新型冠状病毒信息简报

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上海科技大学免疫化学研究所

生物医学大数据平台和高通量筛选平台领衔编译制作

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内容介绍

分类	标题名称
疫情播报	1. 2020 年 12 月 11 日疫情 2. 四川省新型冠状病毒肺炎疫情最新情况（12 月 12 日发布） 3. 12 月 8 日 0-6 时，成都市新增 3 例新冠肺炎确诊病例 均系昨日郫都区确诊病例的关联病例 4. （黑龙江）最新疫情通报
流行病学	5. 快讯！本市(上海)近期 6 例确诊病例溯源结果公布
疾病检测	6. 截至 2020 年 12 月 11 日国家药监局已批准 54 个新型冠状病毒检测产品 7. 美国 FDA 批准了第一个直接面向消费者的 COVID-19 测试系统 8. 使用 CRISPR-Cas13a 和手机显微镜对 SARS-CoV-2 进行无扩增检测 9. 现实中对用社区中有症状的人群对 Abott 的 COVID-19 抗原检测的效果进行验证 10. 比较 Panbio™COVID-19 抗原快速检测(Abbott)和 RT-qPCR 对无症状个体的 SARS-CoV-2 感染的筛查 11. 通过对嗅觉测试效果的建模，限制 SARS-2-CoV 病毒的传播 12. 一种利用未感染 COVID-19 病毒的患者数据训练的 6-mRNA 宿主反应全血分类器可准确预测 COVID-19 的严重程度
疾病病理	13. 重度 COVID-19 患者肺部脂质风暴：大量的环氧合酶和脂氧合酶衍生的炎症代谢产物
疫苗研发	14. 国药新冠疫苗在阿联酋获批上市，有效率 86% ；知情人士：数据准确，试验结果理想 15. 国药 COVID-19 疫苗数据增添了相关的保护数据——第一个取得三期临床胜利的 COVID-19 灭活病毒疫苗 16. 特朗普的新冠肺炎疫苗美国优先命令确保首先满足国内需求 17. NEJM 发表首个 mRNA 新冠疫苗 3 期试验数据，主编 Rubin 在专家组会议投赞成票 18. FDA 给予德国 BioNTech 和美国辉瑞公司合作开发的 mRNA 新冠疫苗紧急使用授权 19. 美国 FDA 于 12 月 10 日公开讨论并发布了关于辉瑞-BioNTech 的新冠疫苗的简报 20. 美国 FDA 疫苗与相关生物制品指导委员会将月 12 月 17 日公开讨论 Moderna 公司的 COVID-19 疫苗的紧急使用授权。该疫苗的保护人群是 18 岁以上的成年人 21. 抗 SARS-CoV-2 ChAdOx1 nCoV-19 疫苗(AZD1222)的安全性和有效性在巴西、南非和英国进行的四项随机对照试验的中期分析 22. 剑桥新冠 AZD1222 疫苗III期临床试验中期分析结果在柳叶刀上发表 23. “超级祖母”玛格丽特 •基南的历史性冠状病毒疫苗注射让英

	国走上了通往正常化的漫长道路
基础研究	24. 循环表达 ACE2 的外泌体作为一种天然的抗病毒机制阻止 SARS-CoV-2 感染
疾病模型	25. 恒河猴抗 SARS-CoV-2 的相关研究
其他	26. 这两项激励措施可能打开重新部署 COVID-19 药物的闸门

1. 2020 年 12 月 11 日疫情

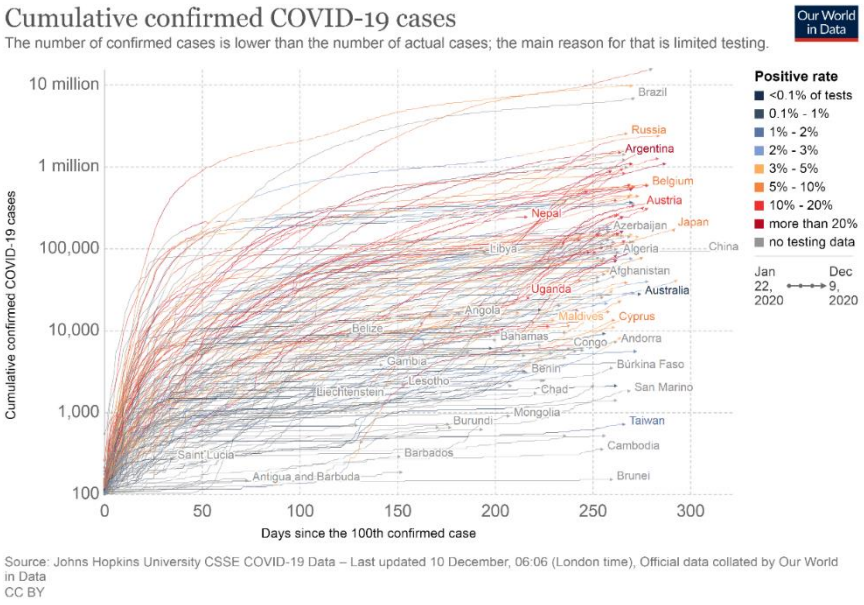
数据来源：WHO

发布时间：2020 年 12 月 11 日北京时间下午 4 点

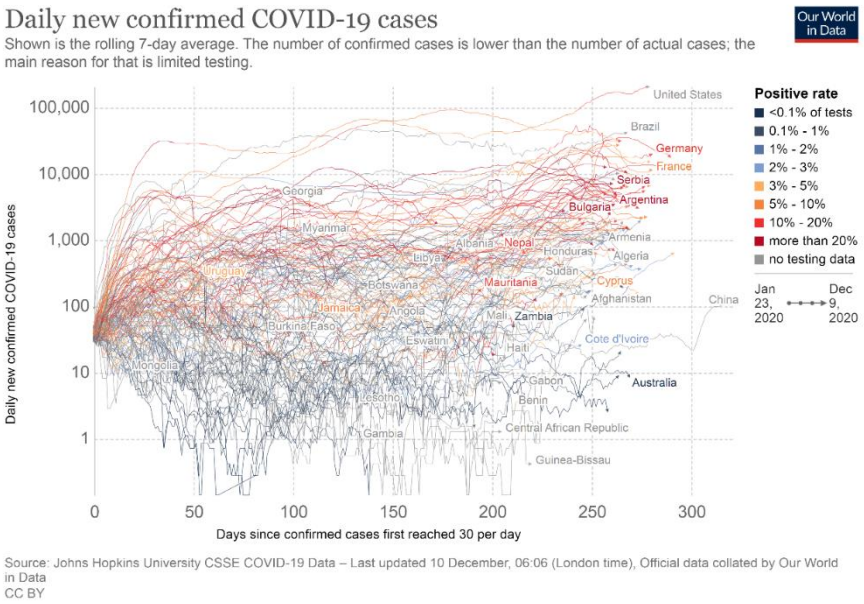
链接：https://covid19.who.int/

根据 WHO 提供的数据，2020 年 12 月 11 日全球累计确诊新型冠状病毒病人 **68,165,877** 例，当日新增确诊 **385,477** 例，累计死亡 **1,557,385** 例，当日新增死亡 **6,171**。

中国累计确诊 94,618 例，累计死亡 4,755 例，当日新增确诊 118 例，新增死亡 2 例。



重点国家确诊数量曲线（https://ourworldindata.org/covid-cases?country=~OWID_WRL#what-is-the-daily-number-of-confirmed-cases）



重点国家每日新增确诊数量曲线（https://ourworldindata.org/covid-cases?country=~OWID_WRL#what-is-the-daily-number-of-confirmed-cases）

