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Shi Zhengli

Shi Zhengli (simplified Chinese: 石正丽; traditional Chinese: 石正麗; born 26 May 1964) is a Chinese virologist who researches SARS-like coronaviruses of bat origin. Shi directs the Center for Emerging Infectious Diseases at the Wuhan Institute of Virology (WIV). In 2017, Shi and her colleague Cui Jie discovered that the SARS coronavirus likely originated in a population of cave-dwelling horseshoe bats in Xiyang Yi Ethnic Township, Yunnan.[1] She came to prominence in the popular press as "Batwoman" during the COVID-19 pandemic for her work with bat coronaviruses.[2] Shi was included in *Time magazine's* 100 Most Influential People of 2020.[3]

Contents

Early life and education

Shi was born in May 1964 in Xixia County, Henan.[4] She graduated from Wuhan University in 1987 with a bachelor's degree in genetics.[5] She received her master's degree from the Wuhan Institute of Virology of the Chinese Academy of Sciences (CAS) in 1990, and she received her PhD at the Montpellier 2 University in France in 2000, where she gained fluencey in French.[6][7]

Career

In 2005, Shi Zhengli and colleagues found that bats are the natural reservoir of SARS-like coronaviruses.[8][9][10] In 2008 Shi led a research team which studied binding of spike

Shi Zhengli

Born	26 May 1964 Xixia County, Henan
Education	Wuhan University Wuhan Institute of Virology Montpellier 2 University
Known for	Research into bat viruses
Scientific career	
Fields	Virology
Institutions	Wuhan Institute of Virology Chinese Academy of Sciences (CAS)
Chinese name	

Simplified Chinese	石正丽
Traditional Chinese	石正麗
Transcriptions	
Standard Mandarin	
Hanyu Pinyin	Shí Zhènglì

proteins of both natural and chimaeric SARS-like coronaviruses to ACE2 receptors in human, civet and horseshoe bat cells, to determine the mechanism by which SARS may have spilled over into humans.[11][12] In 2014, Shi Zhengli collaborated on additional gain-of-function experiments led by Ralph S Baric of the University of North Carolina, which showed that two critical mutations that the MERS coronavirus possesses allow it to bind to the human ACE2 receptor,[13] and that SARS had the potential to re-emerge from coronaviruses circulating in bat populations in the wild.[14] Shi and her colleague Cui Jie led a team which sampled thousands of horseshoe bats throughout China. In 2017, they published their findings, indicating that all the genetic components of the SARS coronavirus existed in a bat population in Xiyang Yi Ethnic Township, Yunnan.[1] While no single bat harbored the exact strain of virus which caused the 2002-2004 SARS outbreak, genetic analysis showed that different strains often mix, suggesting that the human version likely emerged from a combination of the strains present in the bat population.[1]

Shi is the director of the Center for Emerging Infectious Diseases at the Wuhan Institute of Virology (WIV), located in Jiangxia District, Wuhan.[15]

2020

During the COVID-19 pandemic, Shi and other institute scientists formed an expert group to research Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[16][17] In February 2020, researchers led by Shi Zhengli published an article in *Nature* titled, "A pneumonia outbreak associated with a new coronavirus of probable bat origin", finding that SARS-CoV-2 is in the same family as SARS, and that it has 96.2% genome overlap with the most closely related known coronavirus, RaTG13.[18] In February 2020, her team published a paper in *Cell Research* showing that remdesivir and chloroquine inhibited the virus in vitro, and applied for a patent for the drug in China on behalf of the WIV.[19][20][21] The granting of this patent by China raised concerns about intellectual property rights in an international context.[22] Shi co-authored a paper labelling the virus as the first Disease X.[23]

In February 2020, the *South China Morning Post* reported that Shi's decade-long work to build up one of the world's largest databases of bat-related viruses gave the scientific community a "head start" in understanding the virus.[24] The *SCMP* also reported that Shi was the focus of personal attacks in Chinese social media who claimed the WIV was the source of the virus, leading Shi to post: "I swear with my life, [the virus] has nothing to do with the lab", and when asked by the *SCMP* to comment on the attacks, Shi responded: "My time must be spent on more important matters".[24] In a March 2020 interview with *Scientific American*, where she was called China's "Bat Woman",[25] Shi said "Bat-borne coronaviruses will cause more outbreaks", and "We must find them before they find us."[2] Leading virologists have disputed the idea of SARS-CoV-2 leaking from a lab.[26][27] Peter Daszak of the EcoHealth Alliance, which studies emerging infectious diseases, has noted estimates that 1–7 million people in Southeast Asia who live or work

in proximity to bats are infected each year with bat coronaviruses.[26][27] In an interview with Vox, Daszak comments, "There are probably half a dozen people that do work in those labs. So let's compare 1 million to 7 million people a year to half a dozen people; it's just not logical."[27]

Service and honours

Shi is a member of the Virology Committee of the Chinese Society for Microbiology. She is editor-in-chief of *Virologica Sinica*,[28] the *Chinese Journal of Virology*, and the *Journal of Fishery Sciences of China*.

- 2016 Chevalier of the Ordre des Palmes académiques[29]
- 2018 State Natural Science Award (Second Class)[30]
- February 2019 Fellow of the American Academy of Microbiology (AAM)[31]

See also

- Wuhan Institute of Virology
- COVID-19 misinformation

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