



IN MEMORIAM

Paola S. Timiras

Professor of Cell and Developmental Biology, Emerita
UC Berkeley
1923 – 2008

Paola Timiras, one of the world's foremost experts in the field of the physiology of aging, died suddenly at the age of 85 of heart failure at Summit Medical Center in Oakland on September 12, 2008, after putting in a full day's work. Paola had recently had heart valve replacement surgery and had been doing well, but the heart failure may have resulted from complications resulting from this procedure. She remained highly engaged and active until the very end of her life. In 2001 at age 78, she rounded up colleagues at the University of California, Berkeley, and Lawrence Berkeley National Laboratory to found and codirect the Center for Research and Aging that sponsors educational seminars and provides scholarships for students interested in aging, and starting grants for researchers in the area of biogerontology. At 79, she spearheaded an annual health fair to promote healthy aging and enrolled in a strength training class. At 80, she wrote a book in French on stress and longevity. In her final years she was still teaching her popular lecture courses, supervising research projects for both graduate and undergraduate students, and trying to raise funds to establish a center for aging research. Her many friends and students saw her as being a positively ageless "force of nature." Throughout her career Paola was a dedicated teacher, vigorous researcher, and tireless advocate for the fields of aging, geriatrics, gerontology, and the physiology of human development. She was also cultured, sophisticated, energetic, open, warm, opinionated, feisty, and direct, all overlaid with a quick wit and wonderful sense of humor.

Paola Silvestri was born on July 21, 1923, in Rome, Italy, just after the rise of Italian Fascism under Benito Mussolini. Paola's father, a statistician and strong anti-Fascist, fled the following year to France, where his daughter visited often. Even as a girl, she dreamed of becoming a doctor, just like her grandfather and uncle. Paola was an outstanding student and received the B.A. degree in the humanities from the University of Grenoble, France, and subsequently the B.A and M.D. degrees (summa cum laude) from the University of Rome, Italy. By this time, 1947, she had married a Romanian diplomat, Nicholas Timiras, and when it became apparent that he would be arrested if he returned to communist Romania, they moved to Canada. Paola abandoned bedside medicine to study experimental medicine and surgery at the University of Montreal, where she earned the Ph.D. in 1952, in the laboratory of Hans Selye, known as the "father of stress physiology." Her thesis was on how stress influences the immune system through the effects of adrenocortical hormones. On the strength of her medical training and her excellent research, she was immediately hired there as assistant professor in the Montreal Physiology Department.

Paola and her husband relocated to the United States in 1954, and she taught in the Department of Pharmacology at the University of Utah Medical School for one year before joining the UC Berkeley faculty in the Department of Physiology and Anatomy in 1955. Twelve years later, she was promoted to professor, and chaired the same department from 1978 to 1984. She became a professor in the Department of Molecular and Cell Biology when it was formed in 1989. Paola also used her facility with languages to good purpose, serving for two years as director of the Berkeley Program for Study Abroad in Bordeaux, France, in the

1990s. Paola retired from full-time teaching in the Department of Molecular and Cell Biology in 1994 but was recalled as professor emerita to continue to direct research in her laboratory and to teach her popular courses.

Paola's research was concerned with the role of hormones in regulating brain development, and she became one of the foremost physiologists to study development and aging. When she entered the field in the 1950s, physiology texts dealt only with adult males, and aging was viewed as a form of illness. Paola expanded the study of physiology into all areas of life — men, women, young, and old — and started the fields of developmental physiology and aging. In that spirit she published the first textbook in this field, *Developmental Physiology and Aging*, in 1972. She wanted to understand what causes "healthy aging" and not to concentrate on a single illness associated with older age. She viewed aging as a complex developmental process that is a continuation and culmination of the process of postnatal growth and development that affects every system in the body. This holistic approach is now highly appreciated but was far ahead of its time in those early days. Paola's early research showed that thyroid hormone(s) were critical for normal brain development and also called attention to the deleterious effects of stress hormones on body and brain. In the late 1960s, her studies were the first to show the effects of sex hormones on the electrophysiology of the brain's limbic structures. Her later work demonstrated important roles for the sex hormones — estrogen and testosterone — in controlling neural development and in protecting nerve cells from age-related changes that cause nerve loss. Despite the recent controversy about estrogen replacement treatments for postmenopausal women, she favored it for its protective effect on the brain, with the caveat that there are women at risk for breast cancer who should not take estrogen. Paola also saw genetics and good nutrition as leading factors in regulating the aging process, and her latest research investigated the potential therapeutic effects of dietary supplements and dietary restriction on neural cell growth and cancer.

Paola was prolific during her career and encyclopedic in her knowledge of the physiology of aging. She wrote more than 420 articles in Italian, French, and English, and contributed to and edited more than 15 books. Her most important work was *Physiological Basis of Aging and Geriatrics*, which is in its fourth edition and is considered a classic in the field. She also wrote and edited books on human growth and development, the role of hormones in aging, and the role of stress in aging.

Her interest in development and aging led her to participate in several related societies. She was one of the founders and the first president (1978– 1981) of the International Society of Developmental Neuroscience, as well as vice president and president of the International Society of Psychoneuroendocrinology (1974– 1982). She also served as president of Iota Sigma Pi, the Association of Women Chemists (1970). Paola was a consultant for many government agencies concerned with biological research, she served on the editorial boards of several journals, and she actively fostered international cooperation in biomedical, scientific, and cultural relations. She also wrote and edited books on human growth and development, such as the multivolume *Handbook of Human Growth and Developmental Biology*, as well others on the roles of hormones and stress in aging.

Paola will also be remembered for her enormous impact as a teacher. She loved teaching. She once told a reporter, "You can work diligently all your life, and you might not change the course of things. But if you like to teach, whatever else you do takes on more meaning." Until her death, she continued to teach extremely popular courses in the physiology of aging (one of the first in the country) and the physiology of development. Paola was an amazingly articulate, popular, and talented teacher, and each year hundreds of students enrolled in these classes. Even the emergency room doctor at Summit Hospital where she died had been a former student! Since 1985 she also taught a course, *Multidisciplinary Advances in Aging* that brought students together with senior citizens in nursing homes. She trained nearly 40 Ph.D. students, 20 M.A. students, and 30 postdoctoral fellows and visiting scientists from countries all over the world, as well as supervised more than 50 undergraduate researchers in her lab.

Paola received many awards in recognition of her accomplishments in research and teaching. She was awarded the Gold Medal for Research from the American Aging Association in 1985 and the International Award– Women in Science from the World Association of Business Women in 1998. In recognition of her efforts in fostering international research in aging she received the Andrés Bello Decoration from Venezuela and medals from the University of Pau (France), University of Pisa (Italy) and University of Chieti Medical School (Italy). She received a Leadership Award (2002– 2007) from the National Institute of Aging (NIH) to promote integrative research and education in biogerontology on the Berkeley campus. She was awarded a Recognition Award from UC Berkeley in 1996 for enhancing student academic scholarship, intellectual development, and civic participation through innovative service-learning activities.

Paola is survived by her daughter Mary Letitia Timiras, a geriatrics physician living in New Jersey, and her son, Paul Timiras of Pinole, California. Nicholas Timiras, her husband of nearly 50 years, who had earned a Ph.D. degree in Italian from UC Berkeley in 1978 (at age 66!), died in 1996.

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