Asn Met Leu Arg Ile Met Ala Ser  
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&lt;211&gt;154

&lt;212&gt;PRT

&lt;213&gt;SARS coronavirus

&lt;400&gt;16

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 Ala Leu Leu Ser Thr Asp Gly Asn Lys Ile Ala Asp Lys Tyr Val Arg  
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 Asp His Glu Phe Val Asp Glu Phe Tyr Ala Tyr Leu Arg Lys His Phe  
 100 105 110  
 Ser Met Met Ile Leu Ser Asp Asp Ala Val Val Cys Tyr Asn Ser Asn  
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 85 90 95  
 His Pro Asn Gln Glu Tyr Ala Asp Val Phe His Leu Tyr Leu Gln Tyr  
 100 105 110  
 Ile Arg Lys Leu His Asp Glu Leu Thr Gly His Met Leu Asp Met Tyr  
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 35 40 45  
 Arg Ser Val Leu Thr Pro Leu Cys Gly Phe Pro Ser Gln Ala Ala Gly  
 50 55 60  
 Val Ile Arg Ser Ile Phe Ala Arg Thr Leu Asp Ala Ala Asn His Ser  
 65 70 75 80



Glu Glu Thr Phe Lys Leu Ser Tyr Gly Ile Ala Thr Val Arg Glu Val  
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50 55 60  
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65 70 75 80  
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Gly Asp Tyr Phe Val Leu Thr Ser His Thr Val Met Pro Leu Ser Ala  
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Ala Ile Gly Leu Ala Leu Tyr Tyr Pro Ser Ala Arg Ile Val Tyr Thr  
50 55 60  
Ala Cys Ser His Ala Ala Val Asp Ala Leu Cys Glu Lys Ala Leu Lys  
65 70 75 80  
Tyr Leu Pro Ile Asp Lys Cys Ser Arg Ile Ile Pro Ala Arg Ala Arg  
85 90 95  
Val Glu Cys Phe Asp Lys Phe Lys Val Asn Ser Thr Leu Glu Gln Tyr  
100 105 110  
Val Phe Cys Thr Val Asn Ala Leu Pro Glu Thr Thr Ala Asp Ile Val  
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 35 40 45  
 Asn Ser Val Cys Arg Leu Met Lys Thr Ile Gly Pro Asp Met Phe Leu  
 50 55 60  
 Gly Thr Cys Arg Arg Cys Pro Ala Glu Ile Val Asp Thr Val Ser Ala  
 65 70 75 80  
 Leu Val Tyr Asp Asn Lys Leu Lys Ala His Lys Asp Lys Ser Ala Gln  
 85 90 95  
 Cys Phe Lys Met Phe Tyr Lys Gly Val Ile Thr His Asp Val Ser Ser  
 100 105 110  
 Ala Ile Asn Arg Pro Gln Ile Gly Val Val Arg Glu Phe Leu Thr Arg  
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 Asn Pro Ala Trp Arg Lys Ala Val Phe Ile Ser Pro Tyr Asn Ser Gln  
 130 135 140  
 Asn Ala Val Ala Ser  
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&lt;211&gt;150

&lt;212&gt;PRT

&lt;213&gt;SARS coronavirus

&lt;400&gt;23

Ala Val Phe Ile Ser Pro Tyr Asn Ser Gln Asn Ala Val Ala Ser Lys  
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 Tyr Asp Tyr Val Ile Phe Thr Gln Thr Thr Glu Thr Ala His Ser Cys  
 35 40 45  
 Asn Val Asn Arg Phe Asn Val Ala Ile Thr Arg Ala Lys Ile Gly Ile  
 50 55 60  
 Leu Cys Ile Met Ser Asp Arg Asp Leu Tyr Asp Lys Leu Gln Phe Thr  
 65 70 75 80  
 Ser Leu Glu Ile Pro Arg Arg Asn Val Ala Thr Leu Gln Ala Glu Asn  
 85 90 95  
 Val Thr Gly Leu Phe Lys Asp Cys Ser Lys Ile Ile Thr Gly Leu His  
 100 105 110  
 Pro Thr Gln Ala Pro Thr His Leu Ser Val Asp Ile Lys Phe Lys Thr  
 115 120 125  
 Glu Gly Leu Cys Val Asp Ile Pro Gly Ile Pro Lys Asp Met Thr Tyr  
 130 135 140



Asp Ala Ile Met Thr Arg Cys Leu Ala Val His Glu Cys Phe Val Lys  
 100 105 110  
 Arg Val Asp Trp Ser Val Glu Tyr Pro Ile Ile Gly Asp Glu Leu Arg  
 115 120 125  
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 Leu Leu  
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 Phe Pro Val Leu His Asp Ile Gly Asn Pro Lys Ala Ile Lys Cys Val  
 20 25 30  
 Pro Gln Ala Glu Val Glu Trp Lys Phe Tyr Asp Ala Gln Pro Cys Ser  
 35 40 45  
 Asp Lys Ala Tyr Lys Ile Glu Glu Leu Phe Tyr Ser Tyr Ala Thr His  
 50 55 60  
 His Asp Lys Phe Thr Asp Gly Val Cys Leu Phe Trp Asn Cys Asn Val  
 65 70 75 80  
 Asp Arg Tyr Pro Ala Asn Ala Ile Val Cys Arg Phe Asp Thr Arg Val  
 85 90 95  
 Leu Ser Asn Leu Asn Leu Pro Gly Cys Asp Gly Gly Ser Leu Tyr Val  
 100 105 110  
 Asn Lys His Ala Phe His Thr Pro Ala Phe Asp Lys Ser Ala Phe Thr  
 115 120 125  
 Asn Leu Lys Gln Leu Pro Phe Phe Tyr Tyr Ser Asp Ser Pro Cys Glu  
 130 135 140  
 Ser His  
 145 146  
 <210>27  
 <211>151  
 <212>PRT  
 <213>SARS coronavirus  
 <400>27  
 Pro Phe Phe Tyr Tyr Ser Asp Ser Pro Cys Glu Ser His Gly Lys Gln  
 1 5 10 15  
 Val Val Ser Asp Ile Asp Tyr Val Pro Leu Lys Ser Ala Thr Cys Ile  
 20 25 30  
 Thr Arg Cys Asn Leu Gly Gly Ala Val Cys Arg His His Ala Asn Glu  
 35 40 45

Tyr Arg Gln Tyr Leu Asp Ala Tyr Asn Met Met Ile Ser Ala Gly Phe  
 50 55 60  
 Ser Leu Trp Ile Tyr Lys Gln Phe Asp Thr Tyr Asn Leu Trp Asn Thr  
 65 70 75 80  
 Phe Thr Arg Leu Gln Ser Leu Glu Asn Val Ala Tyr Asn Val Val Asn  
 85 90 95  
 Lys Gly His Phe Asp Gly His Ala Gly Glu Ala Pro Val Ser Ile Ile  
 100 105 110  
 Asn Asn Ala Val Tyr Thr Lys Val Asp Gly Ile Asp Val Glu Ile Phe  
 115 120 125  
 Glu Asn Lys Thr Thr Leu Pro Val Asn Val Ala Phe Glu Leu Trp Ala  
 130 135 140  
 Lys Arg Asn Ile Lys Pro Val  
 145 150 151  
 <210>28  
 <211>148  
 <212>PRT  
 <213>SARS coronavirus  
 <400>28  
 Pro Val Asn Val Ala Phe Glu Leu Trp Ala Lys Arg Asn Ile Lys Pro  
 1 5 10 15  
 Val Pro Glu Ile Lys Ile Leu Asn Asn Leu Gly Val Asp Ile Ala Ala  
 20 25 30  
 Asn Thr Val Ile Trp Asp Tyr Lys Arg Glu Ala Pro Ala His Val Ser  
 35 40 45  
 Thr Ile Gly Val Cys Thr Met Thr Asp Ile Ala Lys Lys Pro Thr Glu  
 50 55 60  
 Ser Ala Cys Ser Ser Leu Thr Val Leu Phe Asp Gly Arg Val Glu Gly  
 65 70 75 80  
 Gln Val Asp Leu Phe Arg Asn Ala Arg Asn Gly Val Leu Ile Thr Glu  
 85 90 95  
 Gly Ser Val Lys Gly Leu Thr Pro Ser Lys Gly Pro Ala Gln Ala Ser  
 100 105 110  
 Val Asn Gly Val Thr Leu Ile Gly Glu Ser Val Lys Thr Gln Phe Asn  
 115 120 125  
 Tyr Phe Lys Lys Val Asp Gly Ile Ile Gln Gln Leu Pro Glu Thr Tyr  
 130 135 140  
 Phe Thr Gln Ser  
 145 148  
 <210>29  
 <211>144  
 <212>PRT  
 <213>SARS coronavirus  
 <400>29

