

In Memoriam: Dr. Rosalyn Yalow, PhD., 1921–2011

A woman of many achievements, Rosalyn Yalow, Ph.D., was a medical physicist who co-developed the radioimmunoassay (RIA) technique for measuring hormones and other biological substances and became the second woman to win the Nobel Prize in Physiology or Medicine. She died May 30, 2011, in the Bronx, N.Y. She was 89 years old.

Dr. Yalow was also the first female and first Nobel Laureate to become President of The Endocrine Society (1978–1979).

In her RIA work, she and Solomon A. Berson, M.D., used radioactive tracers and antibodies to measure hormones that were difficult to detect because of their extremely low concentrations in the body. RIA ushered in a new era in the field of endocrinology, making possible major advances in diagnosing and treating hormonal problems related to diabetes, growth, thyroid function, and fertility.

The test can also be used to measure the levels of vitamins and viruses. Today, blood banks use it to screen blood for the hepatitis virus. RIA and its variation called ELISA, which uses enzymes or fluorescent markers, are widely used in medical and clinical research labs.

The technique “brought a revolution in biological and medical research,” the Karolinska Institute in Sweden said in awarding Dr. Yalow, along with Andrew V. Schally, M.D., Ph.D., and Roger Guillemin, M.D., Ph.D., the Nobel Prize in 1977. (Dr. Berson would have shared the prize but he died before the award was given.)

Born Rosalyn Sussman in New York City on July 19, 1921, she was a daughter of parents who never finished high school. Her father, Simon Sussman, sold packaging materials and her mother, formerly Clara Zipper, was a homemaker.

Dr. Yalow attended Walton High School and graduated at age 19 magna cum laude from Hunter College, a public college for women that is now part of the City University of New York. She was the school’s first female physics major.

Her first job was a part-time secretarial job with Rudolf Schoenheimer, M.D., a biochemist at Columbia University College of Physicians and Surgeons. During World War II mobilization, which opened more doors for women to fill spots left empty by enlisting men, she earned a spot as a graduate student and teaching assis-



tant in the physics department at the University of Illinois at Urbana-Champaign.

There she met Aaron Yalow, a fellow physics graduate student. They married in 1943, had two children, Benjamin and Elanna Yalow who, along with two grandchildren, survive Dr. Yalow. Her husband died in 1992.

After receiving her doctorate in nuclear physics from the University of Illinois in 1945, Dr. Yalow went to teach at Hunter College the following year. When she could not find a research position, she volunteered to work in a medical lab at Columbia University. There she was introduced to the new field of radiotherapy.

Dr. Yalow joined the Bronx Veterans Administration Hospital, now the James J. Peters Veterans Affairs Medical Center, at first part-time in 1947 and then full-time in 1950. During this period, she had equipped a janitor’s closet as a functioning lab and published 8 clinical papers with Bernard Roswit, M.D., and other physicians. It was in 1950 that she met and started her 22-year collaboration with Dr. Berson, who died in 1972, and developed the RIA. Dr. Berson’s death deeply affected Dr. Yalow; she named her lab in his honor so that his name could continue to appear on her published research.

Their research collaboration consisted of Dr. Yalow’s expertise in nuclear counting techniques and Dr. Berson’s

clinical expertise on diabetes. Their first project used radioisotopes to estimate blood volume. However, their first major contribution was a study of how the thyroid gland and kidneys remove iodine from the blood. They then applied their methods to insulin. Dr. Yalow had a personal interest in insulin, because her husband suffered from diabetes. Drs. Yalow and Berson were the first to prove that peptides such as insulin could stimulate an immunologic response or the production of antibodies. This finding was not readily accepted in the scientific community because it was believed that peptides were too small to be recognized by the immune system. They had difficulty publishing the paper, but succeeded in 1959. Soon others confirmed their data and their work's significance became known.

Dr. Yalow was elected to the National Academy of Sciences in 1975 and received the Albert Lasker Medical Research Award, often a precursor to the Nobel, in 1976. At her death, she was senior medical investigator emeritus at the James J. Peters Veterans Affairs Medical Center Bronx and the Solomon A. Berson distinguished professor-at-large at Mount Sinai School of Medicine in New York City.

Five years after she received the Nobel, Dr. Yalow spoke to a group of schoolchildren about the challenges and opportunities of a science career. "Initially, new ideas are rejected," she told them. "Later they become dogma, if you're right. And if you're really lucky you can publish your rejections as part of your Nobel presentation!"

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