全国新型冠状病毒肺炎新增确诊病例分布图（12 月 10 日，来源：http://2019ncov.chinacdc.cn/2019-nCoV/）

2. 四川省新型冠状病毒肺炎疫情最新情况（12 月 12 日发布）

来源：健康四川官微

发布时间：2020-12-12

链接：https://mp.weixin.qq.com/s/9OgsjkCqPkTMatry7SZmPA

中文摘要：

12 月 11 日 0-24 时，四川无新增新型冠状病毒肺炎确诊病例，新增治愈出院病例 3 例，无新增疑似病例，无新增死亡病例。

截至 12 月 12 日 0 时，全省累计报告新型冠状病毒肺炎确诊病例 826 例(其中境外输入 275 例)，累计治愈出院 790 例，死亡 3 例，目前在院隔离治疗 33 例（重症 1 例），1020 人尚在接受医学观察。

12 月 11 日 0-24 时，全省新增无症状感染者 6 例（均为境外输入，1 例为 12 月 10 日自阿尔及利亚乘机抵蓉，5 例为 12 月 10 日自埃塞俄比亚乘机抵蓉，均于 12 月 11 日核酸检测阳性），当日转为确诊病例 0 例，当日解除集中隔离医学观察 3 例，尚在集中隔离医学观察 34 例（境外输入 32 例，本地 2 例），比前一日增加 3 例。

（无症状感染者具体情况由相关市<州>卫生健康委进行通报）

成都市郫都区郫筒街道太平村、成都市成华区跳蹬河街道跳蹬河社区华都云景台小区（包括底层商铺）、成都市郫都区唐昌镇永安村 8 组、成都市郫都区郫筒街道菠萝社区中铁奥维尔二期及三期、郫都区犀浦街道犀池社区二组为中风险区。

全省其余地区全部为低风险区。

3. 12 月 8 日 0-6 时，成都市新增 3 例新冠肺炎确诊病例 均系昨日郫都区确诊病例的关联病例

来源：健康四川官微

发布时间：2020-12-8

链接：https://mp.weixin.qq.com/s/LEuHnTJfinvRbrMdSEDREA

第一作者：健康四川官微
编译者：张丽双
中文摘要：
12 月 8 日，0~6 时，成都市新增 3 例新冠肺炎确诊病例。其中 1 人为昨日郫都区确诊病例的密切接触者筛查发现，另外 2 人为太平村居民核酸筛查中发现。目前已追踪排查上述病例在成都市的密切接触者 46 人。对病例曾活动过的场所已进行终末消毒。截至 12 月 8 日 6 时，累计已完成采样 24598 人，已完成检测 24057 份，除首例病例外，已检出 4 例阳性，已报告为确诊病例，24053 人均为阴性，其余结果待出。已完成环境及食品样采集 468 份，其中阳性 11 份（均在病家），阴性 405 份，其余结果待出。

4. 黑龙江最新疫情通报

来源：黑龙江省疾病预防控制中心
发布时间：2020-12-12
链接：最新疫情通报
中文摘要:
2020 年 12 月 11 日 0-24 时，黑龙江省无新增新冠肺炎确诊病例，现有本土确诊病例 2 例（东宁市 1 例、绥芬河市 1 例）。当日新增无症状感染者 3 例（绥芬河市本土 2 例，境外输入 1 例）。

5. 快讯！本市(上海)近期 6 例确诊病例溯源结果公布

来源：上海发布
发布时间：2020-12-7
链接：https://mp.weixin.qq.com/s/25hQx4u9CO3FZw1Z-2SWrQ
第一作者：上海发布
编译者：张丽双
中文摘要：
在今日下午举行的市疫情防控工作新闻发布会上，市疾控中心说，2020 年 11 月 20 日至 23 日，浦东新区累计报告了 6 例新冠肺炎确诊病例，流行病学调查发现：6 例病例病毒基因型均为 L 型欧洲家系分支Ⅱ.1，基因型完全一致，均为当前境外流行株，提示感染来源为接触境外航空器环境或人员；但与 11 月 9 日本市报告的王某某及 11 月 10 日安徽报告的兰某病例的病毒分型不属于同一分支。

6. 截至 2020 年 12 月 11 日国家药监局已批准 54 个新型冠状病毒检测产品

来源：国家药品监督管理局
链接：https://www.nmpa.gov.cn/zhuanti/xgqxchpxx/index.html
编译者：宋张悦

截至 2020 年 12 月 11 日，国家药监局已批准 54 个新型冠状病毒检测产品，其中新冠病毒核酸检测试剂 25 个，抗体检测试剂 26 个，抗原检测试剂 3 个。详见参考文件：“国家药监局新型冠状病毒检测试剂注册信息_20201211.xlsx”。

7. 美国 FDA 批准了第一个直接面向消费者的 COVID-19 测试系统

Coronavirus (COVID-19) Update: FDA Authorizes First Direct-to-Consumer COVID-19 Test System
来源：FDA

发布时间：2020-12-09
链接：https://www.fda.gov/news-events/press-announcements/coronavirus-covid-19-update-fda-authorizes-first-direct-consumer-covid-19-test-system
中文摘要：

12 月 9 日美国 FDA 批准了 LabCorp 的 Pixel COVID-19 测试的家用样品采集试剂盒。试剂盒可以用于 18 岁以上成年人，不需要医生的处方即可购买。这是第一个直接面向消费者的 COVID-19 测试系统，让普通民众可以在家中自行采集鼻拭子，然后蒋样品得送到 LabCorp。

阳性检测的结果将由健康管理机构电话通知个人，而阴性结果讲通过邮件或者网络页面告知给被检测个人。

Abstract:

Today, the U.S. Food and Drug Administration authorized LabCorp's Pixel COVID-19 Test Home Collection Kit for use by any individual 18 years and older without a prescription. This product, which is authorized as the first COVID-19 direct-to-consumer (non-prescription) test system, allows an individual to self-collect a nasal swab sample at home and then send that sample for testing to LabCorp. Positive or invalid test results are then delivered to the user by phone call from a health care provider. Negative test results are delivered via email or online portal.

This home sample collection kit can be purchased online or in a store without a prescription. It is intended to enable users to access information about their COVID-19 infection status that could aid with determining if self-isolation (quarantine) is appropriate and to assist with health care decisions after discussion with a health care professional.

8. 使用 CRISPR-Cas13a 和手机显微镜对 SARS-CoV-2 进行无扩增检测

Amplification-free detection of SARS-CoV-2 with CRISPR-Cas13a and mobile phone microscopy
来源：Cell
发布时间：2020-12-04
链接：https://www.cell.com/cell/fulltext/S0092-8674(20)31623-8
第一作者：Parinaz Fozouni
通讯作者：Daniel A. Fletcher, Melanie Ott
通讯作者单位：J. David Gladstone Institutes, San Francisco, CA 94158, USA
DOI 或 PUBMED ID：10.1016/j.cell.2020.12.001
编译者：宋张悦
中文摘要：
亮点：

- CRISPR-Cas13a 可以定量检测 SARS-CoV-2 RNA，而无需预扩增。
- 结合针对病毒 RNA 的多个区域的 crRNAs，提高敏感性。
- Cas13a 可以准确和快速地定量患者样本中的 SARS-CoV-2 RNA。
- 一种基于移动电话的设备允许便携和灵敏的读出检测结果。

摘要：

CRISPR 诊断法可以增强基于 PCR 的金标准检测，如果它们能够快速、便携和准确的话。

在这里，我们报道了一种无扩增的 CRISPR-Cas13a 检测方法的开发，该方法可以直接从鼻拭子 RNA 中检测 SARS-CoV-2，可以用手机显微镜读取。该方法在 30 分钟的测量时间内达到了 100 copies/cpc L 的灵敏度，并在 5 分钟内准确检测了一组阳性临床样本中预提取的 RNA。我们结合靶向 SARS-CoV-2 RNA 的 crRNAs 来提高灵敏度和特异性，并利用酶动力学直接定量病毒载量。与基于移动电话的阅读器相结合，该检测有可能实现快速、低成本、即时的 SARS-CoV-2 筛查。

Abstract:

