Bob Barrett:
This is a podcast from Clinical Chemistry, sponsored by the Department of Laboratory Medicine at Boston Children's Hospital. I am Bob Barrett.

鲍勃·巴雷特（Bob Barrett）：

这是《临床化学》杂志的播客，本节目由波士顿儿童医院检验科赞助。我是鲍勃·巴雷特。

In December 2019, a cluster of atypical pneumonia patients epidemiologically linked to a wholesale market in Wuhan, China was detected. A novel beta coronavirus named as 2019-novel coronavirus (2019-nCoV) has been identified in some of these patients. Considerable attention has been given to this virus, that according to the World Health Organization, as of this recording at the end of January 2020, has so far thought to have sickened over 6,000 people and is responsible for at least 132 deaths.

2019 年 12 月，在中国武汉发现了一群非典型性肺炎的患者，这些患者在流行病学上与一座批发市场有关联。在其中一些患者体内发现了一种新型的 β 属冠状病毒，被命名为 2019-新型冠状病毒。根据世界卫生组织的资料，截至 2020 年 1 月底，该病毒已使 6000 多人患病，并造成至少 132 人死亡，获得了相当大的关注。

Because of the potential for pandemic spread, there is a great need for a rapid and accurate test for the detection of this virus. We are fortunate to have with us today Dr. Leo Poon from the School of Public Health, Li Ka Shing Faculty of Medicine at the University of Hong Kong. He and his colleagues described a new molecular diagnostic assay that allows the detection and quantification of this new coronavirus. The paper is available online now and will appear in the April 2020 print edition of the journal *Clinical Chemistry*. So Dr. Poon, please tell us, what is the cause of the current atypical pneumonia outbreak in China?

新型冠状病毒具有大规模流行的潜力，因此亟需一种快速、准确的测试方法来检测该病毒。我们今天很荣幸邀请到了香港大学李嘉诚医学院公共卫生学院的潘烈文博士。他和他的同事描述了一种新的分子诊断检测方法，该方法可以检测和定量新型冠状病毒。该论文现已在线发表，并将刊登于《临床化学》杂志 2020 年 4 月的印刷版上。潘博士，请告诉我们，当前中国非典型性肺炎暴发的原因是什么？

Dr. Leo Poon:
Right. This is actually caused by a new human coronavirus. In fact, it is a completely new coronavirus in science. We've never known this before. The virus looks like it is

coming from animals and it is genetically related to SARS coronavirus found in 2003.

潘烈文博士：

是的。这实际上是由一种新的人类冠状病毒引起的。事实上，从科学角度来说这是一种全新的冠状病毒。我们以前从未见过这种病毒。该病毒看起来像是来自动物，并与 2003 年发现的 SARS 冠状病毒具有基因相关性。

Bob Barrett:
Where do you think this novel animal virus has come from?

鲍勃·巴雷特（Bob Barrett）：

您认为这种新型动物病毒来自何处？

Dr. Leo Poon:
We don't have direct evidence at the moment in the early phase of this outbreak. Some of these patients are actually epidemiologically linked to a seafood market which actually sells wild animal there. So, we believe that wild animal would be one of the possibilities. In 2003, we had the outbreak of SARS and then we found civet cats and raccoon dogs and these kind of wild animal were positive for SARS coronavirus. Eventually, it was found that these animals were infected by a bat virus. So, I believe we have a similar situation here.

潘烈文博士：

我们目前处于疫情爆发的初期，尚无病毒来源的直接证据。其中一些早期患者在流行病学上与一座海鲜市场有关，而这座海鲜市场曾经实际上也销售野生动物。因此，我们认为野生动物是一种可能的来源。2003 年我们经历了 SARS 暴发，当时我们发现果子狸、浣熊这类野生动物 SARS 冠状病毒呈阳性。我们最终发现这些动物是被蝙蝠病毒感染。我相信这次也是类似情况。

Maybe these wild animals in the seafood market actually may acquire this virus and then it spreads to humans. The origin of this novel coronavirus may be also coming from bats because it's genetically similar to other bat coronaviruses.

也许海鲜市场中的这些野生动物通过感染获得了这种病毒，然后传播给了人类。这种新型冠状病毒的起源可能也是蝙蝠，因为它在遗传学上与其他蝙蝠冠状病毒相似。

Bob Barrett:

So, should we be concerned about this particular virus?

