新型冠状病毒信息简报

第 7 期（2020 年 3 月 25 日报）

上海科技大学免疫化学研究所

生物医学大数据平台、高通量筛选平台、化学分析平台联合编译制作

联系人：蒋立春 jianglch@shanghaitech.edu.cn

内容介绍

分类	标题名称
基础研究	1. SARS-CoV-2 感染的细胞蛋白质谱揭示新的药物靶点 2. SARS-CoV-2 通过 CD147-spike 蛋白新途径侵入宿主细胞
疾病检测	3. AI-辅助 CT 图形分析用于 COVID-19 的筛查：在 4 周内搭建和部署一套 AI 医疗系统 4. 确诊和非确诊 COVID-19 患者的临床和影像学特征的多中心比较研究
临床病理	5. 单中心队列回顾性研究发现：心肌损伤与中国武汉 COVID-19 确诊或疑似患者的院内死亡率相关
防治方案	6. 拥有百年历史的结核病疫苗能否强化免疫系统对抗新型冠状病毒? 7. Meplazumab（CD147 的抗体药物）治疗 COVID-19,在标准治疗基础上不设盲同期对照开放试验 8. Sorrento 获得迈博药业北美和欧洲开发和销售 CMAB020(双特异性 ACE-MAB 融合蛋白)用于治疗 COVID-19 的独家权利 9. 活性醛类抑制剂老药新用于 COVID-19
资源介绍	10. 美国生物医学高级研究管理局（BARDA） 11. 全球疫情数据展示板

免责申明：
本简报仅作为科研参考之用，不构成医疗建议，如您怀疑自己感染新型冠状病毒，请去正规医院或者咨询医

编者按：

昨天（3 月 24 日）我们介绍了通过质谱技术揭示病毒/宿主蛋白蛋白相互作用的网络。今天介绍一项采用质谱技术研究病毒在宿主细胞中引发的蛋白质组学变化。

1. SARS-CoV-2 感染的细胞蛋白质谱揭示新的药物靶点

SARS-CoV-2 infected host cell proteomics reveal potential therapy targets

来源：预印本

发布日期：2020-03-11

链接：https://www.researchsquare.com/article/rs-17218/v1

在本文中，作者研究了 COVID-19 病毒侵染后，宿主细胞蛋白表达谱随时间的变化。定量研究了侵染后 2h, 6h, 10h, 24h 的蛋白表达谱。采用 SILAC 和 TMT 两种同位素技术联合对蛋白定量，然后采用二维色谱质谱联用进行定性定量鉴定。作者共定性定量鉴定出 7000 个蛋白，其中 4000 的蛋白翻译速率可以能够被鉴定。RNA 病毒通常导致会抑制宿主细胞蛋白翻译的速率以提高病毒翻译的速率。但是 SARS-CoV-2 浸染的细胞的蛋白翻译速率在发生侵染 10h 后只降低了 23%，病毒本身蛋白的翻译速率却持续增加。作者提出采用 FDA 已经批准的蛋白翻译抑制剂小分子能够抑制病毒的复制传播。作者发现两种小分子抑制剂：cycloheximide（蛋白翻译延长抑制剂）和 emetine（抑制 40S 核糖体蛋白 S14 ）具有强的抗病毒效果， IC50 分别为.17umol 和 0.42umol。

在病毒侵染早期，宿主细胞蛋白表达谱只有细微变化,但是在 24 小时后，蛋白表达谱产生广泛的变化。统计分析表明：同 胆固醇代谢相关的蛋白出现减少；而同 RNA 调控相关的途径比如剪切体（spliceosome）碳代谢相关蛋白出现增加。进一步,作者发现 pladeinolide B（一种 RNA 剪切抑制剂）能够抑制病毒；采用 2-DG（一种糖酵解抑制剂）也能够抑制病毒传播。