Ser Gly Cys Leu Ile Phe Trp Ala Leu Leu Leu Lys Asn Ser Gly Leu  
 1 5 10 15  
 Ser Leu Asn Gly Leu Arg Arg Asn Leu Val Gln Glu Leu Asn Phe Ser  
 20 25 30  
 Arg Met Leu Gly Arg Phe Ser Asn Phe Ser Leu Gln Val Phe Leu Thr  
 35 40 45  
 Ser Ser Arg Val Lys Tyr Arg Leu Leu Gln Ile Thr Ser Arg Ile Val  
 50 55 60  
 Asn Ala Ser Leu Met Leu Leu Thr Arg His Ser Lys Cys Ala Leu Ile  
 65 70 75 80  
 Lys Ser Leu Ser Leu Ala Gln Ser Cys Asp His Ser Thr Val Lys Ser  
 85 90 95  
 Ser Ser Leu Lys Ala Arg Asp Phe Thr Val Ser Val Tyr Val Ala Arg  
 100 105 110  
 Ser Ser Cys Asn Tyr Ser Cys Leu Leu Arg His Gln Lys Lys Pro Phe  
 115 120 125  
 Leu Lys Val Ile His Met Thr Gln Tyr Leu Pro Leu Arg Arg Leu Phe  
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 <210>30  
 <211>150  
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 <213>SARS coronavirus  
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 Asp Gly Ile Ile Gln Gln Leu Pro Glu Thr Tyr Phe Thr Gln Ser Arg  
 1 5 10 15  
 Asp Leu Glu Asp Phe Lys Pro Arg Ser Gln Met Glu Thr Asp Phe Leu  
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 Glu Leu Ala Met Asp Glu Phe Ile Gln Arg Tyr Lys Leu Glu Gly Tyr  
 35 40 45  
 Ala Phe Glu His Ile Val Tyr Gly Asp Phe Ser His Gly Gln Leu Gly  
 50 55 60  
 Gly Leu His Leu Met Ile Gly Leu Ala Lys Arg Ser Gln Asp Ser Pro  
 65 70 75 80  
 Leu Lys Leu Glu Asp Phe Ile Pro Met Asp Ser Thr Val Lys Asn Tyr  
 85 90 95  
 Phe Ile Thr Asp Ala Gln Thr Gly Ser Ser Lys Cys Val Cys Ser Val  
 100 105 110  
 Ile Asp Leu Leu Leu Asp Asp Phe Val Glu Ile Ile Lys Ser Gln Asp  
 115 120 125  
 Leu Ser Val Ile Ser Lys Val Val Lys Val Thr Ile Asp Tyr Ala Glu  
 130 135 140  
 Ile Ser Phe Met Leu Trp  
 145 150  
 <210>31  
 <211>146

&lt;212&gt;PRT

&lt;213&gt;SARS coronavirus

&lt;400&gt;31

Val Val Lys Val Thr Ile Asp Tyr Ala Glu Ile Ser Phe Met Leu Trp  
 1 5 10 15  
 Cys Lys Asp Gly His Val Glu Thr Phe Tyr Pro Lys Leu Gln Ala Ser  
 20 25 30  
 Arg Ala Trp Gln Pro Gly Val Ala Met Pro Asn Leu Tyr Lys Met Gln  
 35 40 45  
 Arg Met Leu Leu Glu Lys Cys Asp Leu Gln Asn Tyr Gly Glu Asn Ala  
 50 55 60  
 Val Ile Pro Lys Gly Ile Met Met Asn Val Ala Lys Tyr Thr Gln Leu  
 65 70 75 80  
 Cys Gln Tyr Leu Asn Thr Leu Thr Leu Ala Val Pro Tyr Asn Met Arg  
 85 90 95  
 Val Ile His Phe Gly Ala Gly Ser Asp Lys Gly Val Ala Pro Gly Thr  
 100 105 110  
 Ala Val Leu Arg Gln Trp Leu Pro Thr Gly Thr Leu Leu Val Asp Ser  
 115 120 125  
 Asp Leu Asn Asp Phe Val Ser Asp Ala Tyr Ser Thr Leu Ile Gly Asp  
 130 135 140  
 Cys Ala  
 145 146

&lt;210&gt;32

&lt;211&gt;151

&lt;212&gt;PRT

&lt;213&gt;SARS coronavirus

&lt;400&gt;32

Asp Leu Asn Asp Phe Val Ser Asp Ala Tyr Ser Thr Leu Ile Gly Asp  
 1 5 10 15  
 Cys Ala Thr Val His Thr Ala Asn Lys Trp Asp Leu Ile Ile Ser Asp  
 20 25 30  
 Met Tyr Asp Pro Arg Thr Lys His Val Thr Lys Glu Asn Asp Ser Lys  
 35 40 45  
 Glu Gly Phe Phe Thr Tyr Leu Cys Gly Phe Ile Lys Gln Lys Leu Ala  
 50 55 60  
 Leu Gly Gly Ser Ile Ala Val Lys Ile Thr Glu His Ser Trp Asn Ala  
 65 70 75 80  
 Asp Leu Tyr Lys Leu Met Gly His Phe Ser Trp Trp Thr Ala Phe Val  
 85 90 95  
 Thr Asn Val Asn Ala Ser Ser Ser Glu Ala Phe Leu Ile Gly Ala Asn  
 100 105 110  
 Tyr Leu Gly Lys Pro Lys Glu Gln Ile Asp Gly Tyr Thr Met His Ala  
 115 120 125

Asn Tyr Ile Phe Trp Arg Asn Thr Asn Pro Ile Gln Leu Ser Ser Tyr  
 130 135 140  
 Ser Leu Phe Asp Met Ser Lys  
 145 150 151  
 <210>33  
 <211>149  
 <212>PRT  
 <213>SARS coronavirus  
 <400>33  
 Ile Gln Leu Ser Ser Tyr Ser Leu Phe Asp Met Ser Lys Phe Pro Leu  
 1 5 10 15  
 Lys Leu Arg Gly Thr Ala Val Met Ser Leu Lys Glu Asn Gln Ile Asn  
 20 25 30  
 Asp Met Ile Tyr Ser Leu Leu Glu Lys Gly Arg Leu Ile Ile Arg Glu  
 35 40 45  
 Asn Asn Arg Val Val Val Ser Ser Asp Ile Leu Val Asn Asn Thr Asn  
 50 55 60  
 Met Phe Ile Phe Leu Leu Phe Leu Thr Leu Thr Ser Gly Ser Asp Leu  
 65 70 75 80  
 Asp Arg Cys Thr Thr Phe Asp Asp Val Gln Ala Pro Asn Tyr Thr Gln  
 85 90 95  
 His Thr Ser Ser Met Arg Gly Val Tyr Tyr Pro Asp Glu Ile Phe Arg  
 100 105 110  
 Ser Asp Thr Leu Tyr Leu Thr Gln Asp Leu Phe Leu Pro Phe Tyr Ser  
 115 120 125  
 Asn Val Thr Gly Phe His Thr Ile Asn His Thr Phe Gly Asn Pro Val  
 130 135 140  
 Ile Pro Phe Lys Asp  
 145 149  
 <210>34  
 <211>152  
 <212>PRT  
 <213>SARS coronavirus  
 <400>34  
 Asn Val Thr Gly Phe His Thr Ile Asn His Thr Phe Gly Asn Pro Val  
 1 5 10 15  
 Ile Pro Phe Lys Asp Gly Ile Tyr Phe Ala Ala Thr Glu Lys Ser Asn  
 20 25 30  
 Val Val Arg Gly Trp Val Phe Gly Ser Thr Met Asn Asn Lys Ser Gln  
 35 40 45  
 Ser Val Ile Ile Ile Asn Asn Ser Thr Asn Val Val Ile Arg Ala Cys  
 50 55 60  
 Asn Phe Glu Leu Cys Asp Asn Pro Phe Phe Ala Val Ser Lys Pro Met  
 65 70 75 80

Gly Thr Gln Thr His Thr Met Ile Phe Asp Asn Ala Phe Asn Cys Thr  
 85 90 95  
 Phe Glu Tyr Ile Ser Asp Ala Phe Ser Leu Asp Val Ser Glu Lys Ser  
 100 105 110  
 Gly Asn Phe Lys His Leu Arg Glu Phe Val Phe Lys Asn Lys Asp Gly  
 115 120 125  
 Phe Leu Tyr Val Tyr Lys Gly Tyr Gln Pro Ile Asp Val Val Arg Asp  
 130 135 140  
 Leu Pro Ser Gly Phe Asn Thr Leu  
 145 150 152  
 <210>35  
 <211>152  
 <212>PRT  
 <213>SARS coronavirus  
 <400>35  
 Tyr Gln Pro Ile Asp Val Val Arg Asp Leu Pro Ser Gly Phe Asn Thr  
 1 5 10 15  
 Leu Lys Pro Ile Phe Lys Leu Pro Leu Gly Ile Asn Ile Thr Asn Phe  
 20 25 30  
 Arg Ala Ile Leu Thr Ala Phe Ser Pro Ala Gln Asp Ile Trp Gly Thr  
 35 40 45  
 Ser Ala Ala Ala Tyr Phe Val Gly Tyr Leu Lys Pro Thr Thr Phe Met  
 50 55 60  
 Leu Lys Tyr Asp Glu Asn Gly Thr Ile Thr Asp Ala Val Asp Cys Ser  
 65 70 75 80  
 Gln Asn Pro Leu Ala Glu Leu Lys Cys Ser Val Lys Ser Phe Glu Ile  
 85 90 95  
 Asp Lys Gly Ile Tyr Gln Thr Ser Asn Phe Arg Val Val Pro Ser Gly  
 100 105 110  
 Asp Val Val Arg Phe Pro Asn Ile Thr Asn Leu Cys Pro Phe Gly Glu  
 115 120 125  
 Val Phe Asn Ala Thr Lys Phe Pro Ser Val Tyr Ala Trp Glu Arg Lys  
 130 135 140  
 Lys Ile Ser Asn Cys Val Ala Asp  
 145 150 152  
 <210>36  
 <211>153  
 <212>PRT  
 <213>SARS coronavirus  
 <400>36  
 Lys Phe Pro Ser Val Tyr Ala Trp Glu Arg Lys Lys Ile Ser Asn Cys  
 1 5 10 15  
 Val Ala Asp Tyr Ser Val Leu Tyr Asn Ser Thr Phe Phe Ser Thr Phe  
 20 25 30