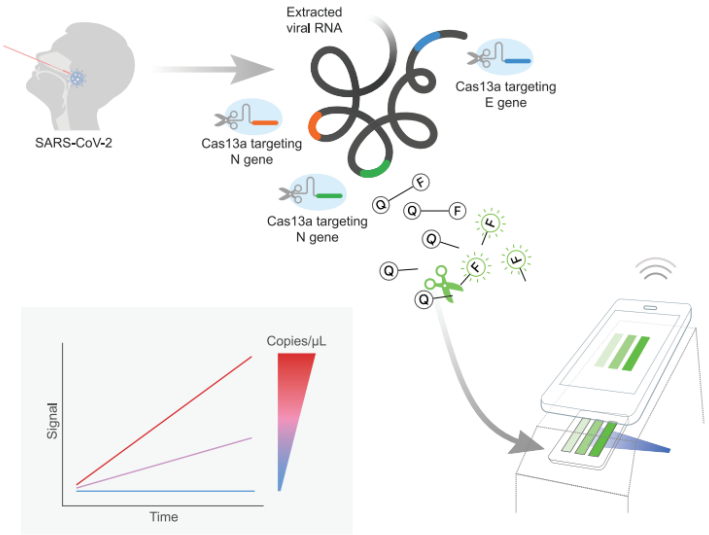
Highlights:

- CRISPR-Cas13a can quantitatively detect SARS-CoV-2 RNA without pre-amplification
- Combining crRNAs targeting multiple regions of the viral RNA enhances sensitivity
- Cas13a can accurately and rapidly quantify SARS-CoV-2 RNA in patient samples
- A mobile phone-based device allows for portable and sensitive readout of the assay

Summary:

The December 2019 outbreak of a novel respiratory virus, SARS-CoV-2, has become an ongoing global pandemic due in part to the challenge of identifying symptomatic, asymptomatic, and pre-symptomatic carriers of the virus. CRISPR diagnostics can augment gold-standard PCR-based testing if they can be made rapid, portable, and accurate. Here, we report the development of an amplification-free CRISPR-Cas13a assay for direct detection of SARS-CoV-2 from nasal swab RNA that can be read with a mobile phone microscope. The assay achieved ~100 copies/μL sensitivity in under 30 min of measurement time and accurately detected pre-extracted RNA from a set of positive clinical samples in under 5 min. We combined crRNAs targeting SARS-CoV-2 RNA to improve sensitivity and specificity and directly quantified viral load using enzyme kinetics. Integrated with a reader device based on a mobile phone, this assay has the potential to enable rapid, low-cost, point-of-care screening for SARS-CoV-2.

Graphical Abstract



9. 现实中对用社区中有症状的人群对 Abott 的 COVID-19 抗原检测的效果进行验证

Real-life validation of the Panbio™ COVID-19 antigen rapid test (Abbott) in community-dwelling subjects with symptoms of potential SARS-CoV-2 infection

来源：EclinicalMedicine

发布时间：2020-12-05

链接：https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(20)30421-1/fulltext

第一作者：Hendrik Gremmels

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DOI 或 PUBMED ID：10.1016/j.eclinm.2020.100677

编译者：蒋立春

中文摘要：

在两个不同社区里面用 Abbott 的快速抗原检测试剂对有中度呼吸系统症状的人鼻咽拭子进行检测，如果以 Ct 值小于 32 为界，抗原检测的特异性可以达到 100%，灵敏度可以达到 95%。

Abstract:

Background RT-qPCR is the reference test for identification of active SARS-CoV-2 infection, but is associated with diagnostic delay. Antigen detection assays can generate results within 20 min and outside of laboratory settings. Yet, their diagnostic test performance in real life settings has not been determined.

Methods The diagnostic value of the Panbio™ COVID-19 Ag Rapid Test (Abbott), was determined in comparison to RT-qPCR (Seegene Allplex) in community-dwelling mildly symptomatic subjects in a medium (Utrecht, the Netherlands) and high endemic area (Aruba), using two concurrently obtained nasopharyngeal swabs

Findings: 1367 and 208 subjects were enrolled in Utrecht and Aruba, respectively. SARS-CoV-2 prevalence, based on RT-qPCR, was 10.2% (n = 139) and 30.3% (n = 63) in Utrecht and Aruba respectively. Specificity of the Panbio™ COVID-19 Ag Rapid Test was 100% (95%CI: 99.7–100%) in both settings. Test sensitivity was 72.6% (95%CI: 64.5–79.9%) in the Netherlands and 81.0% (95% CI: 69.0–89.8%) in Aruba. Probability of false negative results was associated with RT-qPCR Ct-values, but not with duration of symptoms. Restricting RT-qPCR test positivity to Ct-values <32 yielded test sensitivities of 95.2% (95%CI: 89.3–98.5%) in Utrecht and 98.0% (95%CI: 89.2–99.95%) in Aruba.

Interpretation In community-dwelling subjects with mild respiratory symptoms the Panbio™ COVID-19 Ag Rapid Test had 100% specificity, and a sensitivity above 95% for nasopharyngeal samples when using Ct-values <32 cycles as cut-off for RT-qPCR test positivity. Considering short turnaround times, user friendliness, low costs and opportunities for decentralized testing, this test can improve our efforts to control transmission of SARS-CoV-2.

编者注：

在以下一篇预印本文章中同样提到在核酸拷贝数较高的的情况下，四种快速检测抗原的试剂

盒敏感性都超过 92%，而特异性都超过了 97%,其中 Abott 的敏感度为 100%。
链接：https://www.medrxiv.org/content/10.1101/2020.12.05.20244673v1
Handling and accuracy of four rapid antigen tests for the diagnosis of SARS-CoV-2 compared to RT-qPCR.
Abstract:
Background SARS-CoV-2 molecular diagnostics is facing material shortages and long turnaround times due to exponential increase of testing demand.
Objective We evaluated the analytic performance and handling of four rapid Antigen Point of Care Tests (AgPOCTs) I-IV (Distributors: (I) Roche, (II) Abbott, (III) MEDsan and (IV) Siemens).
Methods 100 RT-PCR negative and 84 RT-PCR positive oropharyngeal swabs were prospectively collected and used to determine performance and accuracy of these AgPOCTs. Handling was evaluated by 10 healthcare workers/users through a questionnaire.
Results The median duration from symptom onset to sampling was 6 days (IQR 2-12 days). The overall relative sensitivity was 49.4%, 44.6%, 45.8% and 54.9 % for tests I, II, III and IV, respectively. In the high viral load subgroup (containing >106 copies of SARS-CoV-2 /swab, n=26), AgPOCTs reached sensitivities of 92.3% or more (range 92.3%-100%). Specificity was 100% for tests I, II and IV and 97% for test III. Regarding handling, test I obtained the overall highest scores, while test II was considered to have the most convenient components. Of note, users considered all assays, with the exception of test I, to pose a significant risk for contamination by drips or spills.
Discussion Besides some differences in sensitivity and handling, all four AgPOCTs showed acceptable performance in high viral load samples. However, due to the significantly lower sensitivity compared to RT-qPCR, a careful consideration of pro and cons of AgPOCT has to be taken into account before clinical implementation.

