

Immunotherapy: Unleashing the Immune System to Fight Cancer

Bryce Dunnuck, 38, Mesa, remains cancer free one year after he was diagnosed with metastatic melanoma, the most life-threatening type of skin cancer.

Sharon Light-Stephenson, 64, Phoenix, was diagnosed with stage IV lung cancer in 2015, and told she would likely live only four to six months. More than two years later, she has no signs of cancer.

These patients' excellent outcomes are due in large part to the immunotherapy they received at The University of Arizona Cancer Center at Dignity Health St. Joseph's Hospital and Medical Center (Cancer Center).

"For some types of cancer, immunotherapy drugs represent a major advance in cancer therapy," says Panayiotis Savvides, MD, head and neck and thoracic medical oncologist at the Cancer Center.

The immune system is designed to recognize and attack foreign substances in the body while leaving normal tissues alone. However, cancer can suppress the immune system, rendering it unable to recognize cancer cells as foreign. Immunotherapy unleashes or strengthens the immune system to fight cancer cells.

One particularly promising type of immunotherapy—drugs called checkpoint inhibitors—can help the immune system recognize and attack cancer cells.

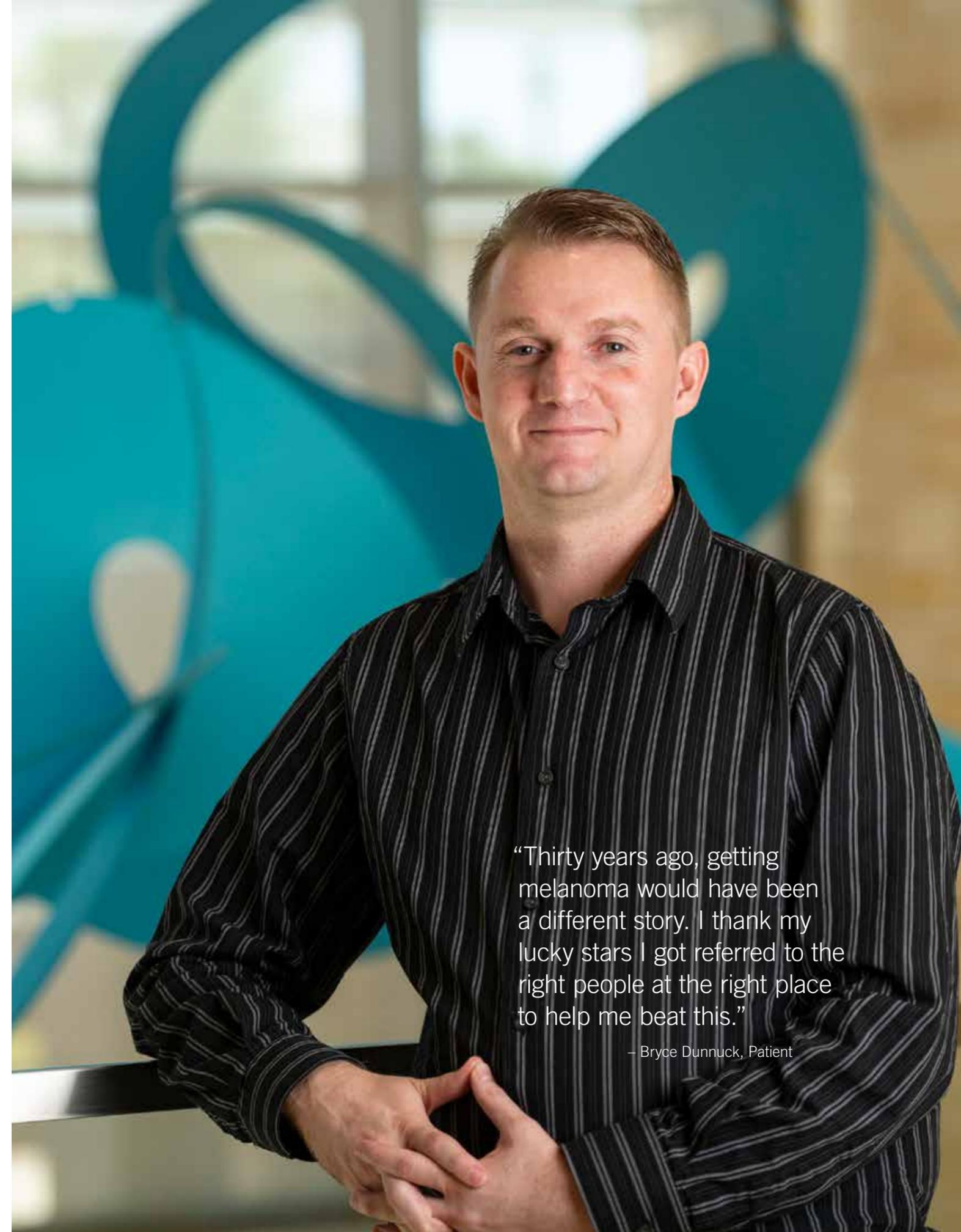
"These drugs take the blindfolds off our immune cells, letting them 'see' the cancer and do the job they were born to do," says Debra Wong, MD, melanoma and gynecologic medical oncologist at the Cancer Center. "Immunotherapy releases the brakes on immune cells called T-lymphocytes and allows them to target the