Lys Cys Tyr Gly Val Ser Ala Thr Lys Leu Asn Asp Leu Cys Phe Ser  
           35                                  40                                  45  
 Asn Val Tyr Ala Asp Ser Phe Val Val Lys Gly Asp Asp Val Arg Gln  
           50                                  55                                  60  
 Ile Ala Pro Gly Gln Thr Gly Val Ile Ala Asp Tyr Asn Tyr Lys Leu  
           65                                  70                                  75                                  80  
 Pro Asp Asp Phe Met Gly Cys Val Leu Ala Trp Asn Thr Arg Asn Ile  
                                   85                                  90                                  95  
 Asp Ala Thr Ser Thr Gly Asn Tyr Asn Tyr Lys Tyr Arg Tyr Leu Arg  
                                   100                                  105                                  110  
 His Gly Lys Leu Arg Pro Phe Glu Arg Asp Ile Ser Asn Val Pro Phe  
           115                                  120                                  125  
 Ser Pro Asp Gly Lys Pro Cys Thr Pro Pro Ala Leu Asn Cys Tyr Trp  
           130                                  135                                  140  
 Pro Leu Asn Asp Tyr Gly Phe Tyr Thr  
   145                                  150                                  153  
 <210>37  
 <211>146  
 <212>PRT  
 <213>SARS coronavirus  
 <400>37  
 Pro Ala Leu Asn Cys Tyr Trp Pro Leu Asn Asp Tyr Gly Phe Tyr Thr  
   1                                  5                                  10                                  15  
 Thr Thr Gly Ile Gly Tyr Gln Pro Tyr Arg Val Val Val Leu Ser Phe  
                                   20                                  25                                  30  
 Glu Leu Leu Asn Ala Pro Ala Thr Val Cys Gly Pro Lys Leu Ser Thr  
           35                                  40                                  45  
 Asp Leu Ile Lys Asn Gln Cys Val Asn Phe Asn Phe Asn Gly Leu Thr  
           50                                  55                                  60  
 Gly Thr Gly Val Leu Thr Pro Ser Ser Lys Arg Phe Gln Pro Phe Gln  
           65                                  70                                  75                                  80  
 Gln Phe Gly Arg Asp Val Ser Asp Phe Thr Asp Ser Val Arg Asp Pro  
                                   85                                  90                                  95  
 Lys Thr Ser Glu Ile Leu Asp Ile Ser Pro Cys Ala Phe Gly Gly Val  
                                   100                                  105                                  110  
 Ser Val Ile Thr Pro Gly Thr Asn Ala Ser Ser Glu Val Ala Val Leu  
           115                                  120                                  125  
 Tyr Gln Asp Val Asn Cys Thr Asp Val Ser Thr Ala Ile His Ala Asp  
           130                                  135                                  140  
 Gln Leu  
 145 146  
 <210>38  
 <211>147  
 <212>PRT  
 <213>SARS coronavirus

&lt;400&gt;38

Cys Thr Asp Val Ser Thr Ala Ile His Ala Asp Gln Leu Thr Pro Ala  
 1 5 10 15  
 Trp Arg Ile Tyr Ser Thr Gly Asn Asn Val Phe Gln Thr Gln Ala Gly  
 20 25 30  
 Cys Leu Ile Gly Ala Glu His Val Asp Thr Ser Tyr Glu Cys Asp Ile  
 35 40 45  
 Pro Ile Gly Ala Gly Ile Cys Ala Ser Tyr His Thr Val Ser Leu Leu  
 50 55 60  
 Arg Ser Thr Ser Gln Lys Ser Ile Val Ala Tyr Thr Met Ser Leu Gly  
 65 70 75 80  
 Ala Asp Ser Ser Ile Ala Tyr Ser Asn Asn Thr Ile Ala Ile Pro Thr  
 85 90 95  
 Asn Phe Ser Ile Ser Ile Thr Thr Glu Val Met Pro Val Ser Met Ala  
 100 105 110  
 Lys Thr Ser Val Asp Cys Asn Met Tyr Ile Cys Gly Asp Ser Thr Glu  
 115 120 125  
 Cys Ala Asn Leu Leu Leu Gln Tyr Gly Ser Phe Cys Thr Gln Leu Asn  
 130 135 140  
 Arg Ala Leu  
 145 147

&lt;210&gt;39

&lt;211&gt;147

&lt;212&gt;PRT

&lt;213&gt;SARS coronavirus

&lt;400&gt;39

Leu Gln Tyr Gly Ser Phe Cys Thr Gln Leu Asn Arg Ala Leu Ser Gly  
 1 5 10 15  
 Ile Ala Ala Glu Gln Asp Arg Asn Thr Arg Glu Val Phe Ala Gln Val  
 20 25 30  
 Lys Gln Met Tyr Lys Thr Pro Thr Leu Lys Tyr Phe Gly Gly Phe Asn  
 35 40 45  
 Phe Ser Gln Ile Leu Pro Asp Pro Leu Lys Pro Thr Lys Arg Ser Phe  
 50 55 60  
 Ile Glu Asp Leu Leu Phe Asn Lys Val Thr Leu Ala Asp Ala Gly Phe  
 65 70 75 80  
 Met Lys Gln Tyr Gly Glu Cys Leu Gly Asp Ile Asn Ala Arg Asp Leu  
 85 90 95  
 Ile Cys Ala Gln Lys Phe Asn Gly Leu Thr Val Leu Pro Pro Leu Leu  
 100 105 110  
 Thr Asp Asp Met Ile Ala Ala Tyr Thr Ala Ala Leu Val Ser Gly Thr  
 115 120 125  
 Ala Thr Ala Gly Trp Thr Phe Gly Ala Gly Ala Ala Leu Gln Ile Pro  
 130 135 140

Phe Ala Met  
 145 147  
 <210>40  
 <211>146  
 <212>PRT  
 <213>SARS coronavirus  
 <400>40  
 Asp Ser His Asp Thr Val Leu Thr Ser Glu Glu Val Val Leu Lys Asn 15  
 1 5 10  
 Gly Glu Leu Glu Ala Leu Glu Thr Pro Val Asp Ser Phe Thr Asn Gly  
 20 25 30  
 Ala Ile Val Gly Thr Pro Val Cys Val Asn Gly Leu Met Leu Leu Glu  
 35 40 45  
 Ile Lys Asp Lys Glu Gln Tyr Cys Ala Leu Ser Pro Gly Leu Leu Ala  
 50 55 60  
 Thr Asn Asn Val Phe Arg Leu Lys Gly Gly Ala Pro Ile Lys Gly Val 80  
 65 70 75  
 Thr Phe Gly Glu Asp Thr Val Trp Glu Val Gln Gly Tyr Lys Asn Val  
 85 90 95  
 Arg Ile Thr Phe Glu Leu Asp Glu Arg Val Asp Lys Val Leu Asn Glu  
 100 105 110  
 Lys Cys Ser Val Tyr Thr Val Glu Ser Gly Thr Glu Val Thr Glu Phe  
 115 120 125  
 Ala Cys Val Val Ala Glu Ala Val Val Lys Thr Leu Gln Pro Val Ser  
 130 135 140  
 Asp Leu  
 145 146  
 <210>41  
 <211>149  
 <212>PRT  
 <213>SARS coronavirus  
 <400>41  
 Trp Thr Phe Gly Ala Gly Ala Ala Leu Gln Ile Pro Phe Ala Met Gln 15  
 1 5 10  
 Met Ala Tyr Arg Phe Asn Gly Ile Gly Val Thr Gln Asn Val Leu Tyr  
 20 25 30  
 Glu Asn Gln Lys Gln Ile Ala Asn Gln Phe Asn Lys Ala Ile Ser Gln  
 35 40 45  
 Ile Gln Glu Ser Leu Thr Thr Thr Ser Thr Ala Leu Gly Lys Leu Gln  
 50 55 60  
 Asp Val Val Asn Gln Asn Ala Gln Ala Leu Asn Thr Leu Val Lys Gln 80  
 65 70 75  
 Leu Ser Ser Asn Phe Gly Ala Ile Ser Ser Val Leu Asn Asp Ile Leu  
 85 90 95