10. 比较 Panbio™COVID-19 抗原快速检测(Abbott)和 RT-qPCR 对无症状个体的 SARS-CoV-2 感染的筛查

Screening for SARS-CoV-2 infection in asymptomatic individuals using the Panbio™ COVID-19 Antigen Rapid Test (Abbott) compared to RT-qPCR
来源：medRxiv
发布时间：2020-12-04
链接：https://www.medrxiv.org/content/10.1101/2020.12.03.20243311v1
第一作者：Beatrice M.F. Winkell
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University Medical Center Utrecht, Department of Medical Microbiology, Heidelberglaan 100, 3584 CX, Utrecht, the Netherlands
DOI 或 PUBMED ID：
编译者：宋张悦
中文摘要：
背景：用于识别 SARS-CoV-2 的基于抗原的即时检测可以显著提高基于人群的控制策略的有

效性。先前的研究表明，在有症状的个体中，相比于 RT-qPCR 有可接受的敏感性和高特异性，但在无症状个体中的测试表现尚不清楚。

方法： 在对无症状足球运动员和专业足球俱乐部工作人员进行的纵向队列研究中，将 Panbio™ COVID-19 Ag 快速检测（Abbott）的测试性能与 RT-qPCR 进行了比较。根据症状发生的时间以及之前和之后的检测结果，RT-qPCR 检测阳性可分为有症状的、早期或晚期感染或持续性 RNA 脱落。

结果： 在 824 个人中进行了 2425 次检测，其中 52 个（6.3%）基于 RT-qPCR 的 SARS-CoV-2 阳性。有来自无症状受试者的 2406 对配对分析。16 项 Panbio™测试尚无定论，因此需要进行敏感性分析（将结果视为阳性或阴性或排除在外）。 Panbio™的灵敏度范围从 61.76%（95% CI 49.2-73.3）到 69.12%（95%CI：56.7-79.8）和特异性从 99.53%（95%CI：99.2-99.8）到 100%（95%CI： 99.8-100）。 Panbio™对有症状/早期感染（n = 42）的受试者的检测灵敏度在 81.82%（95%CI：67.3-91.8）至 90.91%（95%CI：78.3-97.5）之间，特异性始终高于 99% 。

解释： 在无症状的受试者中，Panbio™ COVID-19 Ag 快速检测对识别症状前和早期 SARS-CoV-2 感染的敏感性为 81.82%至 90.91%，特异性高于 99%。

资助： 本研究由执行机构资助。Panbio™ COVID-19 Ag 快速检测由卫生、福利和体育部（VWS）提供。

Abstract:

Background Antigen-based point of care tests for identification of SARS-CoV-2 may markedly enhance effectiveness of population-based controlling strategies. Previous studies have demonstrated acceptable sensitivity and high specificity compared to RT-qPCR in symptomatic individuals, but test performance for asymptomatic individuals is unknown.

Methods Test performance of the Panbio™ COVID-19 Ag Rapid Test (Abbott) was compared to RT-qPCR in a longitudinal cohort study of asymptomatic football players and staff members of professional football clubs. Based on timing of symptoms and prior and subsequent test results, positive RT-qPCR tests were categorized as pre-symptomatic, early or late infection or persistent RNA shedding.

Findings 2425 tests were performed in 824 individuals, of which 52 (6.3%) were SARS-CoV-2 positive based on RT-qPCR. There were 2406 paired sets from asymptomatic subjects for analysis. Sixteen Panbio™ tests were inconclusive, for which sensitivity analyses were performed (considering results as either positive or negative or being excluded). Sensitivity of Panbio™ ranged from 61.76% (95% CI 49.2-73.3) to 69.12% (95% CI: 56.7-79.8) and specificity from 99.53% (95% CI: 99.2-99.8) to 100% (95% CI: 99.8-100). Sensitivity of Panbio™ to detect subjects with pre-symptomatic/early infection (n= 42) ranged from 81.82% (95% CI: 67.3-91.8) to 90.91% (95% CI: 78.3-97.5) with specificity always above 99%.

Interpretation In asymptomatic subjects the Panbio™ COVID-19 Ag Rapid Test had sensitivity of 81.82% to 90.91% and specificity above 99% for identifying pre-symptomatic and early SARS-CoV-2 infection.

Funding This study was funded by the executing institutes. The Panbio™ COVID-19 Ag Rapid Tests were provided by the Ministry of Health, Welfare and Sport (VWS).

编者注：

来自西班牙 Hospital Clínico Universitario 的研究人员也对 Panbio™ COVID-19 Ag 快速检测（Abbott）做了相关的评估报道，相关文献发表于 medRxiv，链接：https://www.medrxiv.org/content/10.1101/2020.12.01.20241562v1，文献相关内容详见本简报第 82 期（2020 年 11 月 28 日-12 月 04 日周报）第 4 条。

11. 通过对嗅觉测试效果的建模，限制 SARS-2-CoV 病毒的传播

Modeling the effectiveness of olfactory testing to limit SARS-2-CoV transmission

来源：medRxiv

发布时间：2020-12-02

链接：https://www.medrxiv.org/content/10.1101/2020.11.30.20241174v1

第一作者：Daniel B. Larremore

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DOI 或 PUBMED ID：

编译者：宋珂

中文摘要：

COVID-19 疫情的主要问题是无法进行足够的人员检测来防止 SARS-CoV-2 传染的扩散，从而造成了人员伤亡和经济损失。现有检测病毒 RNA 或抗原的分子检测技术无法应对这一挑战，除非其检测能力能够提高至少一个数量级，并同时减少检测时间。本文中，作者对一种基于检测嗅觉功能失常的替代方案进行了评估。当进行标准化嗅觉测试时，能够在 76%至 83%的 SARS-CoV-2 感染者（包括其他无症状的感染者）中识别出症状。作者以不同的检测频率，以及嗅觉功能失常的发生率、持续时间和发作时间为变量，对如何利用自反性分子检测筛查嗅觉功能失常来降低 SARS-CoV-2 的社区传播进行建模。作者发现，可以通过定期筛查监测嗅觉功能失常来减少病毒传播，并且在单日活动中，可以在入口进行检测，以降低风险。鉴于以上评估的影响，而且由于嗅觉测试可以低成本大量生产并自行实施，因此作者建议，对于大范围的 COVID-19 筛查和监测，使用嗅觉功能失常进行筛查可能是一种影响大且具有成本效益的方法。

Abstract:

A central problem in the COVID-19 pandemic is that there is not enough testing to prevent infectious spread of SARS-CoV-2, causing surges and lockdowns with human and economic toll. Molecular tests that detect viral RNAs or antigens will be unable to rise to this challenge unless testing capacity increases by at least an order of magnitude while decreasing turnaround times. Here, we evaluate an alternative strategy based on the monitoring of olfactory dysfunction, a symptom identified in 76-83% of SARS-CoV-2 infections—including those that are otherwise asymptomatic—when a standardized olfaction test is used. We model how screening for olfactory dysfunction, with reflexive molecular tests, could be beneficial in reducing community spread of SARS-CoV-2 by varying testing frequency and the prevalence, duration, and onset time of olfactory dysfunction. We find that monitoring olfactory dysfunction could reduce spread via regular screening, and could reduce risk when used at point-of-entry for single-day events. In light of these estimated impacts, and because olfactory tests can be mass produced at low

cost and self-administered, we suggest that screening for olfactory dysfunction could be a high impact and cost effective method for broad COVID-19 screening and surveillance.

12. 一种利用未感染 COVID-19 病毒的患者数据训练的 6-mRNA 宿主反应全血分类器可准确预测 COVID-19 的严重程度

A 6-mRNA host response whole-blood classifier trained using patients with non-COVID-19 viral infections accurately predicts severity of COVID-19

来源：medRxiv

发布时间：2020-12-08

链接：https://www.medrxiv.org/content/10.1101/2020.12.07.20230235v1

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编译者：宋珂

中文摘要：

背景 尽管在开发识别 SARS-CoV-2 感染的诊断工具方面已取得了重大进展，但在确定 COVID-19 病症的严重程度方面仍无法满足医疗的需求。在当前的疫情或任何流行病中，可用的医院资源是有限的，如果可以对患者的严重程度进行适当的评估就会允许一些患者可以在家庭隔离并安全地康复，这样将能够确保重病患者得到需要的护理。

方法 作者开发了一种基于血液的可广泛使用的宿主基因表达分类器，可以对病毒感染的严重程度进行分类，并在包括 COVID-19 在内的多种病毒感染情况中对其进行了验证。作者使用了针对流感和其他病毒性疾病的 21 项回顾性转录组临床研究数据（N=705）作为训练集，来选择宿主免疫 mRNA 集合。

