Surveillance of Equine Influenza in China

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- State Key Laboratory for Animal Disease Control and Prevention
- National High Containment Facilities for Animal Disease Control and Prevention
- National Avian Influenza Reference Laboratory
- National Contagious Bovine Pleuropneumonia Reference Laboratory
- National Glanders Reference Laboratory
- National Equine Infectious Anemia Reference Laboratory

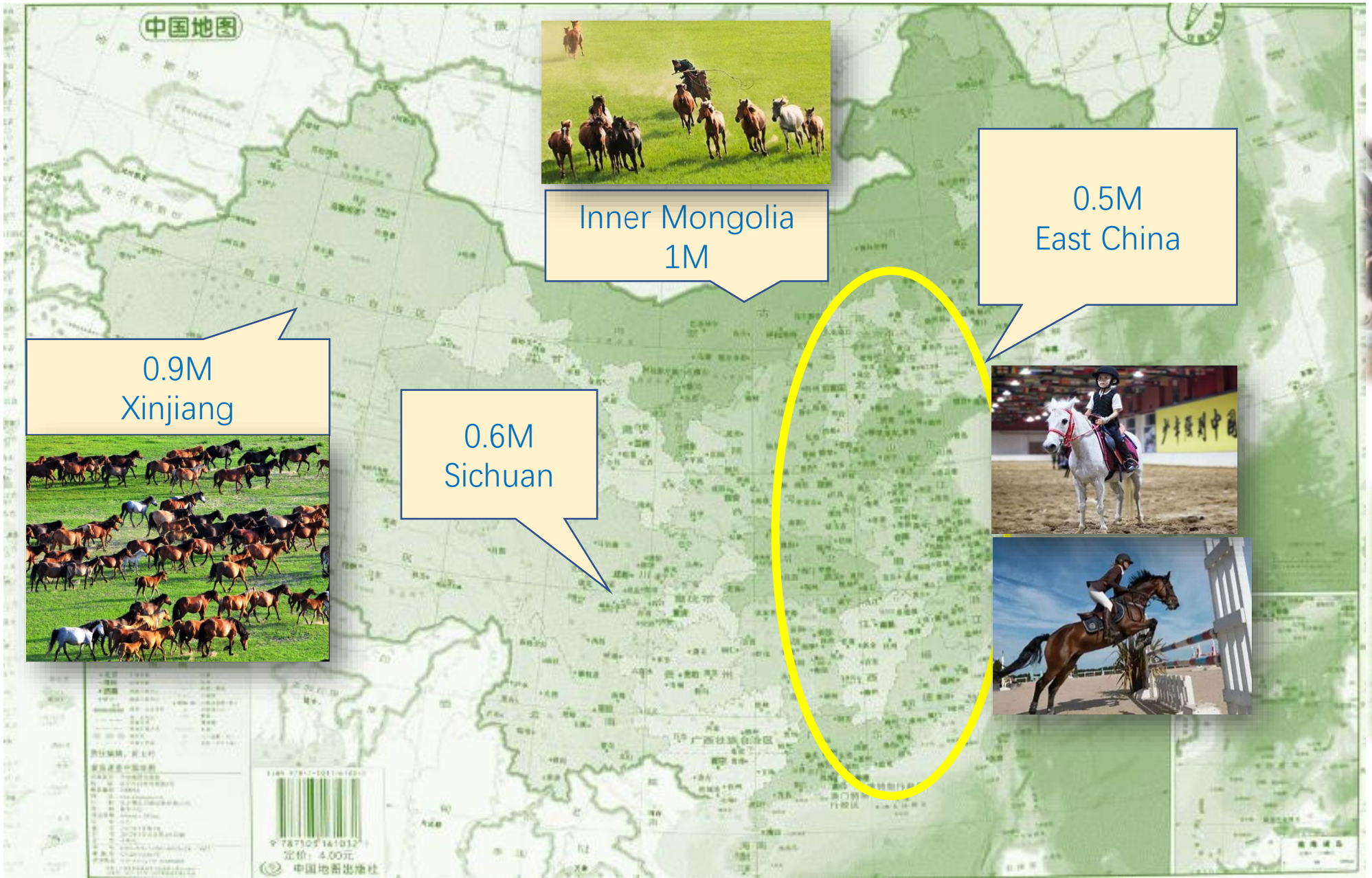
- FAO Reference Centre for Animal Influenza
- WOAH Reference Laboratory for Avian Influenza
- WOAH Reference Laboratory for Equine Infectious Anemia
- WOAH Reference Laboratory for Infectious Bursal Disease
- WOAH Collaborating Centre for Zoonoses of Asia - Pacific