Ser Arg Leu Asp Lys Val Glu Ala Glu Val Gln Ile Asp Arg Leu Ile  
 100 105 110  
 Thr Gly Arg Leu Gln Ser Leu Gln Thr Tyr Val Thr Gln Gln Leu Ile  
 115 120 125  
 Arg Ala Ala Glu Ile Arg Ala Ser Ala Asn Leu Ala Ala Thr Lys Met  
 130 135 140  
 Ser Glu Cys Val Leu  
 145 149  
 <210>42  
 <211>150  
 <212>PRT  
 <213>SARS coronavirus  
 <400>42  
 Arg Ala Ser Ala Asn Leu Ala Ala Thr Lys Met Ser Glu Cys Val Leu  
 1 5 10 15  
 Gly Gln Ser Lys Arg Val Asp Phe Cys Gly Lys Gly Tyr His Leu Met  
 20 25 30  
 Ser Phe Pro Gln Ala Ala Pro His Gly Val Val Phe Leu His Val Thr  
 35 40 45  
 Tyr Val Pro Ser Gln Glu Arg Asn Phe Thr Thr Ala Pro Ala Ile Cys  
 50 55 60  
 His Glu Gly Lys Ala Tyr Phe Pro Arg Glu Gly Val Phe Val Phe Asn  
 65 70 75 80  
 Gly Thr Ser Trp Phe Ile Thr Gln Arg Asn Phe Phe Ser Pro Gln Ile  
 85 90 95  
 Ile Thr Thr Asp Asn Thr Phe Val Ser Gly Asn Cys Asp Val Val Ile  
 100 105 110  
 Gly Ile Ile Asn Asn Thr Val Tyr Asp Pro Leu Gln Pro Glu Leu Asp  
 115 120 125  
 Ser Phe Lys Glu Glu Leu Asp Lys Tyr Phe Lys Asn His Thr Ser Pro  
 130 135 140  
 Asp Val Asp Leu Gly Asp  
 145 150  
 <210>43  
 <211>120  
 <212>PRT  
 <213>SARS coronavirus  
 <400>43  
 Lys Tyr Phe Lys Asn His Thr Ser Pro Asp Val Asp Leu Gly Asp Ile  
 1 5 10 15  
 Ser Gly Ile Asn Ala Ser Val Val Asn Ile Gln Lys Glu Ile Asp Arg  
 20 25 30  
 Leu Asn Glu Val Ala Lys Asn Leu Asn Glu Ser Leu Ile Asp Leu Gln  
 35 40 45

Glu Leu Gly Lys Tyr Glu Gln Tyr Ile Lys Trp Pro Trp Tyr Val Trp  
 50 55 60  
 Leu Gly Phe Ile Ala Gly Leu Ile Ala Ile Val Met Val Thr Ile Leu  
 65 70 75 80  
 Leu Cys Cys Met Thr Ser Cys Cys Ser Cys Leu Lys Gly Ala Cys Ser  
 85 90 95  
 Cys Gly Ser Cys Cys Lys Phe Asp Glu Asp Asp Ser Glu Pro Val Leu  
 100 105 110  
 Lys Gly Val Lys Leu His Tyr Thr  
 115 120  
 <210>44  
 <211>151  
 <212>PRT  
 <213>SARS coronavirus  
 <400>44  
 Thr Leu Gly Ser Ile Thr Ala Gln Pro Val Lys Ile Asp Asn Ala Ser  
 1 5 10 15  
 Pro Ala Ser Thr Val His Ala Thr Ala Thr Ile Pro Leu Gln Ala Ser  
 20 25 30  
 Leu Pro Phe Gly Trp Leu Val Ile Gly Val Ala Phe Leu Ala Val Phe  
 35 40 45  
 Gln Ser Ala Thr Lys Ile Ile Ala Leu Asn Lys Arg Trp Gln Leu Ala  
 50 55 60  
 Leu Tyr Lys Gly Phe Gln Phe Ile Cys Asn Leu Leu Leu Phe Val  
 65 70 75 80  
 Thr Ile Tyr Ser His Leu Leu Leu Val Ala Ala Gly Met Glu Ala Gln  
 85 90 95  
 Phe Leu Tyr Leu Tyr Ala Leu Ile Tyr Phe Leu Gln Cys Ile Asn Ala  
 100 105 110  
 Cys Arg Ile Ile Met Arg Cys Trp Leu Cys Trp Lys Cys Lys Ser Lys  
 115 120 125  
 Asn Pro Leu Leu Tyr Asp Ala Asn Tyr Phe Val Cys Trp His Thr His  
 130 135 140  
 Asn Tyr Asp Tyr Cys Ile Pro  
 145 150 151  
 <210>45  
 <211>133  
 <212>PRT  
 <213>SARS coronavirus  
 <400>45  
 Asp Ala Asn Tyr Phe Val Cys Trp His Thr His Asn Tyr Asp Tyr Cys  
 1 5 10 15  
 Ile Pro Tyr Asn Ser Val Thr Asp Thr Ile Val Val Thr Glu Gly Asp  
 20 25 30

Gly Ile Ser Thr Pro Lys Leu Lys Glu Asp Tyr Gln Ile Gly Gly Tyr  
                   35                                  40                                  45  
 Ser Glu Asp Arg His Ser Gly Val Lys Asp Tyr Val Val Val His Gly  
           50                                  55                                  60  
 Tyr Phe Thr Glu Val Tyr Tyr Gln Leu Glu Ser Thr Gln Ile Thr Thr  
   65                                  70                                  75                                  80  
 Asp Thr Gly Ile Glu Asn Ala Thr Phe Phe Ile Phe Asn Lys Leu Val  
                                   85                                  90                                  95  
 Lys Asp Pro Pro Asn Val Gln Ile His Thr Ile Asp Gly Ser Ser Gly  
                                   100                                  105                                  110  
 Val Ala Asn Pro Ala Met Asp Pro Ile Tyr Asp Glu Pro Thr Thr Thr  
           115                                  120                                  125  
 Thr Ser Val Pro Leu  
   130                                  133  
 <210>46  
 <211>83  
 <212>PRT  
 <213>SARS coronavirus  
 <400>46  
 Gln Glu Ser Glu Tyr Glu Leu Met Tyr Ser Phe Val Ser Glu Glu Thr  
   1                                  5                                  10                                  15  
 Gly Thr Leu Ile Val Asn Ser Val Leu Leu Phe Leu Ala Phe Val Val  
                                   20                                  25                                  30  
 Phe Leu Leu Val Thr Leu Ala Ile Leu Thr Ala Leu Arg Leu Cys Ala  
           35                                  40                                  45  
 Tyr Cys Cys Asn Ile Val Asn Val Ser Leu Val Lys Pro Thr Val Tyr  
           50                                  55                                  60  
 Val Tyr Ser Arg Val Lys Asn Leu Asn Ser Ser Glu Gly Val Pro Asp  
   65                                  70                                  75                                  80  
 Leu Leu Val  
           83  
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 <211>150  
 <212>PRT  
 <213>SARS coronavirus  
 <400>47  
 Leu Leu Gln Phe Ala Tyr Ser Asn Arg Asn Arg Phe Leu Tyr Ile Ile  
   1                                  5                                  10                                  15  
 Lys Leu Val Phe Leu Trp Leu Leu Trp Pro Val Thr Leu Ala Cys Phe  
           20                                  25                                  30  
 Val Leu Ala Ala Val Tyr Arg Ile Asn Trp Val Thr Gly Gly Ile Ala  
           35                                  40                                  45  
 Ile Ala Met Ala Cys Ile Val Gly Leu Met Trp Leu Ser Tyr Phe Val  
           50                                  55                                  60

Ala Ser Phe Arg Leu Phe Ala Arg Thr Arg Ser Met Trp Ser Phe Asn  
 65 70 75 80  
 Pro Glu Thr Asn Ile Leu Leu Asn Val Pro Leu Arg Gly Thr Ile Val  
 85 90 95  
 Thr Arg Pro Leu Met Glu Ser Glu Leu Val Ile Gly Ala Val Ile Ile  
 100 105 110  
 Arg Gly His Leu Arg Met Ala Gly His Ser Leu Gly Arg Cys Asp Ile  
 115 120 125  
 Lys Asp Leu Pro Lys Glu Ile Thr Val Ala Thr Ser Arg Thr Leu Ser  
 130 135 140  
 Tyr Tyr Lys Leu Gly Ala  
 145 150  
 <210>48  
 <211>55  
 <212>PRT  
 <213>SARS coronavirus  
 <400>48  
 Ile Thr Val Ala Thr Ser Arg Thr Leu Ser Tyr Tyr Lys Leu Gly Ala  
 1 5 10 15  
 Ser Gln Arg Val Gly Thr Asp Ser Gly Phe Ala Ala Tyr Asn Arg Tyr  
 20 25 30  
 Arg Ile Gly Asn Tyr Lys Leu Asn Thr Asp His Ala Gly Ser Asn Asp  
 35 40 45  
 Asn Ile Ala Leu Leu Val Gln  
 50 55  
 <210>49  
 <211>117  
 <212>PRT  
 <213>SARS coronavirus  
 <400>49  
 Phe Leu Thr Leu Ile Val Phe Thr Ser Cys Glu Leu Tyr His Tyr Gln  
 1 5 10 15  
 Glu Cys Val Arg Gly Thr Thr Val Leu Leu Lys Glu Pro Cys Pro Ser  
 20 25 30  
 Gly Thr Tyr Glu Gly Asn Ser Pro Phe His Pro Leu Ala Asp Asn Lys  
 35 40 45  
 Phe Ala Leu Thr Cys Thr Ser Thr His Phe Ala Phe Ala Cys Ala Asp  
 50 55 60  
 Gly Thr Arg His Thr Tyr Gln Leu Arg Ala Arg Ser Val Ser Pro Lys  
 65 70 75 80  
 Leu Phe Ile Arg Gln Glu Glu Val Gln Gln Glu Leu Tyr Ser Pro Leu  
 85 90 95  
 Phe Leu Ile Val Ala Ala Leu Val Phe Leu Ile Leu Cys Phe Thr Ile  
 100 105 110