鲍勃·巴雷特（Bob Barrett）：

我们应该对这种新型冠状病毒感到担忧吗？

Dr. Leo Poon:
Oh yes, we do [have concerns]. Because, at the time that I was preparing this test and working up the manuscript, it was only about 200 cases. Now, just after a week, and now we have 7,000 confirmed cases. And even worse, it's spreading to multiple countries.

潘烈文博士：

哦，是的，我们确实[有担忧]。因为在我准备这个检测方法和撰写手稿时，大约只有 200 个病例。现在，仅一周之后，我们已经有 7,000 例确诊病例。更糟糕的是，它正在传播到多个国家。

In some of these counties, actually have their local cases, basically the patient flew to the country and spread the disease to another person. So, suggesting that maybe this virus can continue to spread to other countries, within the country, if they get to the territory. So, we have to be very cautious about this virus because it can be able to spread quite quickly.

在其中一些国家，实际上已经有了本地病例，源于某个患者飞到该国并将疾病传播给了其它人。因此，这种病毒有可能会在这些国家继续传播，并传播到与该国接壤的其他国家。因此我们必须对此病毒非常警惕，因为它可以相当迅速地传播。

Bob Barrett:
You and your colleagues have developed, seemingly in record time, an assay for detecting this virus. Can you tell us something about the assay and how you and your team developed this laboratory test?

鲍勃·巴雷特（Bob Barrett）：

您和您的同事在创纪录的时间内开发出了一种检测这种病毒的方法。您能否告诉我们一

些有关检测方法的信息，以及您和您的团队是如何开发此实验检测方法的？

Dr. Leo Poon:
Right. Basically, we've developed two assays. But at the time of preparing these assays, we only know one public sequence about these novel coronaviruses. So, what we did is actually tried to also analyze bat viruses which are genetically similar to this virus and then try to look for the conserved region so that we can be able to design some primer that can react with this clade of viruses. Since these are all animal viruses or SARS virus, if we found a patient with a positive in this test, they should be concerned, because they maybe acquired this virus or other bats like viruses. So, what we did is actually develop two assays. One assay for the ORF1b region and the other assay is for the N gene region. One for the screening test, one for confirmatory test.

潘烈文博士：

是的。大体上，我们开发了两种检测方法。但是在开发这些检测方法时，新型冠状病毒只有一个序列向大众公开了。我们所做的实际上是试图分析与该病毒在遗传学上相似的蝙蝠病毒，然后尝试寻找保守区域，以便我们能够设计出一些可以与这一进化枝的病毒发生反应的引物。由于这些都是动物病毒或 SARS 病毒，因此如果我们发现患者在此测试中呈阳性，应予以关注，因为他们可能感染了新型冠状病毒或其他类蝙蝠病毒。我们所做的实际上是针对两个基因区域进行检测。一个是 ORF1b 区域，另一个是 N 基因区域。前者用于筛查检测，后者用于确认检测。

Bob Barrett:
So, how will having a laboratory test available help in the containment of the associated disease or in the treatment?

鲍勃·巴雷特（Bob Barrett）：

实验室检测方法将如何帮助控制或治疗相关疾病？

Dr. Leo Poon:
Basically, we can be able to identify the patient early so that we can put them in prompt treatment and also try to quarantine these people. In addition, we can be able to do

active contact tracing so that we can be able to identify those people who may have a close contact with these patients so that again, we can monitor their health closely so that we can prevent further spreading of this disease in the community as well. This is what we did for SARS and also for MERS. So, I think prompt identification of these patients helps first of all, to reduce the further spreading of the disease in a community. Secondly, we may be able to provide some sufficient supportive treatment to these patients.

潘烈文博士：

我们可以尽早识别感染患者，以便我们对其进行及时治疗，并尝试隔离这些人。此外，我们可以进行主动的接触者追踪，这样我们就可以找出可能与这些患者有密切接触的人，可以密切监控他们的健康状况，从而防止这一疾病在社区的进一步传播。我们过去为 SARS 和 MERS 做了同样的工作。所以总的来说，我认为对这些患者进行及时识别首先有助于减少疾病在社区中的进一步传播。其次也为这些患者提供充分的支持性治疗提供了可能性。

Bob Barrett:
Do we have a cure or vaccine for this new coronavirus?

