Fanfare seems to accompany significant professional milestones for Seema Singhal, MD, Professor of Medicine at Northwestern University Feinberg School of Medicine. Ever since completing medical training in her native India, the renowned multiple myeloma expert has found her life to be a “bit of an adventure” with a little serendipity thrown in for good measure.

In March 1991 she and spouse Jayesh Mehta, MD, (see profile on page 5 for more about Dr. Mehta) arrived in the Middle East just days after the end of the First Gulf War. Pursuing a fellowship in bone marrow transplantation at Hadassah University Hospital in Jerusalem, the young couple flew to Egypt and entered Israel overland – crossing the Sinai and the Suez – with armored escort. In the immediate aftermath of the Gulf War, safety was a serious concern, recalls Singhal. In July 1996, while relocating from Europe to the United States to become Chief of Investigative Diagnostics and Director of the Stem Cell Laboratory at the University of Arkansas in Little Rock, she remembers traveling alongside throngs of people flying into Atlanta for the Summer Olympics. Then shortly after starting her first junior faculty position, she and her colleagues, quite by accident, discovered a new drug for the treatment of multiple myeloma: thalidomide.

“I have been very fortunate to witness history,” says Singhal, Director of the Lurie Cancer
Center’s Multiple Myeloma Program. “For 15 minutes or so [before I told our program chief], I was the only person in the world who knew that thalidomide was active in myeloma, or any cancer for that matter.”

Once used to combat morning sickness, the medication gained notoriety in the late 1950s and early 1960s when it was found to cause birth defects. Although taken off the market in many countries, the drug was still licensed for use with certain diseases such as HIV. Thirty years later, thalidomide regained some traction for its antiangiogenic properties. For example, the father of angiogenesis research Judah Folkman, MD, believed thalidomide could stop new vessel growth in cancer, even “liquid” tumors such as those caused by multiple myeloma. In fact, he suggested the drug for a dying patient at Little Rock who had contacted Folkman and strongly lobbied for the opportunity to try antiangiogenesis therapy as a last ditch effort. Says Singhal, “Dr. Folkman had an early feeling thalidomide could be useful.”

An Exciting Discovery
Both Singhal and her husband had previous experience using thalidomide for its anti-inflammatory effect to combat graft-versus-host disease in bone marrow transplant patients. So they became the natural choice to lead the University of Arkansas’ clinical trial. On the same day, one hour apart, two patients were put on thalidomide. Unfortunately, it was not effective for the first individual, the one who originally pushed for its use, but it worked for Jimmy, one of Singhal’s patients.

“Jimmy had come to the end of the road and we were talking about hospice care,” says Singhal. “I suggested he try thalidomide and told him if nothing else, because the drug is a sedative, it would help him sleep well at night.” Jimmy went back to his home in Alabama with a supply of pills and Singhal took a family vacation to India, not expecting to see Jimmy again. Several weeks later, however, she returned to find that not only was Jimmy still alive, but he also was thriving on thalidomide as evidenced by his lab results. “He was having a stupendous response. You could see a vertical drop in his M protein, which had been very high.”

Word quickly spread. Multiple myeloma patients from around the world flocked to Little Rock to participate in Singhal’s clinical study. With a 30 percent positive response rate, thalidomide is a viable option for relapsed myeloma patients. In a 1999 issue of the New England Journal of Medicine, Singhal, Mehta (as second author), and colleagues detailed the antitumor activity of thalidomide and its activity against advanced myeloma.

Offering new hope
Patients fighting multiple myeloma often face relapse and depend on the development of innovative therapeutics to keep them going. Lurie Cancer Center patients have access to the latest treatments for myeloma, thanks, in part, to Singhal’s clinical research efforts. At the beginning of her tenure at Northwestern in 2001, Singhal served as site PI for a study on the drug Velcade (bortezomib) that rapidly gained Food and Drug Administration approval. “We quickly became a referral center,” says Singhal. “This success established us as a place to go to for new therapies for myeloma.” Just this past November, a clinical trial was launched to test the efficacy of the promising monoclonal antibody Daratumumab.

In addition to research, Singhal juggles a busy clinical practice with her role as mom to two sons—one in college at Northwestern and the other in high school. While seeing patients is “like having 5,000 children with needs that come before your own,” Singhal wouldn’t trade the fulfillment she gets from her profession. “As oncologists, we get to see the best side of people.”