Lys Arg Lys Thr Glu  
           115      117  
 <210>50  
 <211>55  
 <212>PRT  
 <213>SARS coronavirus  
 <400>50  
 Ala Ile Pro Cys Phe Asn Asn Ala Tyr Tyr Ile Leu Val Phe Thr Arg  
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 Asn Pro Gly Ser Arg Arg Thr Leu Tyr Gln Ser Leu Asn Glu His Glu  
                   20                  25                  30  
 Thr Ser His Cys Phe Asp Leu Tyr Phe Ser Met Gln Leu His Met His  
                   35                  40                  45  
 Cys Ser Thr Ala Leu Cys Ile  
           50                  55  
 <210>51  
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 <212>PRT  
 <213>SARS coronavirus  
 <400>51  
 Ala Val Val Lys Thr Leu Gln Pro Val Ser Asp Leu Leu Thr Asn Met  
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 Gly Ile Asp Leu Asp Glu Trp Ser Val Ala Thr Phe Tyr Leu Phe Asp  
                   20                  25                  30  
 Asp Ala Gly Glu Glu Asn Phe Ser Ser Arg Met Tyr Cys Ser Phe Tyr  
                   35                  40                  45  
 Pro Pro Asp Glu Glu Glu Glu Asp Asp Ala Glu Cys Glu Glu Glu Glu  
           50                  55                  60  
 Ile Asp Glu Thr Cys Glu His Glu Tyr Gly Thr Glu Asp Asp Tyr Gln  
   65                  70                  75                  80  
 Gly Leu Pro Leu Glu Phe Gly Ala Ser Ala Glu Thr Val Arg Val Glu  
                   85                  90                  95  
 Glu Glu Glu Glu Glu Asp Trp Leu Asp Asp Thr Thr Glu Gln Ser Glu  
                   100                  105                  110  
 Ile Glu Pro Glu Pro Glu Pro Thr Pro Glu Glu Pro Val Asn Gln Phe  
           115                  120                  125  
 Thr Gly Tyr Leu Lys Leu Thr Asp Asn Val Ala Ile Lys Cys Val Asp  
           130                  135                  140  
 Ile Val Lys  
 145      147  
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 <211>146  
 <212>PRT  
 <213>SARS coronavirus  
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Asn Glu Gln Ile Lys Met Ser Asp Asn Gly Pro Gln Ser Asn Gln Arg  
 1 5 10 15  
 Ser Ala Pro Arg Ile Thr Phe Gly Gly Pro Thr Asp Ser Thr Asp Asn  
 20 25 30  
 Asn Gln Asn Gly Gly Arg Asn Gly Ala Arg Pro Lys Gln Arg Arg Pro  
 35 40 45  
 Gln Gly Leu Pro Asn Asn Thr Ala Ser Trp Phe Thr Ala Leu Thr Gln  
 50 55 60  
 His Gly Lys Glu Glu Leu Arg Phe Pro Arg Gly Gln Gly Val Pro Ile  
 65 70 75 80  
 Asn Thr Asn Ser Gly Pro Asp Asp Gln Ile Gly Tyr Tyr Arg Arg Ala  
 85 90 95  
 Thr Arg Arg Val Arg Gly Gly Asp Gly Lys Met Lys Glu Leu Ser Pro  
 100 105 110  
 Arg Trp Tyr Phe Tyr Tyr Leu Gly Thr Gly Pro Glu Ala Ser Leu Pro  
 115 120 125  
 Tyr Gly Ala Asn Lys Glu Gly Ile Val Trp Val Ala Thr Glu Gly Ala  
 130 135 140  
 Leu Asn  
 145 146  
 <210>53  
 <211>147  
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 <213>SARS coronavirus  
 <400>53  
 Asn Lys Glu Gly Ile Val Trp Val Ala Thr Glu Gly Ala Leu Asn Thr  
 1 5 10 15  
 Pro Lys Asp His Ile Gly Thr Arg Asn Pro Asn Asn Ala Ala Thr  
 20 25 30  
 Val Leu Gln Leu Pro Gln Gly Thr Thr Leu Pro Lys Gly Phe Tyr Ala  
 35 40 45  
 Glu Gly Ser Arg Gly Gly Ser Gln Ala Ser Ser Arg Ser Ser Ser Arg  
 50 55 60  
 Ser Arg Gly Asn Ser Arg Asn Ser Thr Pro Gly Ser Ser Arg Gly Asn  
 65 70 75 80  
 Ser Pro Ala Arg Met Ala Ser Gly Gly Gly Glu Thr Ala Leu Ala Leu  
 85 90 95  
 Leu Leu Leu Asp Arg Leu Asn Gln Leu Glu Ser Lys Val Ser Gly Lys  
 100 105 110  
 Gly Gln Gln Gln Gln Gly Gln Thr Val Thr Lys Lys Ser Ala Ala Glu  
 115 120 125  
 Ala Ser Lys Lys Pro Arg Gln Lys Arg Thr Ala Thr Lys Gln Tyr Asn  
 130 135 140  
 Val Thr Gln  
 145 147

<210>54  
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 Arg Gln Lys Arg Thr Ala Thr Lys Gln Tyr Asn Val Thr Gln Ala Phe  
 1 5 10 15  
 Gly Arg Arg Gly Pro Glu Gln Thr Gln Gly Asn Phe Gly Asp Gln Asp  
 20 25 30  
 Leu Ile Arg Gln Gly Thr Asp Tyr Lys His Trp Pro Gln Ile Ala Gln  
 35 40 45  
 Phe Ala Pro Ser Ala Ser Ala Phe Phe Gly Met Ser Arg Ile Gly Met  
 50 55 60  
 Glu Val Thr Pro Ser Gly Thr Trp Leu Thr Tyr His Gly Ala Ile Lys  
 65 70 75 80  
 Leu Asp Asp Lys Asp Pro Gln Phe Lys Asp Asn Val Ile Leu Leu Asn  
 85 90 95  
 Lys His Ile Asp Ala Tyr Lys Thr Phe Pro Pro Thr Glu Pro Lys Lys  
 100 105 110  
 Asp Lys Lys Lys Lys Thr Asp Glu Ala Gln Pro Leu Pro Gln Arg Gln  
 115 120 125  
 Lys Lys Gln Pro Thr Val Thr Leu Leu Pro Ala Ala Asp Met Asp Asp  
 130 135 140  
 Phe Ser  
 145 146  
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 Lys Lys Gln Pro Thr Val Thr Leu Leu Pro Ala Ala Asp Met Asp Asp  
 20 25 30  
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 35 40 45  
 Thr Gln Ala  
 50 51  
 <210>56  
 <211>51  
 <212>PRT  
 <213>SARS coronavirus  
 <400>56  
 Asp Lys Lys Lys Lys Thr Asp Glu Ala Gln Pro Leu Pro Gln Arg Gln  
 1 5 10 15



Pro Val Asp Val Lys Pro Lys Ile Lys Ala Cys Ile Asp Glu Val Thr  
 65 70 75 80  
 Thr Thr Leu Glu Glu Thr Lys Phe Leu Thr Asn Lys Leu Leu Leu Phe  
 85 90 95  
 Ala Asp Ile Asn Gly Lys Leu Tyr His Asp Ser Gln Asn Met Leu Arg  
 100 105 110  
 Gly Glu Asp Met Ser Phe Leu Glu Lys Asp Ala Pro Tyr Met Val Gly  
 115 120 125  
 Asp Val Ile Thr Ser Gly Asp Ile Thr Cys Val Val Ile Pro Ser Lys  
 130 135 140  
 Lys Ala Gly Gly Thr Thr Glu Met Leu Ser Arg  
 145 150 155  
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 <213>SARS coronavirus  
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 Leu Ser Thr Asn His Gly His Lys Val Val Glu Leu Val Ala Glu Met  
 1 5 10 15  
 Asp Gly Ile Gln Tyr Gly Arg Ser Gly Ile Thr Leu Gly Val Leu Val  
 20 25 30  
 Pro His Val Gly Glu Thr Pro Ile Ala Tyr Arg Asn Val Leu Leu Arg  
 35 40 45  
 Lys Asn Gly Asn Lys Gly Ala Gly Gly His Ser Tyr Gly Ile Asp Leu  
 50 55 60  
 Lys Ser Tyr Asp Leu Gly Asp Glu Leu Gly Thr Asp Pro Ile Glu Asp  
 65 70 75 80  
 Tyr Glu Gln Asn Trp Asn Thr Lys His Gly Ser Gly Ala Leu Arg Glu  
 85 90 95  
 Leu Thr Arg Glu Leu Asn Gly Gly Ala Val Thr Arg Tyr Val Asp Asn  
 100 105 110  
 Asn Phe Cys Gly Pro Asp Gly Tyr Pro Leu Asp Cys Ile Lys Asp Phe  
 115 120 125  
 Leu Ala Arg Ala Gly Lys Ser Met Cys Thr Leu Ser Glu Gln Leu Asp  
 130 135 140  
 Tyr Ile Glu Ser Lys  
 145 149  
 <210>60  
 <211>148  
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 <213>SARS coronavirus  
 <400>60  
 Val Ile Pro Ser Lys Lys Ala Gly Gly Thr Thr Glu Met Leu Ser Arg  
 1 5 10 15