鲍勃·巴雷特（Bob Barrett）：

是否有针对新型冠状病毒的治愈方法或疫苗？

Dr. Leo Poon:
There are several groups which are actively working on this. And of course, we have the experience from SARS and MERS so that we should be able to come up with some possible options much quicker than before. But it would take time, for example, we have to evaluate the efficacy of these vaccines. We have to develop better animal model to validate these vaccines. And also, we need to confirm it is safe to be used in humans. So, it would take time but I don't think we will be able to rely on these vaccines immediately. It would take time. For the cure, there are other people also trying to identify some drugs, which are able to control, the disease process.

潘烈文博士：

有一些科研组织正在积极研究这一问题。当然，我们已经拥有 SARS 和 MERS 的经验，

因此应该能够比以前更快地提出一些可能的选项。但是这需要时间，例如，我们必须评估可能疫苗的功效。我们必须建立更好的动物模型来验证这些疫苗。并且我们需要确认疫苗在人类中使用是安全的。因此这都需要时间，所以我认为疫苗无法很快成为我们可以依赖的解决方法。这需要时间。对于治疗方案，其他研究者也在尝试研发能够控制疾病进程的药物。

Again, that has to be evaluated by a good clinical trial. So, we have to wait and see. Right now, there may be some educated guess to identify some of the possible drugs for treating these patients. But then, we need further evidence to support that.

同样，治疗方案必须通过规范的临床试验进行评估。因此我们必须拭目以待。目前可能会有根据一些以前对其他病毒的经验来选择可能有用的药物在患者中使用。但是我们需要进一步的证据来支持这一点。

Bob Barrett:
Well, finally, Dr. Poon, you've been a guest in the past on podcasts from Clinical Chemistry speaking about new viruses that have originated in the People's Republic of China, you mentioned now, SARS for example. What's unique about this type of virus and the country of origin that may contribute to this pattern?

鲍勃·巴雷特（Bob Barrett）：

好的，潘博士，您过去曾是《临床化学》杂志的播客嘉宾，谈到了源自中国的新病毒们，例如您现在提到的 SARS。这种病毒和病毒的来源国有何独特之处，导致了这种疾病模式？

Dr. Leo Poon:
There are many coronaviruses in all walks of life. Basically, there are a lot of viruses like these in animals. I think the situation of SARS and now the current situation is because there is very close contact of human to wild animals. So, basically that facilitates the possibility of zoonotic transmissions. I think as long as there is such thing, we shouldn't allow people who can have a host close contact with wild animal. That is a problem. And then now, in China they also consume wild animals and they also trade a lot of our animals in the community. So, that may be the issue. I think, for the future

not only China but also other countries, we have to consider how we can provide safe food to our public, so that we can prevent such zoonotic transmission in the community that may be leading to a major outbreak like now.

潘烈文博士：

冠状病毒存在于许许多多的地方。动物中有很多像这样的病毒。我认为 SARS 的情况以及现在的情况是因为人类与野生动物有非常紧密的接触。因此这大体上促成了人畜共患病传播的可能性。我认为，因为这样的可能性，我们不应该允许人们大量密切接触野生动物。这会造成问题。在中国，野生动物被作为食物消费，并且许多动物交易在社区中进行。这会引来风险。我认为未来不仅对于中国，也包括其他国家，我们都必须考虑如何为公众提供安全的食物，以便我们能够防止像现在一样大规模暴发的人畜共患病在社区中传播。

Bob Barrett:
Leo Poon is a professor in the School of Public Health in the University of Hong Kong. He is a molecular virologist and he researches on emerging viruses at animal human interface such as SARS, coronavirus, and animal influenza virus. He's been our guest in this podcast from Clinical Chemistry addressing a new coronavirus that originated in Wuhan, China at the end of 2019. Their paper is available online now and will appear in the April 2020 print edition of the journal Clinical Chemistry. I'm Bob Barrett. Thanks for listening.

鲍勃·巴雷特（Bob Barrett）：

潘烈文是香港大学公共卫生学院的教授。他是分子病毒学家，他研究动物和人类间的新兴病毒，例如 SARS、冠状病毒和动物流感病毒。他是本期《临床化学》杂志的播客嘉宾，讲述了一种于 2019 年底起源于中国武汉的新型冠状病毒。他们的论文现已在线发表，并将刊登于 2020 年 4 月的《临床化学》杂志印刷版上。我是鲍勃·巴雷特。感谢收听。