结果 作者选取了 6 个宿主 mRNA，并进行了逻辑回归分类器训练，以预测病毒性疾病在 30 天的死亡率，训练交叉验证 AUROC 为 0.90。在随后的 21 个独立的回顾性验证组的 1,417 个样本中，用于区分严重感染与非严重感染患者时，锁定的 6-mRNA 分类器的 AUROC 为 0.91。接下来，在希腊雅典的一个独立的前瞻性招募患者组中，对已确诊 COVID-19（N=97）的患者，用于识别严重呼吸衰竭或 30 天死亡率的患者时，锁定 6-mRNA 分类器的 AUROC 为 0.89。最后，作者为 6-mRNA 集合开发了等温 qRT-LAMP 测定法，以利于快速测定。

结论 通过进一步的研究，该分类器可以帮助确诊 SARS-CoV-2 感染和 COVID-19 的患者进行风险评估，以确定严重程度和护理水平，从而改善患者管理和降低医疗负担。

Abstract:

Background While major progress has been made to establish diagnostic tools for the identification of SARS-CoV-2 infection, determining the severity of COVID-19 remains an unmet medical need. There is a limited availability of hospital resources in this or any pandemic, and appropriately gauging severity would allow

for some patients to safely recover in home quarantine, while ensuring that sicker patients get needed care.

Methods We here developed a blood-based generalizable host-gene-expression-based classifier for the severity of viral infections and validated it in multiple viral infection settings including COVID-19. We used training data (N=705) from 21 retrospective transcriptomic clinical studies of influenza and other viral illnesses looking at a preselected panel of host immune mRNAs.

Results We selected 6 host mRNAs and trained a logistic regression classifier with a training cross-validation AUROC of 0.90 for predicting 30-day mortality in viral illnesses. Next, in 1,417 samples across 21 independent retrospective validation cohorts the locked 6-mRNA classifier had an AUROC of 0.91 for discriminating patients with severe vs. non-severe infection. Next, in an independent cohort of prospectively enrolled patients with confirmed COVID-19 (N=97) in Athens, Greece, the 6-mRNA locked classifier had an AUROC of 0.89 for identifying patients with severe respiratory failure or 30-day mortality. Finally, we developed an isothermal qRT-LAMP (loop-mediated isothermal gene expression) assay for the 6-mRNA panel to facilitate implementation as a rapid assay.

Conclusions With further study, the classifier could assist in the risk assessment of patients with confirmed SARS-CoV-2 infection and COVID-19 to determine severity and level of care, thereby improving patient management and healthcare burden.

13. 重度 COVID-19 患者肺部脂质风暴：大量的环氧合酶和脂氧合酶衍生的炎症代谢产物

Lipid storm within the lungs of severe COVID-19 patients: Extensive levels of cyclooxygenase and lipoxygenase-derived inflammatory metabolites

来源：medRxiv
发布时间：2020-12-07
链接：https://www.medrxiv.org/content/10.1101/2020.12.04.20242115v1

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中文摘要：

背景 SARS-CoV-2 是导致 COVID-19 的传染源。虽然 SARS-CoV-2 感染通常是导致轻症，但也

有 COVID-19 重症病例，其特征是严重的双叶肺炎，可代偿为急性呼吸窘迫综合征，其显著特征是炎症加剧和细胞因子风暴。虽然目前还没有针对 COVID-19 针对病例的治疗方法，但有些治疗方法可以显著降低疾病的严重程度，特别是阿司匹林和地塞米松，它们直接或间接地针对大量生物活性脂质的生物合成（和作用）。

目的 该研究假设重度 COVID-19 患者需要机械通气，其特征是生物活性脂质水平增加，调节了肺部炎症。因此，该研究用液相色谱和串联质谱联用技术定量了几种肺部的生物活性脂质。

结果 对 25 例健康对照者和 33 例 COVID-19 患者行支气管肺泡灌洗液中脂质含量进行了详尽的评估。COVID-19 重症患者的特点是脂肪酸水平增加以及伴随着炎症性脂质风暴。因此，大多数定量的生物活性脂质大量增加。环氧合酶代谢产物以 TXB_2 >> PGE_2 ~ 12-HHTrE > PGD_2为主。白三烯也增加，特别是 LTB_4，20-COOH-LTB_4，LTE_4和 eoxin E_4。来自亚油酸、花生四烯酸、二十碳五烯酸和二十二碳六烯酸的 15 种脂氧合酶代谢产物也增加了。最后，重要的是，还发现了专门的促分解介质，特别是 lipoxin A_4和 D-series resolvins，说明了 SARS-CoV-2 严重感染中发生的脂质风暴涉及促炎和抗炎脂质。

结论 该研究的数据揭示了 COVID-19 重症患者的肺部发生的重要脂质风暴。讨论哪些临床上可用的药物有助于调节观察到的脂质体，以期将促炎脂质体的有害影响降至最低，并增强抗炎和/或促分解脂质体的作用。

Abstract:

BACKGROUND Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2) is the infectious agent responsible for Coronavirus disease 2019 (COVID-19). While SARS-CoV-2 infections are often benign, there are also severe COVID-19 cases, characterized by severe bilobar pneumonia that can decompensate to an acute respiratory distress syndrome, notably characterized by increased inflammation and a cytokine storm. While there is no cure against severe COVID-19 cases, some treatments significantly decrease the severity of the disease, notably aspirin and dexamethasone, which both directly or indirectly target the biosynthesis (and effects) of numerous bioactive lipids.

OBJECTIVE Our working hypothesis was that severe COVID-19 cases necessitating mechanical ventilation were characterized by increased bioactive lipid levels modulating lung inflammation. We thus quantitated several lung bioactive lipids using liquid chromatography combined to tandem mass spectrometry.

RESULTS We performed an exhaustive assessment of the lipid content of bronchoalveolar lavages from 25 healthy controls and 33 COVID-19 patients necessitating mechanical ventilation. Severe COVID-19 patients were characterized by increased fatty acid levels as well as an accompanying inflammatory lipid storm. As such, most quantified bioactive lipids were heavily increased. There was a predominance of cyclooxygenase metabolites, notably TXB2 >> PGE2 ~ 12-HHTrE > PGD2. Leukotrienes were also increased, notably LTB4, 20-COOH-LTB4, LTE4, and eoxin E4. 15-lipoxygenase metabolites derived from linoleic, arachidonic, eicosapentaenoic and docosahexaenoic acids were also increased. Finally, yet importantly, specialized pro-resolving mediators, notably lipoxin A4 and the D-series resolvins, were also found at important levels, underscoring that the lipid storm occurring in severe SARS-CoV-2 infections involves pro- and anti-inflammatory lipids.

CONCLUSIONS Our data unmask the important lipid storm occurring in the lungs of

patients afflicted with severe COVID-19. We discuss which clinically available drugs could be helpful at modulating the lipidome we observed in the hope of minimizing the deleterious effects of pro-inflammatory lipids and enhancing the effects of anti-inflammatory and/or pro-resolving lipids.