&lt;212&gt;PRT

&lt;213&gt;SARS coronavirus

&lt;400&gt;62

Thr Lys Leu Asn Ser Leu Asn Glu Pro Leu Val Thr Met Pro Ile Gly 15  
 1 5 10  
 Tyr Val Thr His Gly Phe Asn Leu Glu Glu Ala Ala Arg Cys Met Arg  
 20 25 30  
 Ser Leu Lys Ala Pro Ala Val Val Ser Val Ser Ser Pro Asp Ala Val  
 35 40 45  
 Thr Thr Tyr Asn Gly Tyr Leu Thr Ser Ser Ser Lys Thr Ser Glu Glu  
 50 55 60  
 His Phe Val Glu Thr Val Ser Leu Ala Gly Ser Tyr Arg Asp Trp Ser 80  
 65 70 75  
 Tyr Ser Gly Gln Arg Thr Glu Leu Gly Val Glu Phe Leu Lys Arg Gly 95  
 85 90  
 Asp Lys Ile Val Tyr His Thr Leu Glu Ser Pro Val Glu Phe His Leu  
 100 105 110  
 Asp Gly Glu Val Leu Ser Leu Asp Lys Leu Lys Ser Leu Leu Ser Leu  
 115 120 125  
 Arg Glu Val Lys Thr Ile Lys Val Phe Thr Thr Val Asp Asn Thr Asn  
 130 135 140  
 Leu His Thr  
 145 147

&lt;210&gt;63

&lt;211&gt;149

&lt;212&gt;PRT

&lt;213&gt;SARS coronavirus

&lt;400&gt;63

Tyr Arg Ala Arg Ala Gly Asp Ala Ala Asn Phe Cys Ala Leu Ile Leu 15  
 1 5 10  
 Ala Tyr Ser Asn Lys Thr Val Gly Glu Leu Gly Asp Val Arg Glu Thr  
 20 25 30  
 Met Thr His Leu Leu Gln His Ala Asn Leu Glu Ser Ala Lys Arg Val  
 35 40 45  
 Leu Asn Val Val Cys Lys His Cys Gly Gln Lys Thr Thr Thr Leu Thr  
 50 55 60  
 Gly Val Glu Ala Val Met Tyr Met Gly Thr Leu Ser Tyr Asp Asn Leu 80  
 65 70 75  
 Lys Thr Gly Val Ser Ile Pro Cys Val Cys Gly Arg Asp Ala Thr Gln 95  
 85 90  
 Tyr Leu Val Gln Gln Glu Ser Ser Phe Val Met Met Ser Ala Pro Pro  
 100 105 110  
 Ala Glu Tyr Lys Leu Gln Gln Gly Thr Phe Leu Cys Ala Asn Glu Tyr  
 115 120 125

Thr Gly Asn Tyr Gln Cys Gly His Tyr Thr His Ile Thr Ala Lys Glu  
 130 135 140  
 Thr Leu Tyr Arg Ile  
 145 149  
 <210>64  
 <211>148  
 <212>PRT  
 <213>SARS coronavirus  
 <400>64  
 Cys Gly His Tyr Thr His Ile Thr Ala Lys Glu Thr Leu Tyr Arg Ile  
 1 5 10 15  
 Asp Gly Ala His Leu Thr Lys Met Ser Glu Tyr Lys Gly Pro Val Thr  
 20 25 30  
 Asp Val Phe Tyr Lys Glu Thr Ser Tyr Thr Thr Thr Ile Lys Pro Val  
 35 40 45  
 Ser Tyr Lys Leu Asp Gly Val Thr Tyr Thr Glu Ile Glu Pro Lys Leu  
 50 55 60  
 Asp Gly Tyr Tyr Lys Lys Asp Asn Ala Tyr Tyr Thr Glu Gln Pro Ile  
 65 70 75 80  
 Asp Leu Val Pro Thr Gln Pro Leu Pro Asn Ala Ser Phe Asp Asn Phe  
 85 90 95  
 Lys Leu Thr Cys Ser Asn Thr Lys Phe Ala Asp Asp Leu Asn Gln Met  
 100 105 110  
 Thr Gly Phe Thr Lys Pro Ala Ser Arg Glu Leu Ser Val Thr Phe Phe  
 115 120 125  
 Pro Asp Leu Asn Gly Asp Val Val Ala Ile Asp Tyr Arg His Tyr Ser  
 130 135 140  
 Ala Ser Phe Lys  
 145 148  
 <210>65  
 <211>151  
 <212>PRT  
 <213>SARS coronavirus  
 <400>65  
 Val Val Ala Ile Asp Tyr Arg His Tyr Ser Ala Ser Phe Lys Lys Gly  
 1 5 10 15  
 Ala Lys Leu Leu His Lys Pro Ile Val Trp His Ile Asn Gln Ala Thr  
 20 25 30  
 Thr Lys Thr Thr Phe Lys Pro Asn Thr Trp Cys Leu Arg Cys Leu Trp  
 35 40 45  
 Ser Thr Lys Pro Val Asp Thr Ser Asn Ser Phe Glu Val Leu Ala Val  
 50 55 60  
 Glu Asp Thr Gln Gly Met Asp Asn Leu Ala Cys Glu Ser Gln Gln Pro  
 65 70 75 80





&lt;400&gt;69

Cys Leu Lys Leu Ser His His Ser Asp Leu Glu Val Thr Gly Asp Ser  
 1 5 10 15  
 Cys Asn Asn Phe Met Leu Thr Tyr Asn Lys Val Glu Asn Met Thr Pro  
 20 25 30  
 Arg Asp Leu Gly Ala Cys Ile Asp Cys Asn Ala Arg His Ile Asn Ala  
 35 40 45  
 Gln Val Ala Lys Ser His Asn Val Ser Leu Ile Trp Asn Val Lys Asp  
 50 55 60  
 Tyr Met Ser Leu Ser Glu Gln Leu Arg Lys Gln Ile Arg Ser Ala Ala  
 65 70 75 80  
 Lys Lys Asn Asn Ile Pro Phe Arg Leu Thr Cys Ala Thr Thr Arg Gln  
 85 90 95  
 Val Val Asn Val Ile Thr Thr Lys Ile Ser Leu Lys Gly Gly Lys Ile  
 100 105 110  
 Val Ser Thr Cys Phe Lys Leu Met Leu Lys Ala Thr Leu Leu Cys Val  
 115 120 125  
 Leu Ala Ala Leu Val Cys Tyr Ile Val Met Pro Val His Thr Leu Ser  
 130 135 140  
 Ile His

145 146

&lt;210&gt;70

&lt;211&gt;150

&lt;212&gt;PRT

&lt;213&gt;SARS coronavirus

&lt;400&gt;70

Ser Met Cys Thr Leu Ser Glu Gln Leu Asp Tyr Ile Glu Ser Lys Arg  
 1 5 10 15  
 Gly Val Tyr Cys Cys Arg Asp His Glu His Glu Ile Ala Trp Phe Thr  
 20 25 30  
 Glu Arg Ser Asp Lys Ser Tyr Glu His Gln Thr Pro Phe Glu Ile Lys  
 35 40 45  
 Ser Ala Lys Lys Phe Asp Thr Phe Lys Gly Glu Cys Pro Lys Phe Val  
 50 55 60  
 Phe Pro Leu Asn Ser Lys Val Lys Val Ile Gln Pro Arg Val Glu Lys  
 65 70 75 80  
 Lys Lys Thr Glu Gly Phe Met Gly Arg Ile Arg Ser Val Tyr Pro Val  
 85 90 95  
 Ala Ser Pro Gln Glu Cys Asn Asn Met His Leu Ser Thr Leu Met Lys  
 100 105 110  
 Cys Asn His Cys Asp Glu Val Ser Trp Gln Thr Cys Asp Phe Leu Lys  
 115 120 125  
 Ala Thr Cys Glu His Cys Gly Thr Glu Asn Leu Val Ile Glu Gly Pro  
 130 135 140

Thr Thr Cys Gly Tyr Leu  
 145 150  
 <210>71  
 <211>150  
 <212>PRT  
 <213>SARS coronavirus  
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 1 5 10  
 Phe Gly Val Leu Leu Ser Asn Phe Gly Ala Pro Ser Tyr Cys Asn Gly  
 20 25 30  
 Val Arg Glu Leu Tyr Leu Asn Ser Ser Asn Val Thr Thr Met Asp Phe  
 35 40 45  
 Cys Glu Gly Ser Phe Pro Cys Ser Ile Cys Leu Ser Gly Leu Asp Ser  
 50 55 60  
 Leu Asp Ser Tyr Pro Ala Leu Glu Thr Ile Gln Val Thr Ile Ser Ser 80  
 65 70 75  
 Tyr Lys Leu Asp Leu Thr Ile Leu Gly Leu Ala Ala Glu Trp Val Leu 95  
 85 90  
 Ala Tyr Met Leu Phe Thr Lys Phe Phe Tyr Leu Leu Gly Leu Ser Ala  
 100 105 110  
 Ile Met Gln Val Phe Phe Gly Tyr Phe Ala Ser His Phe Ile Ser Asn  
 115 120 125  
 Ser Trp Leu Met Trp Phe Ile Ile Ser Ile Val Gln Met Ala Pro Val  
 130 135 140  
 Ser Ala Met Val Arg Met  
 145 150  
 <210>72  
 <211>149  
 <212>PRT  
 <213>SARS coronavirus  
 <400>72  
 Ser Thr Cys Phe Lys Leu Met Leu Lys Ala Thr Leu Leu Cys Val Leu 15  
 1 5 10  
 Ala Ala Leu Val Cys Tyr Ile Val Met Pro Val His Thr Leu Ser Ile  
 20 25 30  
 His Asp Gly Tyr Thr Asn Glu Ile Ile Gly Tyr Lys Ala Ile Gln Asp  
 35 40 45  
 Gly Val Thr Arg Asp Ile Ile Ser Thr Asp Asp Cys Phe Ala Asn Lys  
 50 55 60  
 His Ala Gly Phe Asp Ala Trp Phe Ser Gln Arg Gly Gly Ser Tyr Lys 80  
 65 70 75  
 Asn Asp Lys Ser Cys Pro Val Val Ala Ala Ile Ile Thr Arg Glu Ile 95  
 85 90

