

A Second-Generation Success Story

Dr. Janice Gabrilove, daughter of a Mount Sinai legend, has forged a distinguished career of her own.

By Philip Berroll

As a child, Janice Gabrilove did not dream of a career in medicine – “I was thinking more of going into the performing arts,” she recalls. This is surprising, considering her family background: her father is Dr. J. Lester Gabrilove, a pioneering endocrinologist and a longtime leader of Mount Sinai’s Division of Endocrinology, Diabetes, and Bone Disease (which is named for him and his late wife Hilda).

But Janice later changed her mind – and has had a distinguished medical career in her own right as a researcher, educator and clinician.

Dr. Gabrilove is James F. Holland Professor of Medicine, Hematology and Medical Oncology and Professor of Oncological Sciences at Mount Sinai School of Medicine, from which she earned her medical degree. She also directs the school’s Clinical Research Training, M.S. and Ph.D. in Clinical Research programs, where trainees learn how to apply the observations gained from clinical practice to medical research. Those programs, now renamed the Center for Patient-Oriented Research, Education, Training and Development (CPORETD), recently had a major boost when Mount Sinai received a Clinical and Translational Science Award (CTSA) – a \$34.6 million, five-year grant – from the National Institute of Health (NIH). Dr. Gabrilove hopes to make Mount Sinai’s clinical research training “the centerpiece of the CTSA.”

The CTSA award is the culmination of years of work by Dr. Gabrilove to establish Mount Sinai as a world-renowned leader in clinical research – starting in 1998, the year she was appointed Chief of Medical Oncology and Deputy Director of the Cancer Center.

That year, the NIH created the Clinical Research Curriculum Awards to help medical institutions train a greater number of researchers; the Institute was concerned, Dr. Gabrilove says, “that clinical investigation was becoming a dying art and a dying science... something that was kind of learned on the sly” due to a lack of funding. The newly hired Dr. Gabrilove was assigned by then-Dean of Mount Sinai Medical School Dr. Arthur Rubinstein and then-Department of Medicine Chair Dr. Barry Coller to apply for an award. The application was successful, enabling

Mount Sinai to establish a certificate program which was later expanded to include Master's and Ph.D. degrees. "We recruited our first Ph.D. cohort last fall," she says proudly. "Seven students were accepted."

From One Small Cell, Dramatic Breakthroughs

Dr. Gabrilove describes herself as "passionate about clinical research," and it was such research that produced her crowning achievement to date: the development of human granulocyte colony stimulating factor (G-CSF), a major breakthrough in both chemotherapy and bone marrow transplantation.

Dr. Gabrilove and her research team studied the neutrophil granulocyte, a white blood cell that plays a crucial role in preventing bacterial infection. In chemotherapy, these rapidly growing cells are injured or killed, resulting in a condition known as febrile neutropenia where the body's defenses against infection are greatly reduced – "a significant cause of mortality," she notes.

But the researchers were able to discover the normal growth factor for neutrophil granulocytes, which they tested after purifying the protein and then cloned in collaboration with the biotech company Amgen to produce G-CSF. Further tests and trials showed that G-CSF could reduce the incidence of febrile neutropenia by as much as 50 percent. Other researchers, building on Dr. Gabrilove's work, subsequently used G-CSF to achieve greatly improved survival rates in diseases such as breast cancer and lymphoma.

Dr. Gabrilove and her team made another important discovery: G-CSF drives stem cells from the bone marrow out into the bloodstream, allowing doctors to collect the cells and use them in bone marrow transplants. Previously, the cells had to be surgically removed; with a dosage of G-CSF, they can be obtained through a simple blood extraction. "It's much less invasive," says Dr. Gabrilove, "you get a better quality stem cell... and reconstitution is much faster."

In talking about her Mount Sinai experience as a medical student and staff member, Dr. Gabrilove cites several doctors as inspiring teachers and colleagues. Naturally, her father – whom she calls "just an unbelievable role model in the kind of person he was" – has been a particular influence. And she continues to benefit from his insights: Lester Gabrilove currently

serves as Baumritter Professor of Medicine, Emeritus at Mount Sinai School of Medicine – while continuing his clinical practice – as he approaches his 93rd birthday.

“My father drops in now and again for a visit,” she says. “He’s a great guy.”

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