



I.S. Symposium

May 2nd
2025

The Plague (*Yersinia Pestis*) in China: From Historical Perspectives to Modern Day Genetics

Emily Winnicki

Advisors:

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Dr. Margaret Ng



THE COLLEGE OF
WOOSTER

What is the plague?



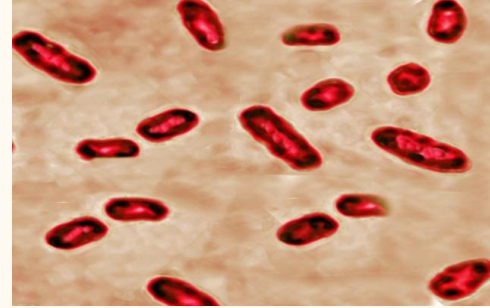
Siena, Italy



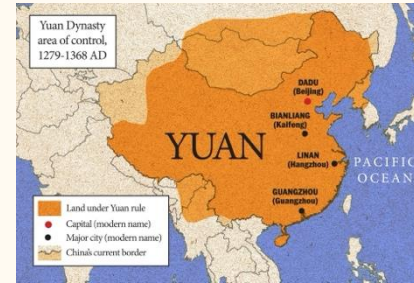
Plague Doctor
Plushie



“Bring out yer Dead”
– Monty Python



Yersinia Pestis



Modern Humans



A historical map of China and surrounding regions, including Mongolia, Manchuria, and the Bay of Bengal. The map is titled 'CHINESE EMPIRE' at the bottom. It shows various geographical features, rivers, and cities. The text 'Questions' is overlaid on the map in a large, bold, black font.

Questions

1. What insights can historical Chinese medical texts provide about the plague?
2. Did the plague (*Yersinia pestis*) exert selective pressure leading to the evolution of our immune system?

Very Brief Overview of Chinese Medical Traditions



Medical Lineage and Training



Materia Medica



Epidemics

Wen Qiong

Was the plague in China?

靳州儒學生員男李建木
生員孫李樹宗
生員孫李樹聲
生員孫李樹勳
荆府引禮生孫李樹本
金陵後學胡承龍

太醫院醫士男李建方

“The plague frightened and killed. It began in the land of darkness. Oh, what a visitor! It has been current for fifteen years. China was not preserved from it, nor could the strongest fortress hinder it.”

- Abū Ḥafs ‘Umar Ibn al-Wardī
Essay on the Report of Pestilence
(ca. 1348)



How bubonic plague rewired the human immune system

14 March 2024

David Cox

Features correspondent

Genes protective during the Black Death may now be increasing autoimmune disorders

December 1, 2022

By Robert H. Shmerling, MD, Senior Faculty Editor, Harvard Health Publishing; Editorial Advisory Board Member, Harvard Health Publishing

Black Death survivors gave their descendants a genetic advantage — but with a cost

UPDATED OCTOBER 21, 2022 · 1:07 PM ET

HEARD ON [ALL THINGS CONSIDERED](#)



Michaela Doucleff

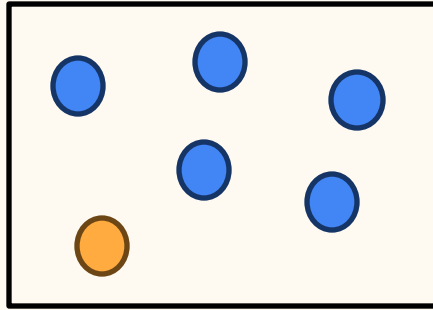
NEWS | 19 October 2022

Bubonic plague left lingering scars on the human genome

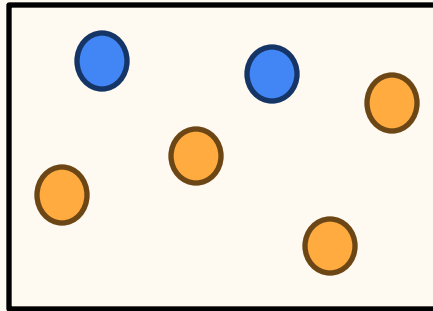
Genes that might have aided survival during the Black Death are now linked to autoimmune disorders.

By [Heidi Ledford](#)

Did Evolution Occur?



Historic Population



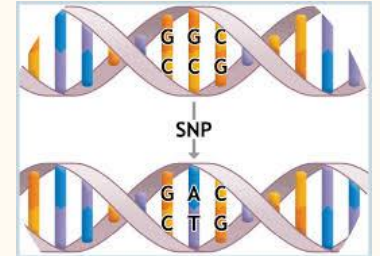
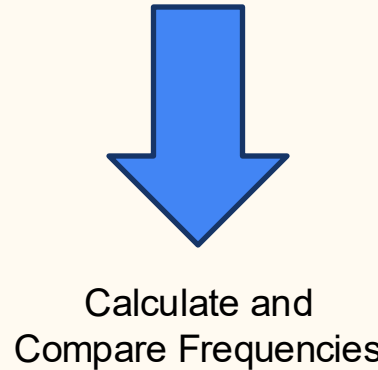
Modern Population


