By the time Anita Adler made her way to Smilow Cancer Hospital in July of 2013 with stage IV non-small cell lung cancer (NSCLC), she had already heard the words every patient dreads. “My doctor told me there was nothing more they could do,” Mrs. Adler said, now 80, a substitute teacher and mother of four who has been married to her husband Russ for 61 years. Mrs. Adler had always been physically strong. Even in her 70s, she was an avid swimmer who religiously did laps in her local pool in winter and swam in the Long Island Sound during the summer. But in the fall of 2013, she was exhausted from several rounds of chemotherapy and radiation, fluid at her chest, and fighting a chronic cough. “I had every side effect from chemo listed,” she explained. “And I couldn’t bring myself to eat much. The silly thing is, like many women, I spent so much time trying to lose weight, then with the cancer, I lost 40 pounds in one month.”

Mrs. Adler had one thing in her favor, however: Her doctor referred her to Scott Gettinger, MD, Associate Professor of Medicine (Medical Oncology) at Yale Cancer Center and the Disease Aligned Research Team Leader for the Thoracic Oncology Program at Smilow Cancer Hospital.

Dr. Gettinger is used to tough cases. Since 2009, he has been investigating the effectiveness of immunotherapy drugs against lung cancer. “There was pessimism about using immunotherapy for lung cancer back then, with several clinical trials failing to demonstrate effectiveness. Most had given up on the approach,” said Dr. Gettinger.

When Dr. Gettinger decided to try using checkpoint inhibitors to treat patients with advanced lung cancer, his colleagues were skeptical. Simply put, checkpoint inhibitors relieve brakes put on the body’s immune system by cancer, thereby allowing immune cells to do what they were meant to do—attack cancer. “No one thought they would work for lung cancer,” he admitted. But in 2009, he started enrolling select patients to a trial evaluating the checkpoint inhibitor drug Nivolumab. He was at first impressed by the tolerability of Nivolumab, with most patients experiencing little or no side effects. Then, he saw the responses. “Prognosis for these patients was on the order of 3-6 months, with few patients expected to live beyond a year. Two years later though, in 15 percent of patients, we are still following them today.”

Flash forward to 2018: The treatment Dr. Gettinger used to treat Anita Adler.

By the time Anita Adler made her way to Smilow Cancer Hospital in July of 2013 with stage IV non-small cell lung cancer (NSCLC), she had already heard the words every patient dreads. “My doctor told me there was nothing more they could do,” Mrs. Adler said, now 80, a substitute teacher and mother of four who has been married to her husband Russ for 61 years. Mrs. Adler had always been physically strong. Even in her 70s, she was an avid swimmer who religiously did laps in her local pool in winter and swam in the Long Island Sound during the summer. But in the fall of 2013, she was exhausted from several rounds of chemotherapy and radiation, fluid at her chest, and fighting a chronic cough. “I had every side effect from chemo listed,” she explained. “And I couldn’t bring myself to eat much. The silly thing is, like many women, I spent so much time trying to lose weight, then with the cancer, I lost 40 pounds in one month.”

Mrs. Adler had one thing in her favor, however: Her doctor referred her to Scott Gettinger, MD, Associate Professor of Medicine (Medical Oncology) at Yale Cancer Center and the Disease Aligned Research Team Leader for the Thoracic Oncology Program at Smilow Cancer Hospital.

Dr. Gettinger is used to tough cases. Since 2009, he has been investigating the effectiveness of immunotherapy drugs against lung cancer. “There was pessimism about using immunotherapy for lung cancer back then, with several clinical trials failing to demonstrate effectiveness. Most had given up on the approach,” said Dr. Gettinger.

When Dr. Gettinger decided to try using checkpoint inhibitors to treat patients with advanced lung cancer, his colleagues were skeptical. Simply put, checkpoint inhibitors relieve brakes put on the body’s immune system by cancer, thereby allowing immune cells to do what they were meant to do—attack cancer. “No one thought they would work for lung cancer,” he admitted. But in 2009, he started enrolling select patients to a trial evaluating the checkpoint inhibitor drug Nivolumab. He was at first impressed by the tolerability of Nivolumab, with most patients experiencing little or no side effects. Then, he saw the responses. “Prognosis for these patients was on the order of 3-6 months, with few patients expected to live beyond a year. Two years later though, in 15 percent of patients, we are still following them today.”