该研究的分析结果可以通过网站 http://corona.papers.biochem2.com/获得。

A novel coronavirus was recently discovered and termed SARS-CoV-2. Human infection can cause coronavirus disease 2019 (COVID-19), for which, at this point, over 80,000 cases resulting in over 2,500 deaths have been reported in over 40 countries. SARS-CoV-2 shows some similarities to other coronaviruses. However, treatment options and a cellular understanding of SARS-CoV-2 infection are lacking. Here we identify the host cell pathways modulated by SARS-CoV-19 infection and reveal that drugs targeting pathways prevent viral replication in human cells. We established a human cell culture model for infection with SARS-CoV-2 clinical isolate. Employing this system, we determined the SARS-CoV-2 infection profile by translatome and proteome proteomics at different times after infection.

These analyses revealed that SARS-CoV-2 reshapes central cellular pathways, such as translation, splicing, carbon metabolism and nucleic acid metabolism. Small molecule inhibitors targeting these pathways were tested in cellular infection assays and prevented viral replication. Our results reveal the cellular infection profile of SARS-CoV-2 and led to the identification of drugs inhibiting viral replication. We anticipate our results to guide efforts to develop therapy options for COVID-19.

2. SARS-CoV-2 通过 CD147- spike 蛋白新途径侵入宿主细胞

SARS-CoV-2 invades host cells via a novel route: CD147-spike protein

来源：biorxiv
发布日期：2020-3-14
链接：https://www.biorxiv.org/content/10.1101/2020.03.14.988345v1
摘要：

文中研究发现了一种 SARS-CoV-2 通过 CD147-spike 蛋白入侵宿主细胞的新途径，spike 蛋白（SP）与宿主细胞上的受体 CD147 结合，从而介导病毒入侵。体外抗病毒试验表明，抗 CD147 的人源化抗体 Meplazumab（美珀珠单抗，HP6H8）能显著抑制 SARS-CoV-2 病毒的复制，EC50 为 24.86μg/mL，IC50 为 15.16μg/mL。其次，表面等离子体共振(SPR)分析证实了 CD147 和 SP (RBD)的相互作用亲和常数 1.85×10-7M，同时利用免疫共沉淀和 ELISA 证实了两种蛋白的结合。竞争 ELISA 结果显示人源化美珀珠单抗可以竞争性抑制 SP 和 CD147 的结合进而有效抑制病毒入侵宿主细胞,其 IC50 为 16.44 μg/ml。最后，用免疫电镜观察了 CD147 和 spike 蛋白在 SARS-CoV-2 感染的 Vero E6 细胞中的定位。针对侵袭 SARS-CoV-2 宿主细胞的新途径 CD147-S 蛋白的发现为特定抗病毒药物的开发提供了关键目标。
--参见本简报第 7 条关于 CD147 抗体药物在治疗 COVID-19 病人的临床试验

SUMMARY

Currently, COVID-19 caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been widely spread around the world; nevertheless, so far there exist no specific antiviral drugs for treatment of the disease, which poses great challenge to control and contain the virus. Here, we reported a research finding that SARS-CoV-2 invaded host cells via a novel route of CD147-spike protein (SP). SP bound to CD147, a receptor on the host cells, thereby mediating the viral invasion. Our further research confirmed this finding. First, in vitro antiviral tests indicated Meplazumab, an anti-CD147 humanized antibody, significantly inhibited the viruses from invading host cells, with an EC50 of 24.86 μg/mL and IC50 of 15.16 μg/mL. Second, we validated the interaction between CD147 and SP, with an affinity constant of 1.85×10－7M. Co-Immunoprecipitation and ELISA also confirmed the binding of the two proteins. Finally, the localization of CD147 and SP was observed in SARS-CoV-2 infected Vero E6 cells by immuno-electron microscope. Therefore, the discovery of the new route CD147-SP for SARS-CoV-2 invading host cells provides a critical target for development of specific antiviral drugs.