14. 国药新冠疫苗在阿联酋获批上市，有效率 86% ；知情人士：数据准确，试验结果理想

来源： 医药投资部落公众号
发布时间：2020-12-09
链接：https://mp.weixin.qq.com/s/qm2zhRPEILXHs3V6w4OL-g
第一作者：
编译者：孔娟
中文摘要：
国药集团中国生物北京生物制品研究所研发的新冠病毒灭活疫苗在阿联酋进行注册，该疫苗在三期临床试验中有效率为 86%，中和抗体转阳率为 99%，能 100%预防中度和重度的新冠肺炎病例，而且相关研究没有发现疫苗存在严重的安全隐患。据当地媒体此前报道，这款疫苗在今年 9 月就已经在阿联酋获得紧急使用授权，以保护在一线奋战的医护人员。在全球进入Ⅲ期临床试验的 10 支疫苗中，有两支就是由国药集团研发的，并且，这两支都是全球最早进入到Ⅲ期人体临床试验的新冠疫苗。国药集团新冠疫苗国际临床试验正在阿联酋、巴林、埃及、约旦、秘鲁、阿根廷、摩洛哥等 10 个国家顺利推进，接种志愿者超过 5.6 万人，覆盖 125 个国籍。目前为止，全球接种我们新冠疫苗的人数已经超过 100 万。接种后离境到世界各地工作和学习的央企员工、外交官、留学生等近 6 万人。

15. 国药 COVID-19 疫苗数据增添了相关的保护数据——第一个取得三期临床胜利的 COVID-19 灭活病毒疫苗

Sinopharm’s COVID-19 vaccine data add to early picture of correlates of protection：Data Byte
FIRST PHASE III WIN FOR AN INACTIVATED VIRUS VACCINE AGAINST COVID-19
来源：Biocentury
发布时间：2020-12-10
链接：https://www.biocentury.com/article/632588
第一作者：SELINA KOCH
通讯作者：SELINA KOCH
通讯作者单位：Biocentury
编译者：张丽双
中文摘要：
第三种疫苗形式已经显示出预防 COVID-19 的有效性，数据虽然稀少，但更多地揭示了保护病毒所需的中和抗体。阿联酋卫生和预防部 3 日宣布，中国生物技术集团公司生产的灭活病毒疫苗在 3.1 万名受试者中获得 86%的保护率，在预防中重度疾病方面的保护率为 100%。阿联酋已批准疫苗紧急使用授权。国药集团的疫苗效力低于 mRNA 疫苗：辉瑞公司的 BNT162b2 和 BioNTech SE 的 mRNA-1273，但比阿斯利康公司和牛津大学的全剂量病毒载体疫苗 AZD1222 的效力强。国药集团疫苗的高效性表明，该公司在二期试验中的 PRNT50 试验显示的中和抗体滴度足以提供保护。然而，由于强大的 T 细胞反应可能会增强适度的体液反应，因此需要更清楚地了解这两个指标的情况，以了解是什么驱动了疫苗的效力。
Abstract:

A third vaccine modality has shown efficacy in preventing COVID-19 and the data, though sparse, shed more light on the neutralizing antibodies needed to confer protection against the virus.

The United Arab Emirates' Ministry of Health and Prevention announced Wednesday that an inactivated virus vaccine from China National Biotech Group Corp. (Sinopharm) led to an 86% protection rate in a Phase III trial in 31,000 subjects, and 100% protection rate in preventing moderate and severe disease. The UAE has granted the vaccine emergency use authorization.

The efficacy of the Sinopharm vaccine falls short of leading mRNA vaccines BNT162b2 from Pfizer Inc. (NYSE:PFE) and BioNTech SE (NASDAQ:BNTX) and mRNA-1273 from Moderna Inc. (NASDAQ:MRNA), and is stronger than the efficacy reported for the full dose of viral vector vaccine AZD1222 from AstraZeneca plc (LSE:AZN; NASDAQ:AZN) and University of Oxford.

The high efficacy of the Sinopharm vaccine suggests the neutralizing antibody titers the company saw with its plaque reduction assay in Phase II testing are sufficient to confer protection. However, because a strong T cell response may be able to augment a moderate humoral response, a clearer picture of both metrics will be needed to understand what drives the vaccine's efficacy.

16. 特朗普的新冠肺炎疫苗美国优先命令确保首先满足国内需求

Trump's America First COVID-19 vaccine order seeks to ensure domestic demand met first

来源：biocentury 新闻稿

发布时间：2020-12-08

链接：https://www.biocentury.com/article/632544

第一作者：华盛顿记者 STEVE USDIN

编译者：孔娟

中文摘要：

美国总统特朗普签署新冠肺炎疫苗美国优先的行政命令。该命令将使美国政府承诺确保在出口新冠肺炎疫苗之前满足所有国内需求。美国的新冠肺炎疫苗出口将通过私人市场出售给有能力购买疫苗的国家，政府机构将提供资金和其他援助，以促进中等收入国家的采购，美国将向 GAVI 捐赠数量不明的疫苗，以分发给低收入国家。相关官员表示，政府绝对有信心获得与辉瑞已签约的疫苗剂量，将有足够的剂量在 2021 年第二季度末之前为所有希望接种疫苗的美国人接种疫苗。

Abstract:

President Donald Trump will sign an America First COVID-19 vaccines executive order at a White House event Tuesday, senior administration officials told reporters Monday. The order will commit the U.S. government to ensuring that all domestic demand is met before COVID-19 vaccines are exported.

Every American who wants to receive a vaccine will have access by the end of 2021。 U.S. COVID-19 vaccine exports will be sold through private markets to countries that can afford to purchase them, government agencies will provide finance and other assistance to facilitate procurement by middle-income countries, and the U.S. will donate an unspecified number of doses to GAVI for distribution

to low-income countries.

17. NEJM 发表首个 mRNA 新冠疫苗 3 期试验数据，主编 Rubin 在专家组会议投赞成票

来源：NEJM 医学前言公众号

发布时间：2020-12-11

链接：https://mp.weixin.qq.com/s/hEmHCm-NeJ_6zewqnMHpdg

相关文章

Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine

链接：https://www.nejm.org/doi/full/10.1056/NEJMoa2034577?query=featured_home

SARS-CoV-2 Vaccination — An Ounce (Actually, Much Less) of Prevention

链接：https://www.nejm.org/doi/full/10.1056/NEJMe2034717

18. FDA 给予德国 BioNTech 和美国辉瑞公司合作开发的 mRNA 新冠疫苗紧急使用授权

北京时间今晨，美国食品药品管理局（FDA）疫苗与相关生物制品专家组 21 名成员在万众瞩目下，以 17 票赞成、4 票反对和 1 票弃权的投票结果，推荐 FDA 给予德国 BioNTech 和美国辉瑞公司合作开发的 mRNA 新冠疫苗紧急使用授权，预计 FDA 将于近日采纳这一建议。

19. 美国 FDA 于 12 月 10 日公开讨论并发布了关于辉瑞-BioNTech 的新冠疫苗的简报

FDA Vaccine Panel Endorses Pfizer-BioNTech COVID-19 Vaccine Full FDA approval likely

FDA released Briefing Document Pfizer-BioNTech COVID-19 Vaccine

来源：FDA

发布时间：2020-12-10

链接：https://www.fda.gov/media/144245/download

Vaccines and Related Biological Products Advisory Committee Meeting December 10, 2020

20. 美国 FDA 疫苗与相关生物制品指导委员会将月 12 月 17 日公开讨论 Moderna 公司的 COVID-19 疫苗的紧急使用授权。该疫苗的保护人群是 18 岁以上的成年人

The Vaccines and Related Biological Products Advisory Committee will meet in open session to discuss Emergency Use Authorization (EUA) of the Moderna Inc. COVID-19 Vaccine for the prevention of COVID-19 in individuals 18 years and older.