Flash forward to 2018: The treatment Dr. Gettinger used to treat Anita Adler.

**Making Waves AGAINST LUNG CANCER**

By the time Anita Adler made her way to Smilow Cancer Hospital in July of 2013 with stage IV non-small cell lung cancer (NSCLC), she had already heard the words every patient dreads. “My doctor told me there was nothing more they could do,” Mrs. Adler said, now 80, a substitute teacher and mother of four who has been married to her husband Russ for 61 years. Mrs. Adler had always been physically strong. Even in her 70s, she was an avid swimmer who religiously did laps in her local pool in winter and swam in the Long Island Sound during the summer. But in the fall of 2013, she was exhausted from several rounds of chemotherapy and radiation, fluid at her chest, and fighting a chronic cough. “I had every side effect from chemo listed,” she explained. “And I couldn’t bring myself to eat much. The silly thing is, like many women, I spent so much time trying to lose weight, then with the cancer, I lost 40 pounds in one month.”

Mrs. Adler had one thing in her favor, however: Her doctor referred her to Scott Gettinger, MD, Associate Professor of Medicine (Medical Oncology) at Yale Cancer Center and the Disease Aligned Research Team Leader for the Thoracic Oncology Program at Smilow Cancer Hospital.

Dr. Gettinger is used to tough cases. Since 2009, he has been investigating the effectiveness of immunotherapy drugs against lung cancer. “There was pessimism about using immunotherapy for lung cancer back then, with several clinical trials failing to demonstrate effectiveness. Most had given up on the approach,” said Dr. Gettinger.

When Dr. Gettinger decided to try using checkpoint inhibitors to treat patients with advanced lung cancer, his colleagues were skeptical. Simply put, checkpoint inhibitors relieve brakes put on the body’s immune system by cancer, thereby allowing immune cells to do what they were meant to do—attack cancer. “No one thought they would work for lung cancer,” he admitted. But in 2009, he started enrolling select patients to a trial evaluating the checkpoint inhibitor drug Nivolumab. He was at first impressed by the tolerability of Nivolumab, with most patients experiencing little or no side effects. Then, he saw the responses. “Prognosis for these patients was on the order of 3-6 months, with few patients expected to live beyond a year. Two years later though, in 15 percent of patients, we are still following them today.”

Flash forward to 2018: The treatment Dr. Gettinger used to treat Anita Adler.

**Making Waves AGAINST LUNG CANCER**

By the time Anita Adler made her way to Smilow Cancer Hospital in July of 2013 with stage IV non-small cell lung cancer (NSCLC), she had already heard the words every patient dreads. “My doctor told me there was nothing more they could do,” Mrs. Adler said, now 80, a substitute teacher and mother of four who has been married to her husband Russ for 61 years. Mrs. Adler had always been physically strong. Even in her 70s, she was an avid swimmer who religiously did laps in her local pool in winter and swam in the Long Island Sound during the summer. But in the fall of 2013, she was exhausted from several rounds of chemotherapy and radiation, fluid at her chest, and fighting a chronic cough. “I had every side effect from chemo listed,” she explained. “And I couldn’t bring myself to eat much. The silly thing is, like many women, I spent so much time trying to lose weight, then with the cancer, I lost 40 pounds in one month.”

Mrs. Adler had one thing in her favor, however: Her doctor referred her to Scott Gettinger, MD, Associate Professor of Medicine (Medical Oncology) at Yale Cancer Center and the Disease Aligned Research Team Leader for the Thoracic Oncology Program at Smilow Cancer Hospital.

Dr. Gettinger is used to tough cases. Since 2009, he has been investigating the effectiveness of immunotherapy drugs against lung cancer. “There was pessimism about using immunotherapy for lung cancer back then, with several clinical trials failing to demonstrate effectiveness. Most had given up on the approach,” said Dr. Gettinger.

