ASIA WOMEN LEADERS INTERVIEW

Dr. Chieko Kai (Japan)

Dr. Kai: Thank you very much for your time today. It is a pleasure to be here at this conference today. I teach a class at the University of Tokyo. My name is Chieko Kai, and I was at the Institute of medical science (Institute of Medical Science, University of Tokyo) until March 2019, but I was at the Institute of medical science (Institute of Medical Science, University of Tokyo) until March 2019, but I resigned once. After that, I was a professor of basic research, but I wanted to continue my own research, so I moved to an organization called Institute of Industrial Science (Institute of Industrial Science, The University of Tokyo) as a project specially appointed professor. As to why I am continuing this research, I am leading the CEPI project. Let me give you an overview of the Nipavirus here. Mr. Mendis, are you familiar with the Nipah virus?

Mr. Mendis: No, I do not know.

Dr. Kai: Nipavirus is one of what we call emergent viruses, like coronaviruses.

Mr. Mendis: Is that what you call Nipah virus?

Dr. Kai: Yes, it is.

Mr. Mendis: Is it spelled NIPA?

Dr. Kai: NIPAH. Nipah is the name of the village. It is the name of the village that succeeded in isolating the Nipah virus. Nipah virus first broke out in Malaysia in 1998, and at that time 105 people died and 260 people were infected. It is a very powerful virus with a 45% fatality rate. The government naturally took this virus very seriously. The outbreak occurred suddenly in a pig farm. And it infected pig breeders. They did not know where the virus came from. In fact, it was transmitted from person to person through the pigs. The government destroyed one million pigs, more than half of the land. And we were able to defeat the outbreak at that time. At that time, it was contained. But then the virus was discovered and it turned out that the source of the infection was the fruit bats (bats). Do you know what a fruit bat is? They are bats that eat only fruit and are very friendly animals. So, they live together with pigs and other animals. The pig farm is located in the mountains and has many caves. There are many fruit bats living there. They are flying

around all over the place. Many people have started to study the contagious disease. The symptoms are: high fever, death, high fever, headache, and death. The cause of the disease was not known because the symptoms were flu-like. Then we finally discovered it. Every year, there were outbreaks in Bangladesh and India. The difference is, first of all, the fatality rate, which is about 40% in Malaysia, but 70-90% in Bangladesh and India.

Last year, there was a sudden outbreak, 19 people were infected, 17 died, and the fatality rate was 90%. It is a very dangerous virus. And in Malaysia, it was always from pigs. In Bangladesh and India, human-to-human transmission was confirmed. To begin with, there are not that many pigs in Bangladesh and India. The virus was being transmitted directly from fruit bats to people. That became very problematic. I saw this as a very serious problem. Because I had studied morbilliviruses (measles viruses) for many years. Nipah virus is very similar to the measles virus. So I thought there might be something we could do. And I started research on Nipah virus around 2002 or 2004? I started around 2002 or 2004. And we did a lot of basic research. We suddenly came back to it. Many people are still dying and we wanted to make a good vaccine.

We created a measles virus vaccine vector and made a recombinant vaccine. It worked very well. Hamsters are a very good model for the Nipah virus. We infected hamsters with Nipah virus, and 90% of the infected hamsters died very quickly. They died within 4 days of infection, and most hamsters died within a week. So, all of the hamsters that were given my vaccine candidate were completely healthy with no symptoms. The effectiveness was 100%. It was a very good result. So, of course, I published a paper. I was happy. I thought I could provide this vaccine to Bangladesh immediately.

But I was naive. I did not know that it costs $50 million to provide it as a medicine. We cannot just give this vaccine to them.

And I suffered a lot with this money. I spent three years talking to many companies, talking to governments, talking all over the place. They said, "Your vaccine is great, but we can't fund it. But we can't fund it. Bangladesh is a poor country, and probably 100 people die every year. That's all. We cannot sell the vaccine. We cannot get money from it. Then why should we pay $50 million?" said the company. That is understandable. So we applied for various grants. However, it was difficult to find good grants in Japan. One day, a professor from Stanford University e-mailed me. He also called me. He said that my research was excellent and offered to help. He has now been working in Bangladesh for over 17 years and we became friends. Professor Steve went to Bill Gates and I went to the Japanese government. We still could not get funding. We gave up, gave up, and gave up in tears.