Horses and Donkeys in China

Horses: 3.5 millions

donkeys: 2.6 millions

Populations of horses in China---3.5M



Donkeys
2.6 M

International and national transportation of horses

- International trade:
  - ✓ 3000+ horses each year imported for breading purpose from 2005 to 2019
  - ✓ Few horses export to other countries.

- National trade and transportation:
  - ✓No statistic number for horse movement national-wide

EQUINE INFLUENZA SURVEILLANCE 2021-2022

Vaccination status	Number of locations	Number of samples taken	Horses /donkeys	Test used	Result
Vaccinated	Guangdong	1506	Horses	HI	1442 positive
Non vaccinated	Tibet	60	Horses	HI	4 positive
	Inner Mongolia	15	Horses	Real time RT-PCR	0 positive
	Inner Mongolia	290	Donkeys	Real time RT-PCR	0 positive
	Hebei	25	Horses	Real time RT-PCR	0 positive
unknown	Tianjin	146	Horses	HI	94 positive
	Hubei	66	Horses	Real time RT-PCR	0 positive
	Zhejiang	51	Horses	Real time RT-PCR	0 positive
	Tianjin	146	Horses	Real time RT-PCR	0 positive
	Beijing	48	Horses	Real time RT-PCR	0 positive

EI strains isolated in China

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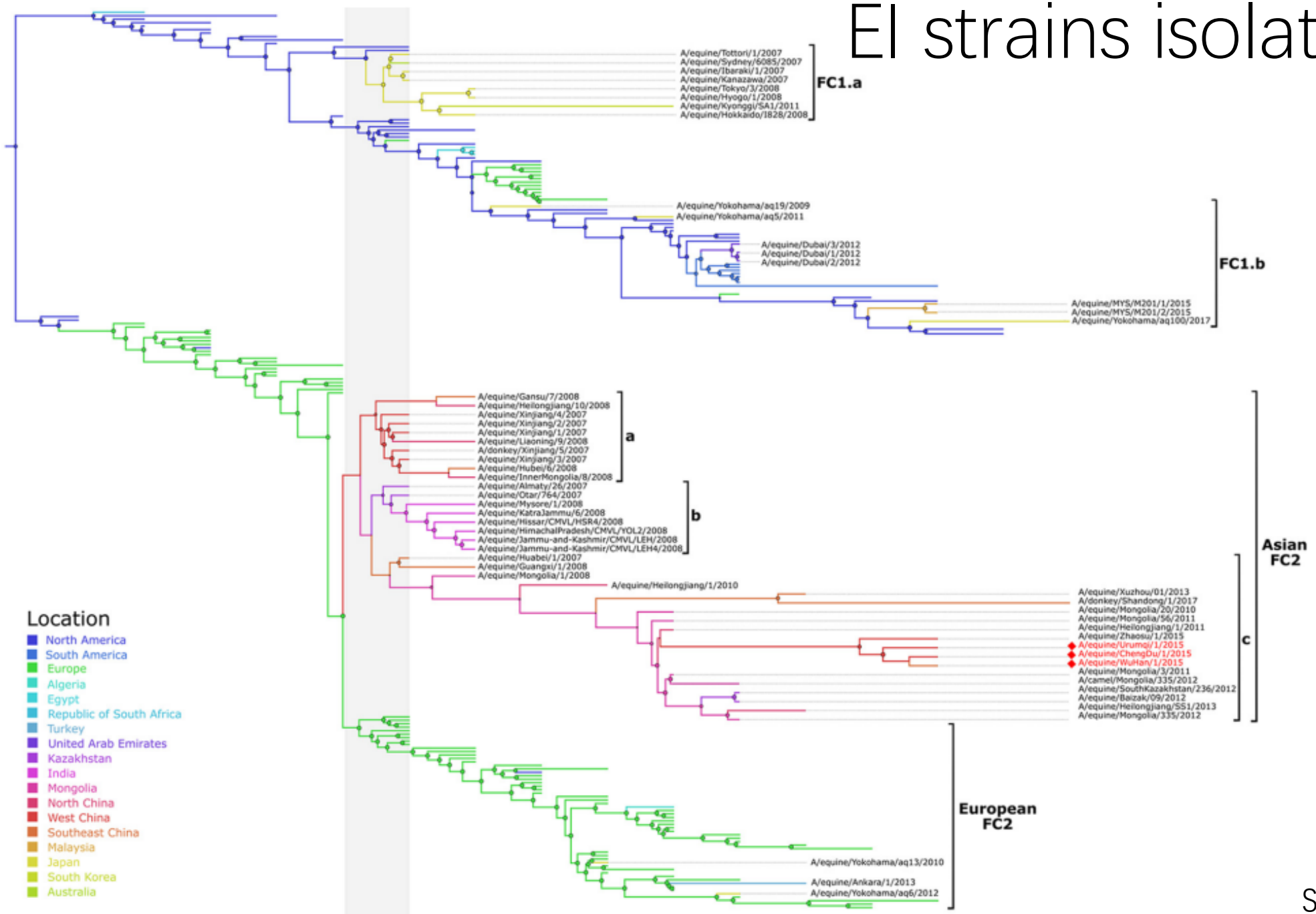
GENETIC DIVERSITY AND EVOLUTION