When Dr. Gettinger decided to try using checkpoint inhibitors to treat patients with advanced lung cancer, his colleagues were skeptical. Simply put, checkpoint inhibitors relieve brakes put on the body’s immune system by cancer, thereby allowing immune cells to do what they were meant to do—attack cancer. “No one thought they would work for lung cancer,” he admitted. But in 2009, he started enrolling select patients to a trial evaluating the checkpoint inhibitor drug Nivolumab. He was at first impressed by the tolerability of Nivolumab, with most patients experiencing little or no side effects. Then, he saw the responses. “Prognosis for these patients was on the order of 3-6 months, with few patients expected to live beyond a year. Two years later though, in 15 percent of patients, we are still following them today.”

Flash forward to 2018: The treatment Dr. Gettinger used to treat Anita Adler.
“Anita’s contribution has paved the way to new discoveries that will benefit many. Seeing her enjoying life is an indescribable reward that pushes us to do more.”

While Mrs. Adler was happy to contribute pieces of her tumor and submit to biopsies—“If it’s going to advance science, I’m excited about it,” she said—she was nervous about donating her bone marrow cells. “My sister died from bone cancer, so getting near my bones frightened me,” she said. “But I felt too good to do that right away. I was still having treatment, and said I couldn’t believe what I was seeing,” she recalled.

But Mrs. Adler’s cancer would not be conquered so easily. Four or five months into her treatment, a PET scan turned up signs of cancer in her lymph nodes. “I could almost feel when the cancer was landing because it felt almost, the explanation,” she explained. Surgery to remove the affected and surrounding lymph nodes left her without evidence of disease. “We spent a lot of time explaining how her body had more information about her cancer cells,” said Dr. Gettinger. “We did find that the tumors on a molecular level, studying changes in patients’ immune systems, had progressed.” At the time, the trial required.

To do that, Dr. Gettinger compared Mrs. Adler’s initial tumor to the tumors on a molecular level, studying changes in patients’ immune systems, had progressed. “That meant we could replicate how the tumors and the immune system were interacting,” Dr. Gettinger explained.

Yet, less than a year later, the cancer again returned in her lymph nodes. Once again, the immunotherapy treatment had worked. But was this the moment she came to Smilow Cancer Hospital.

Anita’s tumor was expressing keys on its surface. From her, Dr. Gettinger and his team discovered that Mrs. Adler’s tumor was expressing keys on its surface. Normally, when a cancer cell or virus is under attack, immune cells that can sense the deception, and decimate the immunotherapy. “Like Anita, most patients with lung cancer,” he said. “That was memorable for Mrs. Adler, too. “Every time Mrs. Adler’s appetite returned. Shortly after that, she had her immune system—what Dr. Gettinger refers to as a ‘killing zone.’

To truly get a complete picture of how these tumors interacted with the immune system, and learn why some seemed to grow resistance to treatment, Dr. Gettinger went back to the lab and discovered something that had not been described before. “The immune system was further thwarting her body’s immune system, starving the body, killing other cancers,” said Dr. Gettinger. “We saw that Anita’s immune system could be interrogated further, and treated them with different therapies designed to counteract resistance to the immunotherapy. “Like Anita, most patients with lung cancer,” he explained.

When Mrs. Adler’s cancer returned, and her tumors seemed to grow resistant to treatment, Dr. Gettinger started her on a trial that was twice as good about what they have done for me.”

Mrs. Adler gathered with her family this past Thanksgiving, and after a year of continued immunotherapy, Dr. Gettinger was still jubilant. “No remaining tumors could be found on imaging studies.” Mrs. Adler’s tumors had responded so well to treatment, and after a year of continued immunotherapy, Dr. Gettinger was still jubilant. “No remaining tumors could be found on imaging studies.”

Mrs. Adler’s tumors had responded so well to treatment, and after a year of continued immunotherapy, Dr. Gettinger was still jubilant. “No remaining tumors could be found on imaging studies.”

Yale Cancer Center | Year in Review 2018 17yalecancercenter.org | 16

I am very lucky to have been sent to Yale. I’m grateful to the doctors, and I feel good about what I’m doing for them. But I feel twice as good about what they have done for me.”

Dr. Gettinger tried a combination immunotherapy trial through a clinical trial. “We were participating in a preliminary study,” he explained. “In her presentation that would make Anita’s natural killer cells from the remaining tumor and bone cancer,” he explained. “In November of 2017, Mrs. Adler began this therapy. “Not only did she respond, but she had a complete response, which is rare,” said Dr. Gettinger, still jubilant. “An immunotherapy could be rendered inactive.”