链接：https://www.fda.gov/emergency-preparedness-and-response/counterterrorism-and-emerging-threats/coronavirus-disease-2019-covid-19#new

21. 抗 SARS-CoV-2 ChAdOx1 nCoV-19 疫苗(AZD1222)的安全性和有效性在巴西、南非和英国进行的四项随机对照试验的中期分析

Safety and efficacy of the ChAdOx1 nCoV-19 vaccine (AZD1222) against SARS-CoV-2 an interim analysis of four randomised controlled trials in Brazil, South Africa, and the UK

来源：Lancet

发布时间：2020.12.08

文章链接：https://www.thelancet.com/action/showPdf?pii=S0140-6736%2820%2932661-1
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DOI: https://doi.org/10.1016/S0140-6736(20)32661-1
编译者：张怡
中文摘要：
2020年4月23日到11月4日，总共有11636位参与者被纳入中期初效分析（7548人来自英国，4088人来自巴西）。在接受两次标准剂量的参与者中，疫苗有效性为62.1% (95% CI 41.0－75.7; ChAdOx1 nCoV-19组4440人中27人 [0.6%]存在COVID-19，4455人的对照组中 71 人存在 COVID-19)。首次接受了低剂量(减半剂量)的参与者，疫苗有效率为90.0%(67.4－97.0; 1367 人中3例[0.2%] vs 1374人中30例[2.2%]存在COVID-19)。总体上疫苗的有效率为70.4%(95.8% CI 54.8－80•6;5807人中30人[0.5%] vs 5829人中101人[1.7%]存在COVID-19)。第一剂后的21天，有10例因感染COVID-19住院，均来自对照组；2例被诊断为危重症，其中1例死亡。安全性随访总计进行了74341个随访月(median 3.4 months, IQR 1.3－4.8)，168名参与者中发生了175例严重不良反应，ChAdOx1 nCoV-19 中84例，对照组91例。3例不良反应被诊断与疫苗有关：ChAdOx1 nCoV-19 中1例，对照组1例，1例仍在隐蔽分配。
研究认为ChAdOx1 nCoV-19具有可接受的安全性，在对正在进行的临床试验的中期分析中，已发现对有症状的COVID-19有效。
Abstract
Between April 23 and Nov 4, 2020, 23848 participants were enrolled and 11636 participants (7548 in the UK, 4088 in Brazil) were included in the interim primary efficacy analysis. In participants who received two standard doses, vaccine efficacy was 62.1% (95% CI 41.0－75.7; 27 [0•6%] of 4440 in the ChAdOx1 nCoV-19 group vs71 [1.6%] of 4455 in the control group) and in participants who received a low dose followed by a standard dose, efficacy was 90.0% (67.4－97.0; three [0.2%] of 1367 vs 30 [2.2%] of 1374; pinteraction=0•010). Overall vaccine efficacy across both groups was 70.4% (95.8% CI 54.8－80•6; 30 [0.5%] of 5807 vs 101 [1.7%] of 5829). From 21 days after the first dose, there were ten cases hospitalised for COVID-19, all in the control arm; two were classified as severe COVID-19, including one death. There were 74341 person-months of safety follow-up (median 3.4 months, IQR 1.3－4.8): 175 severe adverse events occurred in 168 participants, 84 events in the ChAdOx1 nCoV-19 group and 91 in the control group. Three events were classified as possibly related to a vaccine: one in the ChAdOx1 nCoV-19 group, one in the control group, and one in a participant who remains masked to group allocation.
ChAdOx1 nCoV-19 has an acceptable safety profle and has been found to be efficacious against symptomatic COVID-19 in this interim analysis of ongoing clinical trials.

22. 剑桥新冠 AZD1222 疫苗Ⅲ期临床试验中期分析结果在柳叶刀上发表

显示 AZD1222 疫苗在首次接种 21 天后可有效防护新冠病毒 COVID-19 感染，且无重症和住院治疗病例

AZD1222 Oxford Phase III trials interim analysis results published in The Lancet Interim analysis showed vaccine is effective at preventing COVID-19, with no severe cases and no hospitalisations more than 21 days after first injection

来源：AstraZeneca Websites

发布时间：2020-12-8

链 接 ： https://www.astrazeneca.com/media-centre/press-releases/2020/azd1222-oxford-phase-iii-trials-interim-analysis-results-published-in-the-lancet.html

通讯作者单位：AstraZeneca

编译者：姜连连

中文摘要：

剑桥大学在英国和巴西进行的 AZD1222 临床试验的中期分析表明该疫苗对预防 COVID-19 效果显著且无重症或住院病例。中期效果分析来源于 11636 名受试者，其中 131 例 COVID-19 病例。保护效果数据显示两次全剂量给药疗效为 62%(n=8,895; CI 41.0% to 75.7%)，而当 AZD1222 以半剂量+全剂量免疫，疫苗疗效达到 90%(n=2,741; CI 67.4% to 97.0%)。根据两种免疫方案综合数据分析，第一阶段评估节点得出平均疗效为 70% (95.8% CI: 54.8% to 80.6%)。第二阶段评估节点显示疫苗免疫组无重症病例或住院病例，而对照组出现 10 位患者因感染新冠住院治疗，其中一例患者死亡。临床数据显示 AZD1222 疫苗表现出良好的耐受性，未出现与疫苗相关的严重安全事件。目前，阿斯利康正在美国及全球范围内进行临床试验，公司预计将全球范围内招募超过 60,000 名受试者。阿斯利康正在全速推动疫苗的生产，预计可在 2021 年生产 30 亿剂疫苗。在现有的医疗条件下使用（2-8 摄氏度），疫苗可以保存 6 个月。

Abstract:

Results of an interim analysis of the Phase III programme conducted by Oxford University with AZD1222 demonstrated that the vaccine is safe and effective at preventing symptomatic COVID-19 and that it protects against severe disease and hospitalisation. The interim analysis for efficacy was based on 11,636 participants accruing 131 symptomatic infections from the Phase III UK and Brazil trials. The efficacy regimens showed that when the vaccine was given as two full doses, vaccine efficacy was 62.1% (n=8,895; CI 41.0% to 75.7%), and 90.0% (n=2,741; CI 67.4% to 97.0%) in participants who received a half dose followed by a full dose. The primary efficacy endpoint of the programme statistical plan, based on the pooling of two dosing regimens, showed that the vaccine is 70.4% (95.8% CI: 54.8% to 80.6%) effective. A secondary efficacy endpoint of prevention of severe disease demonstrated no cases of severe infections or hospitalisations in the vaccine group. Ten participants in the control group were hospitalised due to COVID-19, among whom two were assessed as severe, including one fatal case. The Lancet publication confirmed that AZD1222 was well tolerated and that there were no serious safety events confirmed related to the vaccine. AstraZeneca is conducting a large study in the US and globally. In total, Oxford University and AstraZeneca expect to enroll more than 60,000 participants globally. The Company is also making rapid progress in manufacturing with a capacity of up to 3 billion

doses of the vaccine in 2021. The vaccine can be stored, transported and handled within existing healthcare settings (2-8 degrees Celsius) for at least six months and administered.

23. “超级祖母”玛格丽特·基南的历史性冠状病毒疫苗注射让英国走上了通往正常化的漫长道路

‘Super-gran’ Margaret Keenan’s historic coronavirus jab sets UK on long road to normality

来源：Mirror

发布时间：2020-12-8

链接：https://www.mirror.co.uk/news/uk-news/uk-super-gran-first-receive-23137329

第一作者：Martin Bagot

通讯作者：Martin Bagot

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DOI 或 PUBMED ID：

编译者：张鹏伟

中文摘要：

90 岁的玛格丽特基南成为世界上第一位接受 Covid-19 疫苗注射的患者。一位名叫威廉·莎士比亚的病人成为世界上第一位在考文垂大学医院接种辉瑞疫苗的人。今天上午，一位 99 岁的老人在朴茨茅斯的亚历山德拉皇后医院接受了第一支冠状病毒疫苗的接种，受到了热烈的掌声。鲍里斯·约翰逊（Boris Johnson）宣誓，随着第一批冠状病毒疫苗投入军备，英国“将一起战胜这一挑战”。

Abstract:

Margaret Keenan, 90, becomes first patient in world to receive Covid-19 jab. A patient named William Shakespeare became the first man in the world to get the Pfizer vaccine at Coventry’s University Hospital.A 99-year-old man received a warm round of applause as he received the first Coronavirus vaccine deployed at the Queen Alexandra Hospital in Portsmouth this morning. Boris Johnson vowed Britain “will beat this together” as the first coronavirus vaccines were pumped into arms.