Equine Influenza Virus in Asia: Phylogeographic Pattern and Molecular Features Reveal Circulation of an Autochthonous Lineage

Samuel Miño,[a,b] Laura Mojsiejczuk,[c,d] Wei Guo,[a] Haili Zhang,[a] Ting Qi,[a] Cheng Du,[a] Xiang Zhang,[a] Jingfei Wang,[a] Rodolfo Campos,[c,d] Xiaojun Wang[a]

Samuel et al. J Virol 2019

EI strains isolated in China



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Molecular Epidemiologically linked location of Asian EI strains

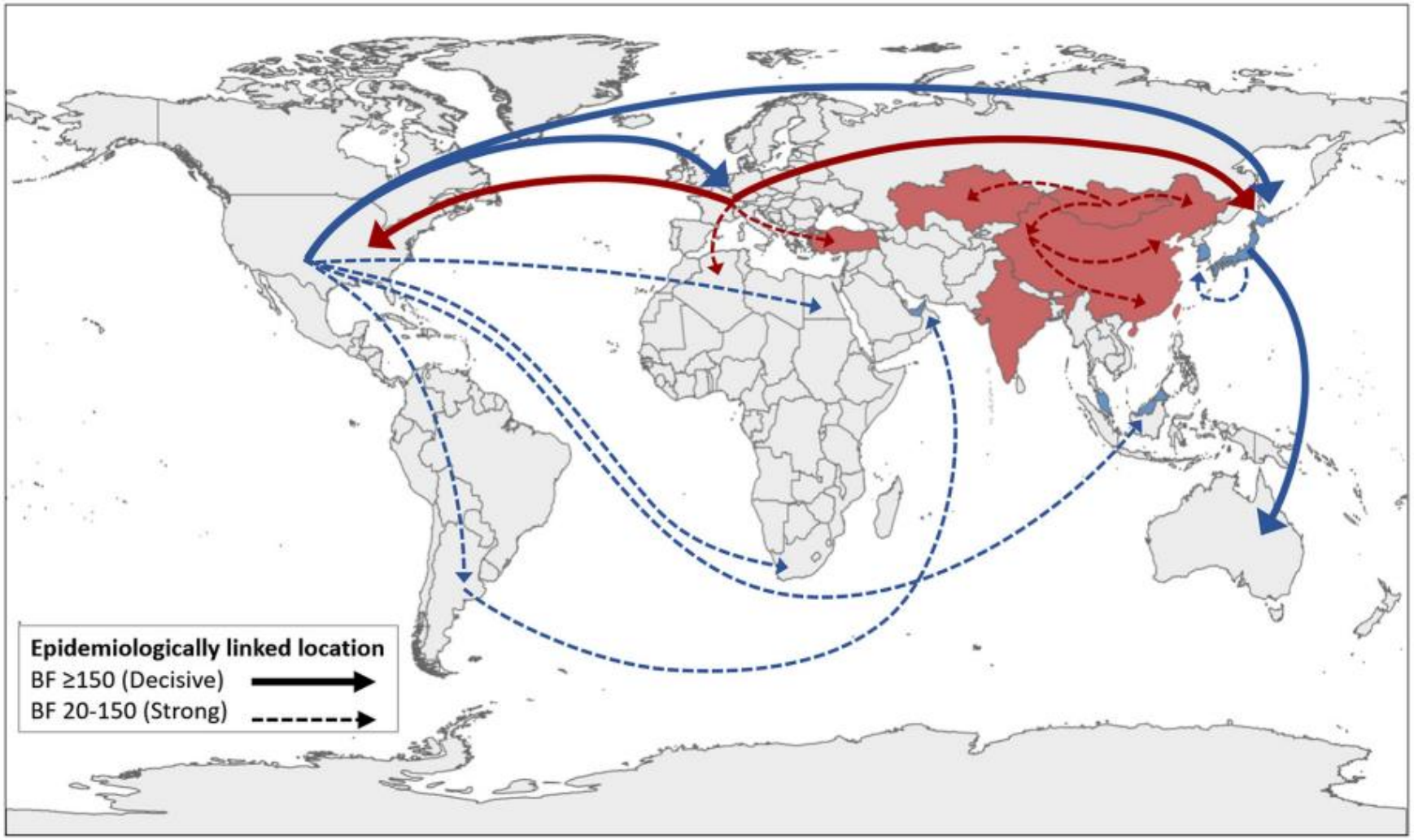

FIG 4 Epidemiologically linked locations. The FC1 circulation is plotted in blue and that for FC2 in red. The figure shows all the nonzero rates with significant epidemiological links (Bayes factor [BF] ≥ 20). Asian countries with HA1 sequences available and included in the analysis are highlighted in blue and red. The map data were obtained from the National Geomatics Center of China (NGCC) and compiled by using QGIS 3.4 (https://www.qgis.org).

Diagnostic kit developed for EI in my lab

Equine influenza	Reagents of H3N8 Subtype antigens and negative and positive serum for Hemagglutination inhibition (HI) assay
	Equine Influenza cELISA Antibody Test Kit
	Equine Influenza RT-PCR Detection Kit
	Equine Influenza Virus One-Step fluorescent RT-PCR Detection Kit (Probe Method)
	Equine Influenza Virus Detection Kit (Multi-Enzyme Isothermal Amplification Method)
	Equine Influenza Virus Antigen-capture ELISA (AC-ELISA) Kit
	Equine Influenza Virus Antigen Test Card (Colloidal Gold Method)

The OIE Reference Laboratory Twinning for Equine Influenza between Irish Equine Center and Harbin Veterinary Research Institute

2011-2015

Assays developed during the twinning

- HA
- HI
- SRH
- Virus isolation
- RT-PCR
- Virus typing

Vaccination Policy of EI in China

- No commercialized EI vaccine available in China mainland
- Racing horses are recommended to be vaccinated
- Small amount of vaccine were imported to be used for the members of Chinese Horse Industry Association
- An inactive vaccine (H3N8 clade2) is under evaluation now by the authority.

Thank you!

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