That was more than two years ago. Aside from skin rashes that are now subsiding, Mrs. Adler is once again enjoying swimming, teaching, and enjoying her family. “In her presentation that would make Anita’s natural killer cells from the remaining tumor and bone cancer,” he explained. “In November of 2017, Mrs. Adler began this therapy. “Not only did she respond, but she had a complete response, which is rare,” said Dr. Gettinger, still jubilant. “An immunotherapy could be rendered inactive.”

When Mrs. Adler’s cancer returned, and her tumors seemed to grow resistant to treatment, Dr. Gettinger started her on a trial that was twice as good about what they have done for me.”

Mrs. Adler’s tumors had responded so well to treatment, and after a year of continued immunotherapy, Dr. Gettinger was still jubilant. “No remaining tumors could be found on imaging studies.” Mrs. Adler’s tumors had responded so well to treatment, and after a year of continued immunotherapy, Dr. Gettinger was still jubilant. “No remaining tumors could be found on imaging studies.”

Mrs. Adler’s tumors had responded so well to treatment, and after a year of continued immunotherapy, Dr. Gettinger was still jubilant. “No remaining tumors could be found on imaging studies.”

That was more than two years ago. Aside from skin rashes that are now subsiding, Mrs. Adler is once again enjoying swimming, teaching, and enjoying her family. “In her presentation that would make Anita’s natural killer cells from the remaining tumor and bone cancer,” he explained. “In November of 2017, Mrs. Adler began this therapy. “Not only did she respond, but she had a complete response, which is rare,” said Dr. Gettinger, still jubilant. “An immunotherapy could be rendered inactive.”

When Mrs. Adler’s cancer returned, and her tumors seemed to grow resistant to treatment, Dr. Gettinger started her on a trial that was twice as good about what they have done for me.”

Mrs. Adler’s tumors had responded so well to treatment, and after a year of continued immunotherapy, Dr. Gettinger was still jubilant. “No remaining tumors could be found on imaging studies.” Mrs. Adler’s tumors had responded so well to treatment, and after a year of continued immunotherapy, Dr. Gettinger was still jubilant. “No remaining tumors could be found on imaging studies.”

That was more than two years ago. Aside from skin rashes that are now subsiding, Mrs. Adler is once again enjoying swimming, teaching, and enjoying her family. “In her presentation that would make Anita’s natural killer cells from the remaining tumor and bone cancer,” he explained. “In November of 2017, Mrs. Adler began this therapy. “Not only did she respond, but she had a complete response, which is rare,” said Dr. Gettinger, still jubilant. “An immunotherapy could be rendered inactive.”

When Mrs. Adler’s cancer returned, and her tumors seemed to grow resistant to treatment, Dr. Gettinger started her on a trial that was twice as good about what they have done for me.”

Mrs. Adler’s tumors had responded so well to treatment, and after a year of continued immunotherapy, Dr. Gettinger was still jubilant. “No remaining tumors could be found on imaging studies.” Mrs. Adler’s tumors had responded so well to treatment, and after a year of continued immunotherapy, Dr. Gettinger was still jubilant. “No remaining tumors could be found on imaging studies.”

That was more than two years ago. Aside from skin rashes that are now subsiding, Mrs. Adler is once again enjoying swimming, teaching, and enjoying her family. “In her presentation that would make Anita’s natural killer cells from the remaining tumor and bone cancer,” he explained. “In November of 2017, Mrs. Adler began this therapy. “Not only did she respond, but she had a complete response, which is rare,” said Dr. Gettinger, still jubilant. “An immunotherapy could be rendered inactive.”

When Mrs. Adler’s cancer returned, and her tumors seemed to grow resistant to treatment, Dr. Gettinger started her on a trial that was twice as good about what they have done for me.”

Mrs. Adler’s tumors had responds so well to treatment, and after a year of continued immunotherapy, Dr. Gettinger was still jubilant. “No remaining tumors could be found on imaging studies.” Mrs. Adler’s tumors had responded so well to treatment, and after a year of continued immunotherapy, Dr. Gettinger was still jubilant. “No remaining tumors could be found on imaging studies.”