3. AI-辅助 CT 图形分析用于 COVID-19 的筛查：在 4 周内搭建和部署一套 AI 医疗系统

来源：medRxiv
发布日期：2020-03-23
链接：https://www.medrxiv.org/content/10.1101/2020.03.19.20039354v1

Abstract: The sudden outbreak of novel coronavirus 2019 (COVID-19) increased the diagnostic burden of radiologists. In the time of an epidemic crisis, we hoped artificial intelligence (AI) to help reduce physician workload in regions with the outbreak, and improve the diagnosis accuracy for physicians before they could acquire enough experience with the new disease. Here, we present our experience in building and deploying an AI system that automatically analyzes CT images to detect COVID-19 pneumonia features. Different from conventional medical

AI, we were dealing with an epidemic crisis. Working in an interdisciplinary team of over 30 people with medical and / or AI background, geographically distributed in Beijing and Wuhan, we were able to overcome a series of challenges in this particular situation and deploy the system in four weeks. Using 1,136 training cases (723 positives for COVID-19) from five hospitals, we were able to achieve a sensitivity of 0.974 and specificity of 0.922 on the test dataset, which included a variety of pulmonary diseases. Besides, the system automatically highlighted all lesion regions for faster examination. As of today, we have deployed the system in 16 hospitals, and it is performing over 1,300 screenings per day.

新型冠状病毒 COVID-19 的突然爆发增加了放射科医生的诊断负担。在传染病爆发的危急时刻，我们希望借助人工智能（AI）来减轻爆发地域的医师负担，在医师积累足够的经验前，提高诊断的准确率。本文中，作者介绍了搭建和部署自动分析 CT 图像来检测 COVID-19 肺炎特征的 AI 系统的经验。训练集使用了来自 5 所医院的 1136 例病例（723 例 COVID-19 阳性），系统在包含各种肺部疾病影像的测试集上的达到了比较好的效果，敏感性 0.974，特异性 0.922。此外，系统在快速检测时还可以自动标注病变区域。目前，已经在 16 家医院部署了改系统，每天检测超过 1300 个病例。

难点：1）训练 AI 模型需要大量的阳性样本。但是，在疫情初期没有足够的经核酸测试（NAT）验证的阳性样本；2）所有的图像数据需要确诊的 COVID-19 病人进行肺部 CT 扫描，并确保 CT 影像具有诊断特征；3）用于训练的图形样本需要有经验的放射科医生进行额外的人为标注；4）模型需要区分 COVID-19 肺炎和其他肺部病变，这是最重要的临床需求；5）AI 系统需要医院具有专业的部署服务，在隔离期间很难完成。

工作方法：1）使用深度神经网络模型，借鉴之前开发的诊断模型的经验，构建流程，快速评估候选模型；2）关于训练数据，除 COVID-19 阳性病例外，还组合了一系列阴性病例和肺部肿瘤影像，使模型能够区分 COVID-19 和其他病症。并从 5 所医院的 11 种不同 CT 设备上收集数据；3）开发了分 3 阶段进行注释和质控的流程，使得没有经验的数据标注人员与高级放射科医生一起协作，进行高准确性的数据标注工作；4）仅使用 131 个阳性病例就得到了合理的训练结果；5）为了使诊断结果更符合放射科医生和医师的习惯，除了对诊断结果进行阳性和阴性分类外，还对病变位置进行了标注，以便更进一步的检验；6）整套工具即插即用，成本低，便于医院部署。

d

4. 确诊和非确诊 COVID-19 患者的临床和影像学特征的多中心比较研究

A comparative multi-centre study on the clinical and imaging features of comfirmed and uncomfirmed patients with COVID-19

来源：medRxiv

发布日期：2020-03-24

链接： https://www.medrxiv.org/content/10.1101/2020.03.22.20040782v1

内容摘要：

背景：先前的研究已经报道了 ICU 患者和非 ICU 患者临床特征的差异，但是，对确诊组和非确诊组的研究较少。来自上海交通大学附属第一人民医院、上海交通大学医学院附属医院、南昌大学第一附属医院高新医院、江西省宜春市人民医院、南京医科大学上海市第一人民医院的研究人员，对湖北省以外地区 COVID-19 确诊组和非确诊组的流行病学史、临床、实验室和影像学特征开展了比较研究，旨在为 COVID-19 的鉴别诊断、预防和治疗提供参考。

