

## **Esther Miriam Zimmer Lederberg, Ph.D. (1922-2006) — An abridged CV**

Esther Miriam Zimmer Lederberg was born in the Bronx, New York, on December 18, 1922, and died of complications of congestive heart failure on November 11, 2006. She came into young adulthood as her family struggled to survive financially during the Great Depression. A young woman of unsurpassing intellect, she entered New York's Hunter College in 1938, at the age of 16.

(Hunter was an ideal situation for a student of high intellect but modest financial means: highly competitive, but determined to keep class sizes small. Students struggled to keep their grades up so that they would not be forced to give up their chance for an education.)

Esther obtained a AB at Hunter in 1942, and then proceeded to Stanford with a strong desire to study genetics. Esther earned her MA at Stanford in 1946. At the urging of Edward Tatum, she spent a summer at Hopkins Marine Station in the Monterey Bay, studying microbiology under Cornelius van Niel. She then pursued her doctorate at the University of Wisconsin, Madison (1950). She returned to Stanford in 1959, where she remained a research scientist for the rest of her life.

A partial list of her scientific accomplishments includes:

- United States Public Health Service Fellowship (Wis)
- 1945: Codiscovery (with J. Lederberg) of bacterial conjugation
- 1951: Discovery of the lysogenic bacteriophage  $\lambda$ -phage with transduction in E. coli K-12
- 1952: Developed replica plating, essential in the study of bacterial genetics (specifically, in the selection of mutants from among hundreds and hundreds of bacterial colonies on a plate), and still in use in genetics laboratories today.
- 1952: First observation of F factor
- 1956: Recipient, Pasteur Award Society of Illinois Bacteriologists
- 1957: Fullbright Fellow (Australia)
- 1958: Member of a research team in which Joshua Lederberg won the Nobel Prize in Microbiology.
- 1968-1970: American Cancer Society Sr. Dernham Fellow
- 1976 – 1986: Director, Plasmid Reference Center, Stanford University, whose collection (which has since grown to about 1,000 naturally-occurring plasmids from E. coli, other enteric bacteria, and staphylococcus aureus, and and R-plasmids, was started by Esther Lederberg.

Esther was also a member of several scientific societies: AAAS, Genetics Society of America, the British Society of General Microbiology, and SIGMA Xi.

Esther was a student of such scientific luminaries as George Beadle, Edward Tatum, Cornelius B. van Niel.

Esther was a colleague of Asche, Sir W. Bodmer, H. Boyer, R. A. Brink, L. L. Cavalli-Sforza, S. Cohen, F. Crick, J. F. Crow, S. Falkow, A. Hershey, Y. Hirota, I. Herskowitz, T. Iino, H. Kikkawa, A. and R. Kornberg, S. Luria, B. McClintock, E. Nester, R. P. Novack, L. Pauling, M. Povar, J. Salk, S. Sakaguchi, R. Schmitt, B. Stocker, L. Szilard, A. Taylor, P. Vary, J. Watson, C. Yanofsky, and many others.

Esther's interests included Early Music, and the literature of Dickens and Jane Austen.

She was one of the founding members of the Mid Peninsula Recorder Orchestra, which devotes itself to the performance of Early Music using the original instruments. Esther was an accomplished musician, adept at the soprano recorder, alto recorder, and harp. She last performed in public with MPRO this past May.

Much of Early Music is based on dance. In order to play the music properly, you have to understand the dances. Esther studied dance in the Music Department at Stanford to improve her musicianship, and it fed her existing love of folk dancing.

Esther was a longstanding member of the Palo Alto Dickens Fellowship, and the Jane Austen Society.

Esther loved natural beauty, and was a Charter Member of Monterey Bay Aquarium. Her love for Point Lobos, Point Reyes, Yosemite Park, Death Valley, Torrey Pines, and Mendocino led her to provide donations and support for natural conservation in the Bay Area.