So all of a sudden there was an organization called CEPI, which is an international organization that provides funding for vaccine development in developing countries through a global partnership. He proposed this in Davos and it was approved. And this organization is now able to provide funding, and that is CEPI. And CEPI approached us and asked us if we would like to apply for the grant. We decided to apply, but the conditions were very strict. Normally it takes 10 to 12 years to develop a vaccine, but one of the conditions that Bill Gates gave us was that we had to develop a vaccine in five years. I said, OK, I will do it. Five years is very difficult. So we formed a large coalition. We had people from Europe, people from Stanford University, Bangladesh National Institute, one company in Europe, and so on. We applied as a coalition,

and after a year long, long review process, we were awarded a huge grant of about $30 million. And we started this project. We are still going on, and we are running into a lot of problems, and we are solving them, but we are running into another problem, and that is the Bangladeshi regulatory problem. Normally it takes a year to go through these problems, but we have to go through it in about two months. We have to go through it very quickly. So I was thinking that I would have to talk to the Bangladeshi government in the near future, in a year or six months, when I met Mr. Sasaki. I came to today's meeting because Mr. Sasaki has a connection with Bangladesh and maybe he could help me. That is all.

Mr. Mendis: What Dr. Kai is trying to do is commendable. If you could give us more information, maybe our friends in Bangladesh could help us. India. Like the video you showed us at the beginning of today's meeting, (the LIFE video) one life is worth so much. That it is not a question of the number of people, five or ten, or whatever. It is about how much value we put on one person. So please send me information by email. I can't promise anything, but I hope I can be of some help.

Dr. Kai: Thank you very much. Perhaps Mr. Sasaki can give you his e-mail address.

Mr. Mendis: I can send you a message now. That is not a problem.

Dr. Kai: It is nice to have a friend. Thank you very much for your time today.

Ms. Sasaki: Thank you very much. Connecting Asian women leaders, uniting Asia, working together and encouraging each other to protect our beautiful planet. Asia is one. That is our dream. Now is the time. I think this Nipah virus vaccine project is a very wonderful project. I think it is essential to protect the lives of people in Asia. Thank you, Mendy, for your warm and kind support. That's all for today.

Ujiie: Thank you very much for joining us today, Mendee. It was very encouraging for us. I hope that you and Dr. Kai will build a new bridge to Bangladesh and India.
Hope to see you again. Thank you very much.

Ms.Sasaki: Thank you very much for your valuable time.

All: Thank you very much!

Asian Women Leaders Forum, Inc.
Chairman Ai Sasaki

Professor Emeritus of the University of Tokyo
Dr. Keiko Kai

「We want to reach people who need the vaccine as soon as possible.」

Professor Emeritus of the University of Tokyo Dr. Keiko Kai

Graduated from the Department of Veterinary Medicine, Faculty of Agriculture, University of Tokyo in 1978, and completed the doctoral course at the University of Tokyo Graduate School in 1983. Veterinarian Doctor of Agriculture. Since 1999, he has been a professor at the Institute of Medical Science, the University of Tokyo. Within the institute, he has served as the director of the Experimental Animal Research Facility, the director of the Amami Disease Animal Research Facility, the director of the Human Disease Research Center, and the deputy director. He is also a professor at the Center for Infectious Diseases International Research. Outside of university, he is a regular member of the Science Council of Japan. He has served as chairman of the National University Corporation Animal Experiment Council, member of the Science and Technology Council of the Ministry of Education, Culture, Sports, Science and Technology, vice chairman of the Scientific Research Fund Subcommittee, chairman of the subsidy examination subcommittee, and member of the Central Pharmaceutical Affairs Council of the Ministry of Health, Labor and Welfare. After retiring from the Institute of Medical Science, he is now a specially appointed professor at the Institute of Industrial Science, University of Tokyo.

Started virus research in 1990. In 2005, he succeeded in artificially synthesizing Nipah virus for the first time in the world, working on a small-scale epidemic of Nipah virus infection in Asia such as Malaysia and Bangladesh. We are working on elucidating the mechanism of emerging infectious diseases that spread damage across species and developing vaccines that can completely protect against

Nipah virus. For various paramyxoviruses (measles virus, canine temper virus, bovine epidemic virus, nipavirus), we are developing a reverse genetics system, elucidating the pathogenic mechanism and developing and researching defense methods, especially in the Asian region. For the lethal nipavirus that emerged, we succeeded in developing the world's first technology, which brought progress to basic research and also succeeded in developing a bivalent vaccine using a recombinant measles virus vector. Currently, with the support of the Coalition for Epidemic Preparedness Innovations (CEPI), we are promoting practical research through international joint research. In this international joint research, CEPI has decided to provide a total of 31 million dollars (about 3.44 billion yen) for the anti- Nipah virus vaccine practical development research developed by Professor Kai and others. This is the first project in Japan that has been adopted. We have developed an oncolytic recombinant measles virus and are promoting practical research.

Guest: Mr. Charles Mendis, American Breakfast Asia, / Professor Emeritus, The University of Tokyo
Chieko Kai, Minutes prepared by Nao Ujiie