Gly Phe Ile Val Pro Gly Leu Pro Gly Thr Val Leu Arg Ala Ile Asn  
                   100                                  105                                  110  
 Gly Asp Phe Leu His Phe Leu Pro Arg Val Phe Ser Ala Val Gly Asn  
                   115                                  120                                  125  
 Ile Cys Tyr Thr Pro Ser Lys Leu Ile Glu Tyr Ser Asp Phe Ala Thr  
                   130                                  135                                  140  
 Ser Ala Cys Val Leu  
 145                                  149  
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 <211>151  
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   1                                  5                                  10                                  15  
 Val Leu Ala Ala Glu Cys Thr Ile Phe Lys Asp Ala Met Gly Lys Pro  
                   20                                  25                                  30  
 Val Pro Tyr Cys Tyr Asp Thr Asn Leu Leu Glu Gly Ser Ile Ser Tyr  
                   35                                  40                                  45  
 Ser Glu Leu Arg Pro Asp Thr Arg Tyr Val Leu Met Asp Gly Ser Ile  
                   50                                  55                                  60  
 Ile Gln Phe Pro Asn Thr Tyr Leu Glu Gly Ser Val Arg Val Val Thr  
   65                                  70                                  75                                  80  
 Thr Phe Asp Ala Glu Tyr Cys Arg His Gly Thr Cys Glu Arg Ser Glu  
                   85                                  90                                  95  
 Val Gly Ile Cys Leu Ser Thr Ser Gly Arg Trp Val Leu Asn Asn Glu  
                   100                                  105                                  110  
 His Tyr Arg Ala Leu Ser Gly Val Phe Cys Gly Val Asp Ala Met Asn  
                   115                                  120                                  125  
 Leu Ile Ala Asn Ile Phe Thr Pro Leu Val Gln Pro Val Gly Ala Leu  
                   130                                  135                                  140  
 Asp Val Ser Ala Ser Val Val  
 145                                  150 151  
 <210>74  
 <211>154  
 <212>PRT  
 <213>SARS coronavirus  
 <400>74  
 Pro Leu Val Gln Pro Val Gly Ala Leu Asp Val Ser Ala Ser Val Val  
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 Ala Gly Gly Ile Ile Ala Ile Leu Val Thr Cys Ala Ala Tyr Tyr Phe  
                   20                                  25                                  30  
 Met Lys Phe Arg Arg Val Phe Gly Glu Tyr Asn His Val Val Ala Ala  
                   35                                  40                                  45

Asn Ala Leu Leu Phe Leu Met Ser Phe Thr Ile Leu Cys Leu Val Pro  
 50 55 60  
 Ala Tyr Ser Phe Leu Pro Gly Val Tyr Ser Val Phe Tyr Leu Tyr Leu  
 65 70 75 80  
 Thr Phe Tyr Phe Thr Asn Asp Val Ser Phe Leu Ala His Leu Gln Trp  
 85 90 95  
 Phe Ala Met Phe Ser Pro Ile Val Pro Phe Trp Ile Thr Ala Ile Tyr  
 100 105 110  
 Val Phe Cys Ile Ser Leu Lys His Cys His Trp Phe Phe Asn Asn Tyr  
 115 120 125  
 Leu Arg Lys Arg Val Met Phe Asn Gly Val Thr Phe Ser Thr Phe Glu  
 130 135 140  
 Glu Ala Ala Leu Cys Thr Phe Leu Leu Asn  
 145 150 154  
 <210>75  
 <211>147  
 <212>PRT  
 <213>SARS coronavirus  
 <400>75  
 Phe Asn Gly Val Thr Phe Ser Thr Phe Glu Glu Ala Ala Leu Cys Thr  
 1 5 10 15  
 Phe Leu Leu Asn Lys Glu Met Tyr Leu Lys Leu Arg Ser Glu Thr Leu  
 20 25 30  
 Leu Pro Leu Thr Gln Tyr Asn Arg Tyr Leu Ala Leu Tyr Asn Lys Tyr  
 35 40 45  
 Lys Tyr Phe Ser Gly Ala Leu Asp Thr Thr Ser Tyr Arg Glu Ala Ala  
 50 55 60  
 Cys Cys His Leu Ala Lys Ala Leu Asn Asp Phe Ser Asn Ser Gly Ala  
 65 70 75 80  
 Asp Val Leu Tyr Gln Pro Pro Gln Thr Ser Ile Thr Ser Ala Val Leu  
 85 90 95  
 Gln Ser Gly Phe Arg Lys Met Ala Phe Pro Ser Gly Lys Val Glu Gly  
 100 105 110  
 Cys Met Val Gln Val Thr Cys Gly Thr Thr Thr Leu Asn Gly Leu Trp  
 115 120 125  
 Leu Asp Asp Thr Val Tyr Cys Pro Arg His Val Ile Cys Thr Ala Glu  
 130 135 140  
 Asp Met Leu  
 145 147  
 <210>76  
 <211>22  
 <212>PRT  
 <213>SARS coronavirus  
 <400>76





Lys Lys Thr Gly Asn Asn Val Phe Gln Thr Gln Ala Gly Cys Leu Ile  
 1 5 10 15

Gly Ala Glu His Val Asp Thr Ser  
 20 24

<210>87

<211>24

<212>PRT

<213>SARS coronavirus

<400>87

Lys Lys Lys Gly Ala Cys Ser Cys Gly Ser Cys Cys Lys Phe Asp Glu  
 1 5 10 15

Asp Asp Ser Glu Pro Val Leu Lys  
 20 24

<210>88

<211>25

<212>PRT

<213>SARS coronavirus

<400>88

Lys Lys Met Ser Asp Asn Gly Pro Gln Ser Asn Gln Arg Ser Ala Pro  
 1 5 10 15

Arg Ile Thr Phe Gly Gly Pro Thr Asp  
 20 25

<210>89

<211>24

<212>PRT

<213>SARS coronavirus

<400>89

Lys Lys Pro Thr Asp Ser Thr Asp Asn Asn Gln Asn Gly Gly Arg Asn  
 1 5 10 15

Gly Ala Arg Pro Lys Gln Arg Arg  
 20 24

<210>90

<211>24

<212>PRT

<213>SARS coronavirus

<400>90

Lys Lys Ser Arg Gly Gly Ser Gln Ala Ser Ser Arg Ser Ser Ser Arg  
 1 5 10 15

Ser Arg Gly Asn Ser Arg Asn Ser  
 20 24

<210>91

<211>24

<212>PRT

<213>SARS coronavirus

<400>91

Lys Lys Arg Asn Ser Thr Pro Gly Ser Ser Arg Gly Asn Ser Pro Ala  
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 Arg Met Ala Ser Gly Gly Gly Glu  
 20 24  
 <210>92  
 <211>19  
 <212>PRT  
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 <400>92  
 Lys Lys Lys Val Ser Gly Lys Gly Gln Gln Gln Gln Gly Gln Thr Val  
 1 5 10 15  
 Thr Lys Lys  
 19  
 <210>93  
 <211>22  
 <212>PRT  
 <213>SARS coronavirus  
 <400>93  
 Lys Lys Lys Asp Lys Lys Lys Lys Thr Asp Glu Ala Gln Pro Leu Pro  
 1 5 10 15  
 Gln Arg Gln Lys Lys Gln  
 20 22  
 <210>94  
 <211>24  
 <212>PRT  
 <213>SARS coronavirus  
 <400>94  
 Lys Lys Met Asp Asp Phe Ser Arg Gln Leu Gln Asn Ser Met Ser Gly  
 1 5 10 15  
 Ala Ser Ala Asp Ser Thr Gln Ala  
 20 24  
 <210>95  
 <211>25  
 <212>PRT  
 <213>SARS coronavirus  
 <400>95  
 Lys Lys Tyr Phe Val Ala Ser Phe Arg Leu Phe Ala Arg Thr Arg Ser  
 1 5 10 15  
 Met Trp Ser Phe Asn Pro Glu Thr Asn  
 20 25  
 <210>96  
 <211>23  
 <212>PRT  
 <213>SARS coronavirus  
 <400>96







Lys Lys Met Val Thr Ile Leu Leu Cys Cys Met Thr Ser Cys Cys Ser  
 1 5 10 15  
 Cys Leu Lys Gly Ala Cys Ser Cys  
 20 24  
 <210>112  
 <211>24  
 <212>PRT  
 <213>SARS coronavirus  
 <400>112  
 Lys Lys Ser Cys Cys Lys Phe Asp Glu Asp Asp Ser Glu Pro Val Leu  
 1 5 10 15  
 Lys Gly Val Lys Leu His Tyr Thr  
 20 24  
 <210>113  
 <211>24  
 <212>PRT  
 <213>SARS coronavirus  
 <400>113  
 Lys Lys Gly Ala Arg Pro Lys Gln Arg Arg Pro Gln Gly Leu Pro Asn  
 1 5 10 15  
 Asn Thr Ala Ser Trp Phe Thr Ala  
 20 24  
 <210>114  
 <211>24  
 <212>PRT  
 <213>SARS coronavirus  
 <400>114  
 Lys Lys Gln Leu Pro Gln Gly Thr Thr Leu Pro Lys Gly Phe Tyr Ala  
 1 5 10 15  
 Glu Gly Ser Arg Gly Gly Ser Gln  
 20 24  
 <210>115  
 <211>27  
 <212>PRT  
 <213>SARS coronavirus  
 <400>115  
 Lys Lys Gly Gly Glu Thr Ala Leu Ala Leu leu leu Leu Asp Arg Leu  
 1 5 10 15  
 Asn Gln Leu Glu Ser Lys Val Ser Gly Lys Gly  
 20 25 27  
 <210>116  
 <211>26  
 <212>PRT  
 <213>SARS coronavirus  
 <400>116