方法：本研究回顾性记录了从 2020 年 1 月 12 日至 2020 年 2 月 13 日，来自湖北省以外两个省的三家三甲医院的 163 名疑似 COVID-19 的成年患者，收集鼻咽拭子或痰标本，根据 qRT-PCR 检测结果，将所有疑似病例分为确诊组和非确诊组，并比较了两组患者在流行病学、临床、实验室和影像学特征上的差异。

结果：本研究共招募了 163 例患者，其中确诊 62 例，非确诊 101 例。大多数确诊患者为聚集性病例（31 人，50.0%），并有明确的流行病学暴露。COVID-19 的症状是非特异性的，主要是发热和干咳。确诊组的实验室检测结果表现为白细胞计数正常或降低，淋巴细胞绝对值降低，C 反应蛋白（CRP）和血沉加速（ESR）升高。COVID-19 的典型胸部 CT 表现为多灶性 GGO，以下肺为主。与非确诊患者相比，确诊患者干咳、白细胞减少、淋巴细胞减少、血沉加快的比例明显增高（$p<0.05$）。确诊组的外周、双侧或下肺分布及多叶受累、GGO、碎石路征、支气管充气征及胸膜增厚的比例也较高（$P<0.05$）。

结论：COVID-19 的症状是非特异性的。白细胞减少、淋巴细胞减少、ESR 及胸部 CT 可作为 COVID-19 的临床诊断依据。胸部 CT 可以成为筛查疑似 COVID-19 患者的有效临床诊断工具，但最终诊断仍需结合 RT-PCR 检测结果。

Abstract

Background Previous studies had described the differences in clinical characteristics between ICU and non-ICU patients. However, seldom study focused on confirmed and unconfirmed groups. Our aim was to compare clinical and imaging characteristics of COVID-19 patients outside Hubei province between confirmed and unconfirmed group.

Methods We retrospectively enrolled 163 consecutive adult patients with suspected COVID-19 from three tertiary hospitals in two provinces outside Hubei province from January 12, 2020 to February 13, 2020 and the differences in epidemiological, clinical, laboratory and imaging characteristics between the two groups were compared.

Results This study enrolled 163 patients with 62 confirmed cases and 101 unconfirmed cases. Most confirmed patients were clustered (31, 50.0%) and with definite epidemiological exposure. Symptoms of COVID-19 were nonspecific, largely fever and dry cough. Laboratory findings in confirmed group were characterized by normal or reduced white blood cell count, reduced the absolute value of lymphocytes, and elevated levels of C-reactive protein (CRP) and accelerated Erythrocyte sedimentation rate (ESR). The typical chest CT imaging features of

patients with confirmed COVID19 were peripherally distributed multifocal GGO with predominance in the lower lung lobe. Compared with unconfirmed patients, confirmed patients had significantly higher proportion of dry cough, leucopenia, lymphopenia and accelerated ESR (P0.05). Proportion of peripheral, bilateral or lower lung distribution and multi-lobe involvement, GGO, crazy-paving pattern, air bronchogram and pleural thickening in the confirmed group were also higher (P <0.05).

Conclusions Symptoms of COVID-19 were nonspecific. Leukopenia, lymphopenia and ESR, as well as chest CT could be used as a clue for clinical diagnosis of COVID19.