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Cont'd on page 18



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Cont'd from page 16

cancer and trigger an amplified immune response. The effect is powerful and long-lasting in patients whose cancers respond to immune-based therapies.”

The first checkpoint inhibitor was approved by the FDA in 2011 to treat metastatic melanoma, with others quickly following in 2014. Since then, these drugs have been approved for non-small cell lung cancer, bladder cancer, kidney cancer, head and neck cancers, gastric cancer, liver cancer, cervical cancer, Hodgkin lymphoma, and others.

Immunotherapy may be given as first- or second-line treatment, or even later; sequenced or combined with chemotherapy; or given after a primary treatment, such as surgery, to reduce the risk of recurrence.

Successful treatment—with any therapy—requires a careful assessment of the tumor, say both physicians. The Cancer Center uses molecular profiling of tumors to identify mutations and other genetic abnormalities that can help guide treatment decisions.

“Immunotherapy is not one-size-fits-all,” Dr. Wong says. “It has to be tailored for the particular individual and the specific genetic abnormalities within the tumor.”

Most patients tolerate immunotherapy well. “Immunotherapy was such a welcome change from the chemo,” says Sharon. “With the chemo, I was so sick that I was unable to work. Then I started immunotherapy, and I was able to return to full-time work within a couple of months.”

That ease of treatment can make it difficult for patients to stop taking the drugs after the usual two-year treatment period. “Because patients can tolerate checkpoint inhibitors, they often want to continue taking them,” says Dr. Savvides.

The question of how long immunotherapy should be given is one of many that researchers are investigating as they work to expand and refine immunotherapy. Others include:

- At what point during treatment is immunotherapy most effective?
- What other types of cancer respond to immunotherapy?
- How effective is immunotherapy when combined with other cancer treatments?
- Does immunotherapy given before surgery improve outcomes in some cancers?
- How can the side effects of immunotherapy be reduced or controlled?

That last question is important, says Dr. Wong, because immunotherapy can supercharge the immune system, leading to an attack on healthy tissue and organs. These problems can be managed effectively in most patients, but some experience life-threatening symptoms, require hospitalization and may need long-term immune-suppressing drugs.

Bryce feels fortunate to have faced melanoma at a time when immunotherapy was an option. “Thirty years ago, getting melanoma would have been a different story. I thank my lucky stars I got referred to the right people at the right place to help me beat this,” he says.

Sharon, too, is grateful for the Cancer Center. “Ten years ago, I wouldn’t have lived as long as I have. I’m healthy and enjoying my family. I feel so fortunate.”



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