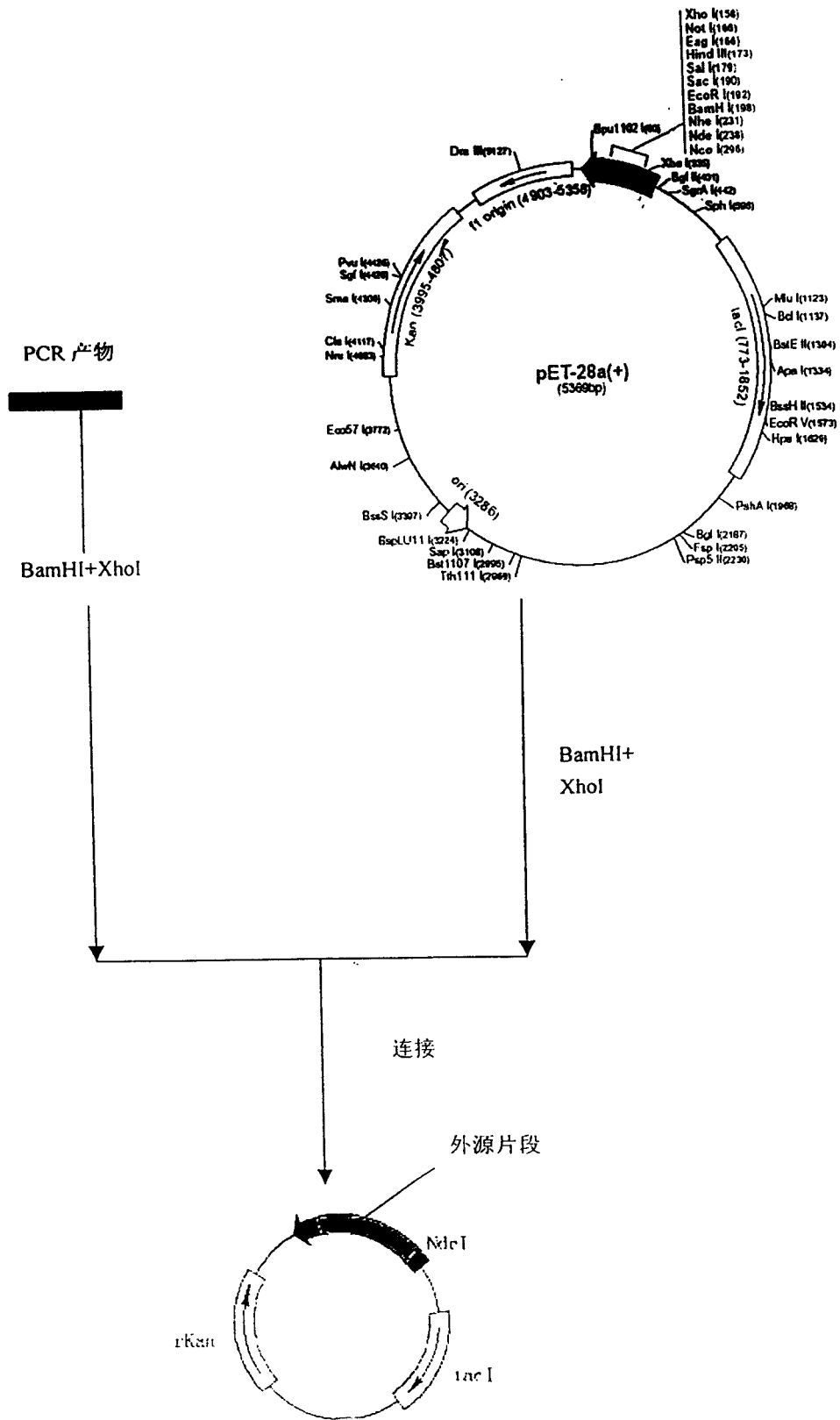
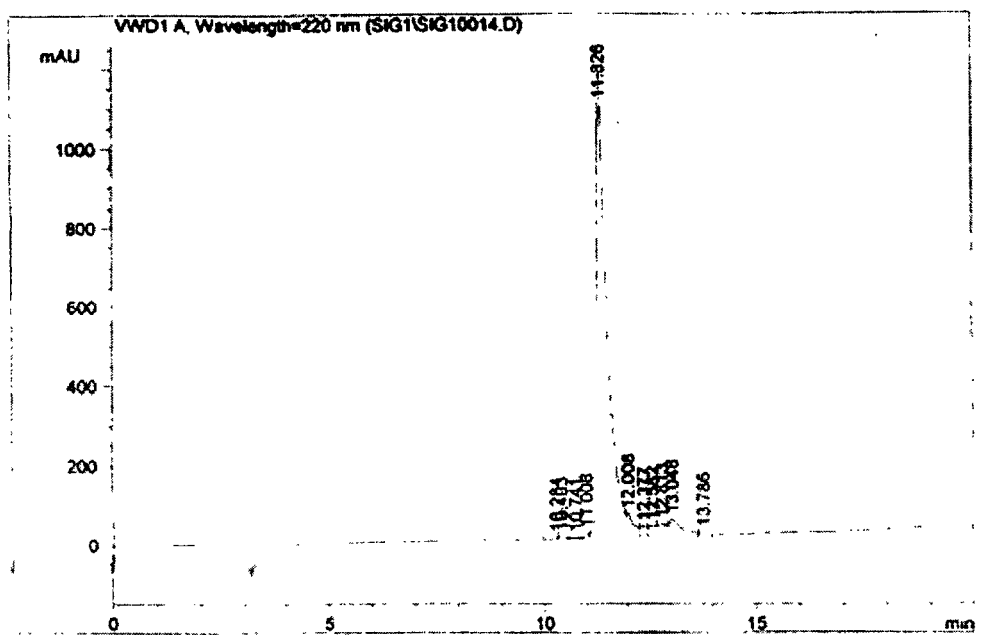


图 1

Injection Date : Wed, 23. Apr. 2003                      Location :    Vial 61  
 Sample Name    : Crude                                        Inj. Vol.    :    40 µl  
 Acq. Operator   : A01  
 Acq. Method    : PRO565.M  
 Analysis Method : C:\HPCHEM\1\METHODS\OVER.M



Area Percent Report

Signal 1 : VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Height [mAU]	Area mAU	Area %	
1	10.284	VV	0.114	6.051	46.433	0.204	
2	10.403	VV	0.157	7.364	78.090	0.343	
3	10.741	VV	0.167	3.679	44.342	0.195	
4	11.008	VV	0.090	14.228	83.479	0.367	
5	11.326	VV	0.232	1181.156	19705.193	86.654	
6	12.008	VV	0.159	59.517	714.584	3.142	
7	12.377	VV	0.162	26.183	291.829	1.283	
8	12.582	VV	0.157	27.566	308.620	1.357	
9	12.813	VV	0.191	32.051	423.595	1.863	
10	13.048	VV	0.301	42.715	938.384	4.127	
11	13.786	VV	0.181	8.362	105.582	0.464	
Total :					1408.873	22740.131	

图 2

专利名称(译)	非典型性肺炎病毒特异蛋白质和临床检测的方法及试剂盒		
公开(公告)号	<a href="#">CN1216902C</a>	公开(公告)日	2005-08-31
申请号	CN03116657.1	申请日	2003-04-26
[标]申请(专利权)人(译)	杭州华大基因研发中心		
申请(专利权)人(译)	杭州华大基因研发中心		
当前申请(专利权)人(译)	杭州华大基因研发中心		
[标]发明人	汪建 方健秋 文洁 牟峰 陈唯军 刘斯奇 胡咏武 殷剑宁 王俊 杨焕明		
发明人	汪建 方健秋 文洁 牟峰 陈唯军 刘斯奇 胡咏武 殷剑宁 王俊 杨焕明		
IPC分类号	C07K14/165 C07K16/08 C07K19/00 C12Q1/68 G01N33/52 G01N33/531 G01N33/569 G01N33/577 G01N33/68		
其他公开文献	CN1483737A		
外部链接	<a href="#">Espacenet</a> <a href="#">SIPO</a>		

摘要(译)

本发明公开了一种非典型性肺炎病毒特异蛋白质和临床检测的方法及试剂盒。它提供了非典型性肺炎病毒特异蛋白质，或其具有结合人免疫球蛋白之免疫活性的片段或衍生物；并利用该通式蛋白质免疫检测人非典型性肺炎病毒的方法及试剂盒。本发明解决了临床对非典型性肺炎病毒感染者的早期快速诊断问题，具有较高的准确性，为临床检测本病提供了快速、准确的诊断方法和试剂盒。