SNPs Data for Individuals from China

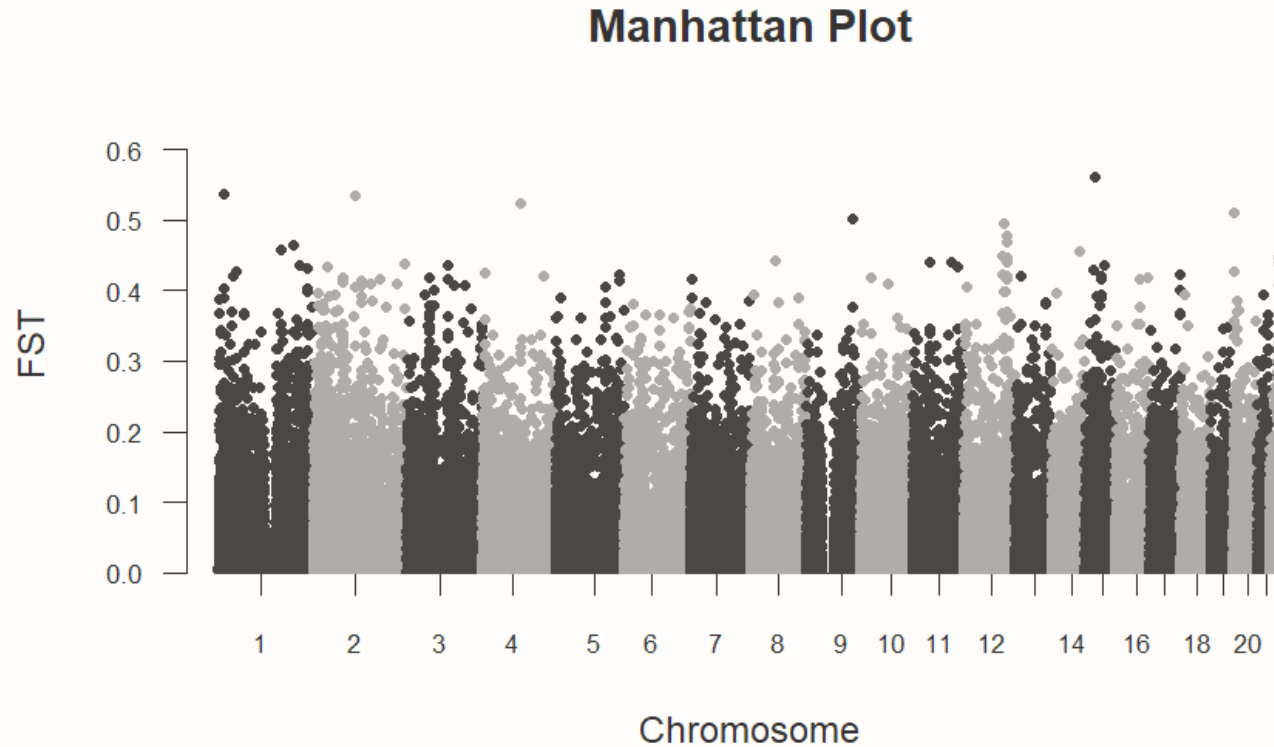


Pre-1368

Post-1368



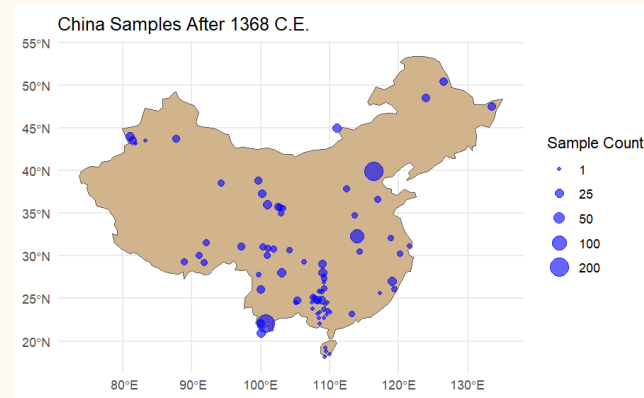
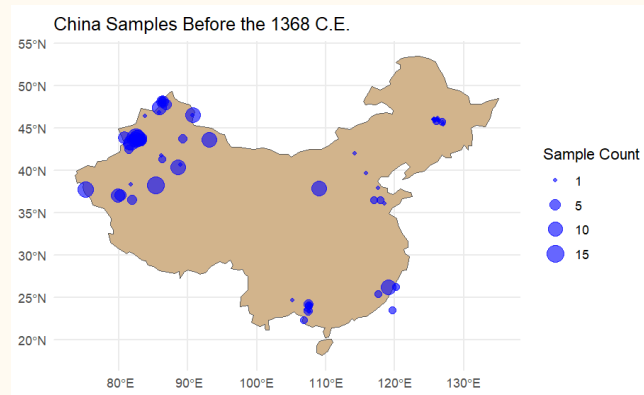
Evolution Did Occur, But Was It Due To The Plague?



Maybe, however...

More Research is Needed

- Functional Analysis of SNPs
 - More Data
 - More Controlled Study Cohorts
 - Interdisciplinary Research
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Thank you!

- Dr. Dean Fraga
- Dr. Margaret Ng
- Dr. Stephanie Strand
- Dr. Bill Morgan
- Dr. Madonna Hettinger
- Denise Monbarren
- Copeland Committee

Questions?