5. 单中心队列回顾性研究发现：心肌损伤与中国武汉 COVID-19 确诊或疑似患者的院内死亡率相关

Myocardial injury is associated with in-hospital mortality of confirmed or suspected COVID-19 in Wuhan, China: A single center retrospective cohort study

来源：medrxiv

发布日期：2020-03-24

来源链接：https://www.medrxiv.org/content/10.1101/2020.03.21.20040121v1

内容摘要：

背景

COVID-19 重者患者住院治疗时死亡率很高，以心肌肌钙蛋白升高为特征的心脏损伤在重症患者中很常见。心脏损伤的机制以及心脏损伤与院内死亡率之间的关系仍不清楚。目前，关于 COVID-19 患者心脏损伤的研究很少。

目标

来自武汉市第一医院和北京协和医院的研究人员共同研究了 COVID-19 确诊或疑似患者中心脏损伤与院内死亡率之间的关系。

方法

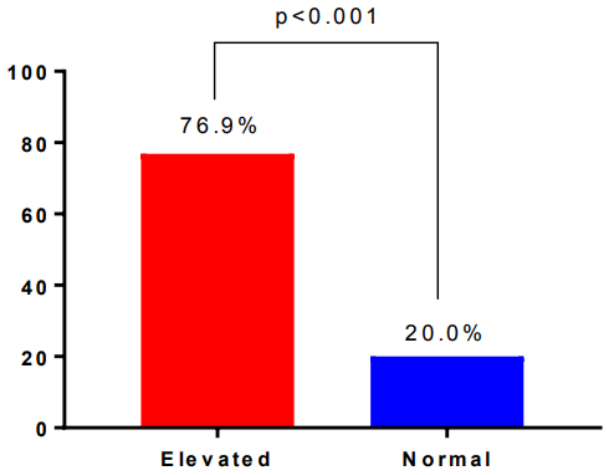
从电子病历中提取 2019 年 12 月 25 日至 2020 年 2 月 15 日在武汉市第一医院收治的确诊或疑似 COVID-19 患者的人口统计学，临床，治疗和实验室数据，并进行回顾性分析。利用单变量和多变量 Cox 回归分析探讨与院内死亡相关的风险因素。

结果

该研究共筛选到 110 例 COVID-19 确诊（n=80）及疑似（n=30）患者，其中 48 例患者（女性占 31.3%，平均年龄为 70.58±13.38 岁）入院后 48 小时内进行了高敏心肌肌钙蛋白 I（hs-cTnI）检测，其中 17 例（17/48，35.4%）在住院期间死亡，31 例（31/48,64.6%）出院或转移到其他医院。13 名患者（13/48,27.1%）的高敏心肌肌钙蛋白 I 升高。多变量 Cox 回归分析显示入院时血氧饱和度（SpO2）（HR 0.704,95% CI 0.546-0.909，每 1%降低，p=0.007），hs-cTnI 的升高（HR 10.902,95% 1.279-92.927，p=0.029）以及入院时 d-二聚体的升高（HR 1.103，95% CI 1.034-1.176，每 1mg/L 增加，p=0.003）与院内死亡率独立相关。

结论

入院时心脏损伤造成的 hs-cTnI 升高（图一）和 d-二聚体升高是院内死亡的危险因素，而较高的 SpO2 可被视为一种保护因素，这些信息可以帮助临床医生在早期发现预后不良的 COVID-19 患者。



