



## July 2017 Her Story ENewsletter Research Scientists

The recent obituary of Dr. Angela Hartley Brodie was titled "Scientist Paved Way for a Breast-Cancer Treatment." Dr. Brodie's accomplishments are significant and she stands on the shoulders of those who came before her. In this E-Newsletter we profile two research scientists who made ground-breaking contributions: Nettie Stevens and Flossie Wong-Staal.

Geneticist, cytologist, and embryologist, Nettie Stevens discovered that the sex of an organism was determined by the inheritance of a specific chromosome - X or Y - now referred to as the XY determination system. One of the first American women to be recognized for her contributions to scientific research, Stevens was born in 1861. As was the expectation for many women of her time, she was educated to become a teacher. Most unusually for the time, she pursued undergraduate and graduate education at Stanford University, enrolling in 1896 when she was in her thirties; she received her Ph.D. in cytology at Bryn Mawr College in 1903. While at Bryn Mawr, she had many opportunities afforded by scholarships and fellowships including study at the University of Wurzburg in Germany and at the Zoological Station in Naples, Italy.



**Netti Stevens**

Stevens loved science! She was hired by Bryn Mawr after receiving her doctorate; her research work was funded from 1903 to 1905 by a grant from the Carnegie Institution. Working with the meal worm, Stevens found that the male produced two kinds of sperm - X (larger) and Y (smaller). All unfertilized eggs were the same size and all had only X chromosomes. She theorized that females resulted from XX and males resulted from XY. Although her theory was not accepted at the time, it was important to the field of genetics and understanding gender. The author of many significant publications who tragically died young, Stevens has been inducted into the National Women's Hall of Fame.



### **Flossie Wong-Staal**

Virologist and biologist Flossie Wong-Staal was the first person to clone human immunodeficiency virus (HIV), which was a major step in proving it was the cause of acquired immune deficiency syndrome (AIDS). Wong-Staal's work led directly to treatment of the disease. She was born in China and moved with her family to Hong Kong. Her undergraduate and graduate education was in bacteriology (B.S.) and molecular biology (Ph.D.) from the University of California - Los Angeles. She was the first female in her family to attend college.

Wong-Staal began her research on retroviruses at the National Cancer Institute. Within two years, she had cloned and genetically mapped the entire HIV sequence, leading to greater understanding and the ability to develop treatments for AIDS. Wong-Staal subsequently joined the faculty at the University of California - San Diego. Today, as professor emerita, she founded a drug development company that is working on improving treatments for Hepatitis C.

Nettie Stevens and Flossie Wong-Staal are among the more than 850 women profiled in our book *Her Story: A Timeline of the Women Who Changed America*. Women's accomplishments continue to inspire and encourage us. Help us to tell women's stories!

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