24. 循环表达 ACE2 的外泌体作为一种天然的抗病毒机制阻止 SARS-CoV-2 感染

Circulating ACE2-expressing Exosomes Block SARS-CoV-2 Infection as an Innate Antiviral Mechanism

来源：biorxiv

发布时间：2020-12-04

链接：https://www.biorxiv.org/content/10.1101/2020.12.03.407031v1

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DOI 或 PUBMED ID：https://doi.org/10.1101/2020.12.03.407031

编译者：刘焕珍

中文摘要：

SARS-CoV-2 引起了 COVID-19，病毒抗原在这些患者中触发了先天性和适应性免疫反应。无

论是恢复期血浆还是工程化高亲和力人单克隆抗体都显示出治疗 COVID-19 的潜力。外周血中是否存在其他抗病毒可溶性因子仍有待研究。在此，我们在健康献血者和恢复期 COVID-19 患者血浆中检测到表达 SARS-CoV-2 病毒进入受体血管紧张素转换酶 2（ACE2）的循环外泌体。我们证明了外泌体 ACE2 与细胞 ACE2 竞争中和 SARS-CoV-2 感染。表达 ACE2（$ACE2^+$）的外泌体以剂量依赖的方式阻断病毒刺突蛋白 RBD 与 $ACE2^+$细胞的结合，其作用比无囊泡重组人 ACE2 胞外结构域蛋白（rhACE2）高 400～700 倍。因此，外泌体 ACE2 预防 SARS-CoV-2 假型病毒束缚和感染人宿主细胞的功效比 rhACE2 高 50-150 倍。外泌体 ACE2 具有类似的抗病毒活性，可以阻断野生型 SARS-CoV-2 感染。值得注意的是，从 COVID-19 患者血浆中缺失 $ACE2^+$外泌体，削弱了阻断 SARS-CoV-2 RBD 与宿主细胞结合的能力。我们的数据表明 $ACE2^+$外泌体可以作为诱饵治疗和可能的先天抗病毒机制来阻止 SARS-CoV-2 感染。

Abstract:

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causes the coronavirus disease 2019 (COVID-19) with innate and adaptive immune response triggered in such patients by viral antigens. Both convalescent plasma and engineered high affinity human monoclonal antibodies have shown therapeutic potential to treat COVID-19. Whether additional antiviral soluble factors exist in peripheral blood remain understudied. Herein, we detected circulating exosomes that express the SARS-CoV-2 viral entry receptor angiotensin-converting enzyme 2 (ACE2) in plasma of both healthy donors and convalescent COVID-19 patients. We demonstrated that exosomal ACE2 competes with cellular ACE2 for neutralization of SARS-CoV-2 infection. ACE2-expressing ($ACE2^+$) exosomes blocked the binding of the viral spike (S) protein RBD to $ACE2^+$ cells in a dose dependent manner, which was 400- to 700-fold more potent than that of vesicle-free recombinant human ACE2 extracellular domain protein (rhACE2). As a consequence, exosomal ACE2 prevented SARS-CoV-2 pseudotype virus tethering and infection of human host cells at a 50-150 fold higher efficacy than rhACE2. A similar antiviral activity of exosomal ACE2 was further demonstrated to block wild-type live SARS-CoV-2 infection. Of note, depletion of $ACE2^+$ exosomes from COVID-19 patient plasma impaired the ability to block SARS-CoV-2 RBD binding to host cells. Our data demonstrate that $ACE2^+$ exosomes can serve as a decoy therapeutic and a possible innate antiviral mechanism to block SARS-CoV-2 infection.

25. 恒河猴抗 SARS-CoV-2 的相关研究

Correlates of protection against SARS-CoV-2 in rhesus macaques

来源：Nature

发布时间：2020-12-04

链接：https://www.nature.com/articles/s41586-020-03041-6

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DOI 或 PUBMED ID：10.1038/s41586-020-03041-6
编译者：王玮
中文摘要：

最近的研究报道了天然免疫和疫苗诱导免疫对恒河猴应对 SARS-CoV-2 攻击的保护作用。然而，体液免疫和细胞免疫在预防 SARS-CoV-2 感染中的重要性仍有待确定。该研究展示了从恢复期猕猴身上过继转移纯化的 IgG，以剂量依赖的方式保护未受感染的恒河猴抵御 SARS-CoV-2 的攻击。恢复期动物体内 CD8+T 细胞的缺失，部分取消了天然免疫对 SARS-CoV-2 再攻击的保护作用，提示细胞免疫在抗体滴度下降或次级保护状态下的重要性。这些数据表明，相对较低的抗体滴度足以保护恒河猴抵御 SARS-CoV-2，如果抗体反应不理想，细胞免疫反应也可能有助于保护。该研究还表明，治疗猕猴 SARS-CoV-2 感染需要更高的抗体效价。这些发现对 SARS-CoV-2 疫苗的研制和免疫治疗具有重要意义。

Abstract:

Recent studies have reported protective efficacy of both natural immunity and vaccine-induced immunity against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) challenge in rhesus macaques. However, the importance of humoral and cellular immunity for protection against SARS-CoV-2 infection remains to be determined. Here we show that adoptive transfer of purified IgG from convalescent macaques protects naïve recipient rhesus macaques against SARS-CoV-2 challenge in a dose dependent fashion. Depletion of CD8+ T cells in convalescent animals partially abrogated the protective efficacy of natural immunity against SARS-CoV-2 re-challenge, suggesting the importance of cellular immunity in the context of waning or subprotective antibody titers. These data demonstrate that relatively low antibody titers are sufficient for protection against SARS-CoV-2 in rhesus macaques, and that cellular immune responses may also contribute to protection if antibody responses are suboptimal. We also show that higher antibody titers are required for therapy of SARS-CoV-2 infection in macaques. These findings have important implications for the development of SARS-CoV-2 vaccines and immune-based therapeutics.

26. 这两项激励措施可能打开重新部署 COVID-19 药物的闸门

Two incentives that could open the floodgates to drug repositioning for COVID-19

来源：biocentury
发布时间：2020.12.07
文章链接：https://www.biocentury.com/article/632451/two-incentives-that-could-open-the-floodgates-to-drug-repositioning-for-covid-19?return_feed=%2Fcoronavirus
作者：Upenda Marathi, Joseph Bailes
作者单位：7 Hills Pharma
编译者：张怡
中文摘要：

两项激励措施—恢复生物医学高级研究和开发局(BARDA) 对治疗试验的资助，以及建立一段有意义的市场独占权——将显著扩大 COVID-19 测试候选疗法的渠道。

目前，政府对已批准的药物开发新适应症的唯一激励是根据美国联邦食品、药物和化妆品法哈奇-韦克斯曼修正案授权的三年市场独占权。然而，三年的时间不足以激励公司投入大量资金进行临床试验、生产和商业化药物。第二个建议是，重新为 BARDA 的 COVID-19 治疗提供资金。通过投资 10 亿美元支持已被确定为潜在治疗药物的仿制药的临床试验，政府可在抗击 COVID-19 方面取得更大进展。估计再拨出约 10 亿美元，就可有超过 10 种产品在三期就绪，在完成 I/II 期研究的基础上，获得管理 COVID 的两至三种产品的授权。

Abstract

Two incentives---restoration of Biomedical Advanced Research and Development Authority (BARDA) funding for therapeutics trials and establishment of a meaningful period of marketing exclusivity---would dramatically expand the pipeline of candidate therapies in testing for COVID-19.

Currently, the only governmental incentive to develop a new indication for an approved drug is three years of market exclusivity as authorized under the Hatch-Waxman amendments to the U.S. Federal Food, Drug, and Cosmetic Act. Three years, however, is not sufficient incentive for companies to make the substantive financial investment in conducting the clinical trials and manufacturing and commercializing the drugs. The second suggestion is to re-establish funding for COVID-19 treatments by BARDA. The government could make significantly greater progress in battling COVID-19 by investing $1 billion to support clinical trials of the generic drugs already identified as potential treatments. We estimate that with an additional allocation of about $1 billion, more than 10 products could be made Phase III ready, and two to three products could receive authorization for management of COVID based on completion of Phase I/II studies.