图一 hs-cTnI 升高的 COVID-19 患者和 hs-cTnI 未升高的 COVID-19 患者死亡率比较

Abstract

[Background] Since December 2019, a cluster of coronavirus disease 2019 (COVID-19) occurred in Wuhan, Hubei Province, China and spread rapidly from China to other countries. In-hospital mortality are high in severe cases and cardiac injury characterized by elevated cardiac troponin are common among them. The mechanism of cardiac injury and the relationship between cardiac injury and in-hospital mortality remained unclear. Studies focused on cardiac injury in COVID-19 patients are scarce. [Objectives] To investigate the association between cardiac injury and in-hospital mortality of patients with confirmed or suspected COVID-19. [Methods] Demographic, clinical, treatment, and laboratory data of consecutive confirmed or suspected COVID-19 patients admitted in Wuhan No.1 Hospital from 25th December, 2019 to 15th February, 2020 were extracted from electronic medical records and were retrospectively reviewed and analyzed. Univariate and multivariate Cox regression analysis were used to explore the risk factors associated with in-hospital death. [Results] A total of 110 patients with confirmed (n=80) or suspected (n=30) COVID-19 were screened and 48 patients (female 31.3%, mean age 70.58±13.38 year old) among them with high-sensitivity cardiac troponin I (hs-cTnI) test within 48 hours after admission were included, of whom 17 (17/48, 35.4%) died in hospital while 31 (31/48, 64.6%) were discharged or transferred to other hospital. High-sensitivity cardiac troponin I was levated in 13 (13/48, 27.1%) patents. Multivariate Cox regression analysis showed pulse oximetry of oxygen saturation (SpO2) on admission (HR 0.704, 95% CI 0.546-0.909, per 1% decrease, p=0.007), elevated hs-cTnI (HR 10.902, 95% 1.279-92.927, p=0.029) and elevated d-dimer (HR 1.103, 95%CI 1.034-1.176, per 1mg/L increase, p=0.003) on admission were independently associated with in-hospital mortality. [Conclusions] Cardiac injury defined by hs-cTnI elevation and elevated d-dimer on admission were risk factors for in-hospital death, while higher SpO2 could be seen as a protective factor, which could help clinicians to identify patients

with adverse outcome at the early stage of COVID-19.

6. 拥有百年历史的结核病疫苗能否强化免疫系统对抗新型冠状病毒?

来源：Science Magazine， “中国生物技术网”微信公众号

网 址 ： https://www.sciencemag.org/news/2020/03/can-century-old-tb-vaccine-steel-immune-system-against-new-coronavirus

Researchers in four countries will soon start a clinical trial of an unorthodox approach to the new coronavirus. They will test whether a century-old vaccine against tuberculosis (TB), a bacterial disease, can rev up the human immune system in a broad way, allowing it to better fight the virus that causes coronavirus disease 2019 and, perhaps, prevent infection with it altogether. The studies will be done in physicians and nurses, who are at higher risk of becoming infected with the respiratory disease than the general population, and in the elderly, who are at higher risk of serious illness if they become infected.

到目前为止，人们仍然没有有效的保护性疫苗对抗结核病。根据中国疾控中心的数据，中国每年结核病的发病人数为 86 万左右，是当下国内新冠肺炎确诊人数的 10 倍。

卡介苗（BCG）距今已有百年历史。它含有一种活性弱化的牛分枝杆菌菌株，这是引起结核病的结核分枝杆菌的近亲。卡介苗的接种已是一种减轻结核感染的主要手段，但与其他疫苗不同，卡介苗并不能预防结核，只能减轻结核感染的症状，降低结核的严重程度，尤其是新生儿的致死性结核，但其限制结核的传染能力是有限的。

近日，来自四个国家的研究团队将很快开始针对新冠病毒采取非传统方法的临床试验。他们将测试卡介苗是否可以广泛地改善人体免疫系统，从而使可以使人类更好地抵抗新冠病毒，或许还能预防感染。这项研究将在医生和护士以及老年人群中开展，因为前者比普通人群面临着更高的呼吸道疾病感染风险，后者在被感染后患严重疾病的风险更高。本周，荷兰的一个研究团队将开始第一项试验。他们将在荷兰的八家医院中招募 1000 名医护人员，受试者将接种卡介苗或安慰剂。

根据在几内亚比绍生活和工作的丹麦研究人员 Peter Aaby 和 Christine Stabell Benn 几十年来发表的临床和观察研究，卡介苗可能还会增强免疫系统抵抗除结核杆菌以外其他病原体的能力。他们的研究结论是，在接种后的第一年，该疫苗可预防约 30％的任何已知病原体（包括病毒）感染。然而，该研究因其方法论而受到批评。世界卫生组织（WHO）于 2014 年进行的一项调查得出的结论是，卡介苗似乎降低了儿童的总体死亡率，但对调查结果的可信度评价为“非常低”。2016 年发表在《Science》上的一项研究肯定了卡介苗的潜在益处，但 WHO 表示需要进行随机试验。（Trained immunity: A program of innate immune memory in health and disease. DOI: 10.1126/science.aaf1098）

