**The Wuhan Virus**

Author: N/A
Major: BUS
Department of Microbiology and Molecular Genetics, Oklahoma State University, Stillwater, OK 74078, USA

**Key Words: Coronavirus, outbreak, pandemic, Chinese virus, epidemic**

**On 30 January 2020, the World Health Organization declared a global health emergency. With 7,818 confirmed cases and more than 100 dead, the Coronavirus has continued to grow over the past several weeks. Currently, nearly 99% of all cases have been reported in China, but the virus has spread to 18 countries including Japan, Germany and the United States. It has also nearly doubled in the number of confirmed cases, on multiple occasions now, in the span of just 2-days. Scientists are faced with many questions unanswered such as how the virus is transmitted, how it can be cured and how to slow its spreading to more people. With how quickly it is growing and the lack of information coming from China, there is a lot to learn. While there may be no time limit, the pressure is on. As the clock ticks, the potential for loss of life grows and it’s a race to find answers.**

**Introduction**

The Wuhan Coronavirus (2019-nCoV) is a new viral infection that has become an epidemic in recent weeks. The virus gets its name for its distinctive shape, like a wreath. The virus is common in mammals and birds but in some cases, it can be spread to humans. This is called zoonosis (4). This is the seventh known human coronavirus (4). The virus initially broke out in Wuhan, China, Population 11 million, and is similar to the SARS (a strain of the coronavirus) pandemic of 2002-2003 or the H1N1 pandemic of 2009 (4). The Chinese government closed the doors to and from the city of Wuhan on 23 January 2020 (4). With the number of diagnosed cases rising rapidly, often doubling in number over the course of a day or two, on 30 January the World Health Organization declared the virus a global health emergency (4). As a result, scientists around the world begin working on figuring out answers to their questions. How is the virus spread? Where did it originate? Can it be cured? Those are a few of the many answers we seek to learn through scientific discovery.

**Recent Progress**

Since the first case, which occurred on an unknown date, the virus spread until on 21 January 2020, the virus became notable enough to consider declaring it a public health emergency. It is theorized to have made its first appearance in an animal at the Wuhan market and thought to have an incubation period of three to six days (3). It was thought, the virus was contracted and passed through contact with animals but that seems less likely as it has been verified that has been passed through human-to-human transmission (4). 4 February 2020 the number of cases passes 20,000 in China and over 400 deaths, it has been discussed that it may have spread too far to be contained (4). Chinese labs have become more forthcoming with lab information they have acquired on the virus. Now, scientists are working eagerly and tirelessly, studying samples of the virus and working to understand better how the virus works and spreads. Geneticists are working hard unlocking the secrets of this virus. “Labs in China and Thailand have sequenced the genomes of more than 20 strains found in infected people and have made them publicly available.” (4). Analysis of these strains is ongoing but with this data, they can determine when the virus first emerged and their estimations show November 2019. This information will help them to determine if there are “any genetic changes that might have helped the virus make the jump from animals to humans…looking for signs that the virus has gained further mutations that are enabling it to spread more efficiently to humans” (4). A scientist named Rolf Hilgenfeld, based at the University of Lubeck in Germany, has been attempting to create a coronavirus drug since the SARS outbreak (4). He is hoping to enter Wuhan to test two different compounds on animals (4). Currently, no drugs have been shown to be effective in treating the virus. Likewise, no vaccines are currently licensed.

**Discussion**

Scientists are working hard to learn as much as possible, as quickly as possible, about this new strain. It is clear that there is still a long way to go in understanding this virus and some questions still need answering. Meanwhile others are just now being answered. One of the biggest questions is how the virus is spread. “Monitoring the rate at which new cases appear, and when symptoms began for each case, should reveal how easily the virus passes between humans and whether the outbreak has the potential to persist.” (1) This is vital in determining how quickly and how far the virus can and could potentially spread. It could also reveal the answer to another question. Can the virus be transmitted if the patient is not showing any symptoms If the answer is yes, that makes it all more dangerous. Fortunately, this strain of coronavirus seems far less severe than others. It, thus far, has proven far less potent than SARS, when it comes to death rates. Death rates with SARS were around 11% of all infected people while currently the death rate for the Coronavirus is closer to 3% (4). While some may question the urgency of something with such a low fatality rate, it is important we do what we can to effectively contain the virus. If it continues to circulate and becomes a true endemic, it will become similar to influenza (3). A virus strain that brings its own death toll up annually. Adding another annual respiratory virus to the list that already seems to plague the world is definitely not a desired outcome. In the case that it cannot be stopped, development of a preventative shot, like the flu shot, as well as drugs to combat symptoms, would seem like the next logical step in fighting this virus. For now, it is up in the air still what this virus will do and whether we will get the resources and knowledge together in time to stop its spread. For now, all we can do is research.

**References**

(1) Ewen Callaway & David Cyranoski, 2020, China Coronavirus: Six Questions Scientists are Asking, Nature

(2) Ewen Callaway & David Cyranoski, 2020, Why Snakes Probably aren’t Spreading the New China Virus, Nature

(3) Helen Branswell, 2020, The Coronavirus Questions that Scientists are Racing to Answer, Scientific America, STAT Public Health

(4) N/A, 2020, Coronavirus latest: Updates on the Respiratory Illness that has Infected Thousands of People, Nature

(5) Prof Chaolin Huang, MD et al, 2020, Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China

Dear Editor,

Please find enclosed a modified version of my Microreview manuscript “The Wuhan Virus”. To address the concerns and comments raised by the 2 reviewers, I made the following changes to improve and clarify the manuscript. It is my hope that these changes make the manuscript acceptable for publication in Microreviews in Cell and Molecular Biology.

Sincerely,

Channing Rivers Riggs

**Reviewer 1:**

1. Briefly state if you found the comments of Reviewer 1 helpful or not.

Yes, I found the summarization of weaknesses to be both helpful and yet disagreeable. Only because I felt sure my dates were sound so I was initially confused by the comment.

1. What changes did you make to your manuscript as a result of the comments of Reviewer1?

I changed the way in which I phrased some information as it seemed to confuse the reader. The date was not supposed to reflect the virus’s first ever appearance, that would be impossible, but to document the date in which it became of special note to the scientific community as a possible issue.

**Reviewer 2:**

1. Briefly state if you found the comments of Reviewer 2 helpful or not.

Not helpful in any specific instance aside from confirming that my material is both current and easy to follow along with.

1. What changes did you make to your manuscript as a result of the comments of Reviewer2?

No changes made based off of reviewer 2’s recommendations. They had mentioned possibly solidifying an ending to my manuscript but as the Coronavirus is an ongoing issue, I don’t see any way to solidify an ending that doesn’t exist right now.