Netea 的团队发现，卡介苗可以在人体皮肤中存活数月之久，它不仅能够触发分枝杆菌的特异性记忆 B 细胞和 T 细胞，而且还可以长时间刺激先天血细胞。Netea 及其同事称之为“训练有素的免疫力”。

加拿大多伦多大学的免疫学家 Eleanor Fish 说：“这种疫苗可能无法完全消除新冠病毒的感染，但可能会减弱其对个体的影响。如果我有这个疫苗的话，我会给自己接种。”

但 Netea 表示：“随机设计至关重要，否则，我们永远不会知道这是否对人有益。”

该团队可能会在几个月内得出答案。

编者按：

之前的报道发现 CD147 是 SARS-CoV-2 除了 ACE2 之外的另一个受体（见本简报第二条）。这里有一个病人数目很少的临床数据说明 CD147 抗体药物可能对治疗 COVID-19 有效。需要进一步做更大的临床试验以证实该药物的有效性。

7. Meplazumab（CD147 的抗体药物）治疗 COVID-19,在标准治疗基础上不设盲同期对照开放试验

Meplazumab treats COVID-19 pneumonia: an open-labelled, concurrent controlled add-on clinical trial

来源：medrxiv

发布日期：2020-03-24

链接：https://www.medrxiv.org/content/10.1101/2020.03.21.20040691v1

该研究招募了 17 个病人在标准治疗之外加上 CD147 的抗体药物 Meplazumab 进行治疗，另外选 11 个病人作为同期对照组。两组之前的临床基线特征基本一致。相对于对照组，meplazumab 治疗组显著提高了出院率 (p=0.006)，减少了危重病例(p=0.021)。病毒检测转阴的时间在 meplazumab 治疗组显著缩短(中位数 3 天, 95%置信区间[1.5-4.5] 对中位数 13 天, [6.5-19.5]; p=0.014). 在 meplazumab 治疗组有更多病人更快恢复了淋巴数目以及 C 反应蛋白浓度水平。Meplazumab 治疗组没有发生更多的药物不良作用。

Abstract

Background: SARS-CoV-2 is a novel human coronavirus, there is no specific antiviral drugs. It has been proved that host-cell-expressed CD147 could bind spike protein of SARS-CoV-2 and involve in host cell invasion. Antibody against CD147 could block the infection of SARS-CoV-2. We aimed to assess the efficacy and safety of meplazumab, a humanized anti-CD147 antibody, as add-on therapy in patients with COVID-19 pneumonia. Methods: All patients received recommended strategy from Diagnosis and Treatment for 2019 Novel Coronavirus Diseases released by National Health Commission of China. Eligible patients were add-on administered 10 mg meplazumab intravenously at days 1, 2, and 5. Patients hospitalized in the same period were observed as concurrent control. The endpoints include virological clearance rate, case severity, chest radiographic, and laboratory test. This trial was approved by the Ethics Committee of Institution at the Tangdu hospital, and registered with ClinicalTrials.gov, NCT 04275245. Findings:17 patients were enrolled and assigned to meplazumab group between Feb 3, 2020 and Feb 10, 2020. 11 hospitalized patients served as concurrent control. Baseline characteristics were generally balanced across two groups. Compared to control group, meplazumab treatment significantly improved the discharged (p=0.006) and case severity (p=0.021) in critical and severe patients. The time to virus negative in meplazumab group was reduced than that in control group (median 3, 95%CI[1.5-4.5] vs. 13, [6.5-19.5]; p=0.014, HR=0.37, 95%CI[0.155-0.833]). The percentages of patients recovered to the normal lymphocyte count and CRP concentration were also increased remarkably and rapidly in meplazumab group. No adverse effect was found in meplazumab-treated patients. Interpretation:Meplazumab efficiently improved the recovery of patients with SARS-CoV-2 pneumonia with a favorable safety profile. Our results support to

carry out a large-scale investigation of meplazumab as a treatment for COVID-19 pneumonia.

8. Sorrento 获得迈博药业北美和欧洲开发和销售 CMAB020(双特异性 ACE-MAB 融合蛋白)用于治疗 COVID-19 的独家权利

链 接 ： https://finance.yahoo.com/news/sorrento-collaborates-mabpharm-development-commercialization-133258814.html

Sorrento Therapeutics Inc.获得了在北美和欧洲市场开发和销售迈博药业的 CMAB020 的独家权利。这个候选药物，是迈博药业在 Cgmp 生产开发的一个双特性性 ACE-单克隆抗体融合蛋白。这个药物的一条臂是人的抗 SARS-CoV-2 棘突蛋白（S 蛋白）的抗体，一条臂是一个截断的 ACE2(宿主细胞上的 S 蛋白的受体)。该药物的两条臂针对棘突蛋白的不同表位。

Sorrento 公司说这个药物也可能也可以阻止病毒得棘突蛋白结合宿主的 BGS 也就是 CD-147 蛋白(参考本简报第 2 条和第 7 条)。

9. 活性醛类抑制剂老药新用于 COVID-19

来源：
https://www.biocentury.com/article/304731?editionId=ck86oofbd25nt0998dtm532l2&editionType=daily

发布日期：2020-3-25

Aldeyra Therapeutics 公司本周二(3 月 24 日)宣布将对他们包括 ADX-629 和 reproxalap 这两种药物的活性醛类抑制剂的针对 COVID-19 的抗炎和抗病毒作用进行筛选。该公司向美国生物医学高级研究管理局（见下条介绍）递交了将 ADX-629 和 reproxalap 两种药物用于治疗 SARS-CoV-2 感染的申请。

根据这家公司透露，ADX-629 和 reproxalap 两种药物分子结构和氯喹相似，都能在细胞因子风暴的动物模型中减少炎症的发生。该公司还透露 reproxalap 在临床前的急性呼吸窘迫综合症(ARDS)的动物模型中初步显示出效果。而在 COVID-19 中，ARDS 是一种炎症并发症，和病人的高致死率相关。

10. 美国生物医学高级研究管理局（BARDA）

链接：https://www.phe.gov/about/barda/Pages/default.aspx

美国生物医学高级研究管理局（ BARDA)，隶属于美国卫生部。该局专门针对化学、生物、放射、和威胁以及烈性传染病做各种储备和防御。美国生物医学高级研究管理局支持将研发阶段的疫苗、药物、和诊断申请 FDA 批准，并做国家战略储备。该机构提供经费，技术等各方面的支持，包括从临床研究组织网络到高级研发生产创新中心直到药物罐装完成的平台服务。到目前为止，BARDA 支持了 42 个关于反恐、大流行性流感和新发传染病和药物的 FDA 批准。从该机构网站披露的信息来看，目前新冠疫情期间该机构将工作限于 COVID-19，有潜力的项目组可以直接和相关官员预约沟通会议 https://www.medicalcountermeasures.gov/Request-BARDA-TechWatch-Meeting。

我们前面 3 月 19 日简报里提到的两项已经开始的针对 IL-6 抗体治疗 COVID-19 的药物就是经过该部门支持推进的。

Biomedical Advanced Research and Development Authority (BARDA), part of the HHS Office of the Assistant Secretary for Preparedness and Response, was established to aid in securing our nation from chemical, biological, radiological,

and nuclear (CBRN) threats, as well as from pandemic influenza (PI) and emerging infectious diseases (EID). BARDA supports the transition of medical countermeasures such as vaccines, drugs, and diagnostics from research through advanced development towards consideration for approval by the FDA and inclusion into the Strategic National Stockpile. BARDA's support includes funding, technical assistance and core services, ranging from a clinical research organization network to Centers for Innovation in Advanced Development and Manufacturing, and a fill-finish manufacturing network. To-date, BARDA has supported 42 FDA approvals for products addressing CBRN, PI, and EID threats.

11. 全球疫情数据展示板

Coronavirus COVID-19 Global Cases by Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)

网址：

https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6