

# Immunotherapy Treatments for Skin Cancer Boost Long- Term Survival Rates

Dr David R Minor

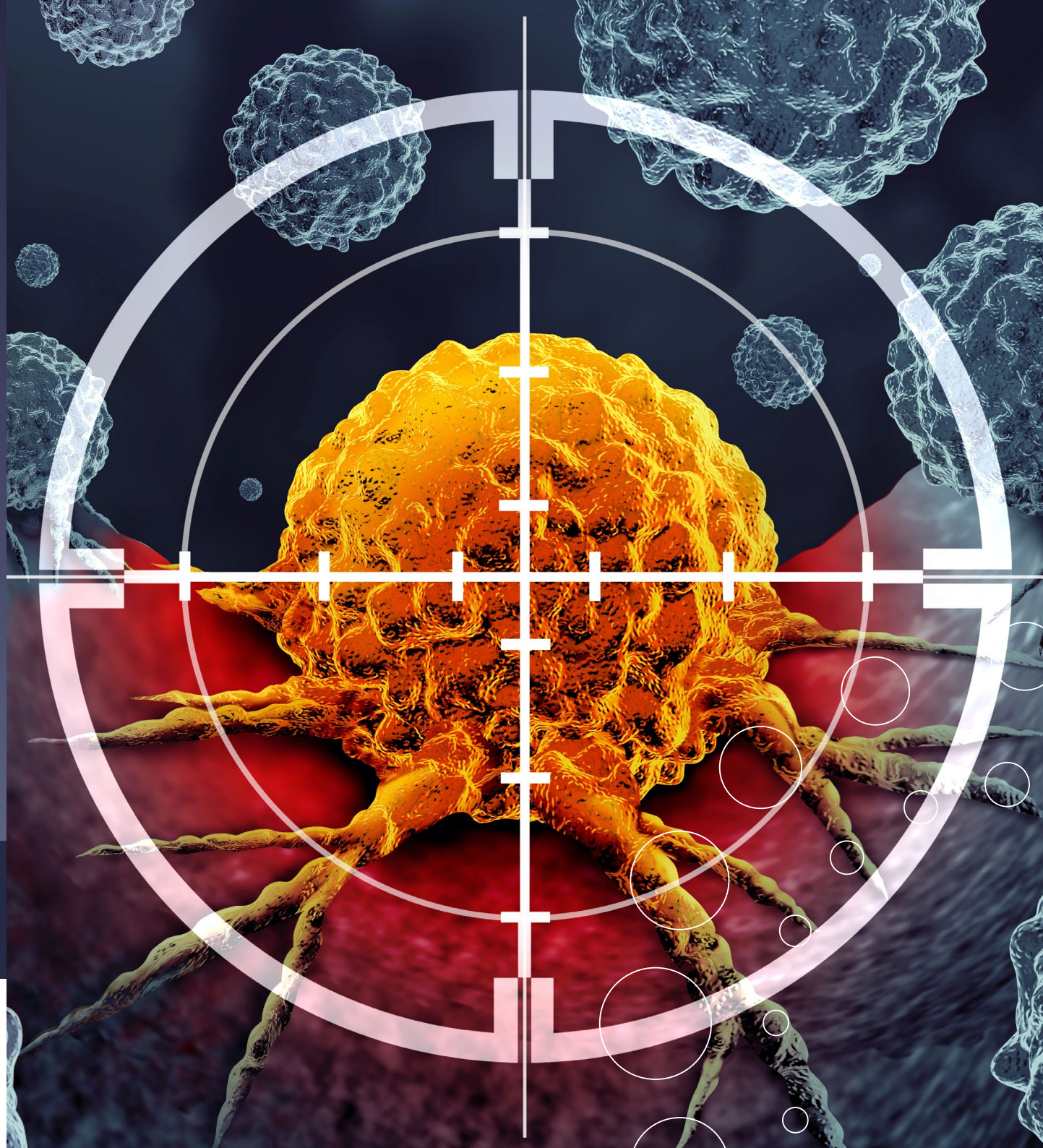
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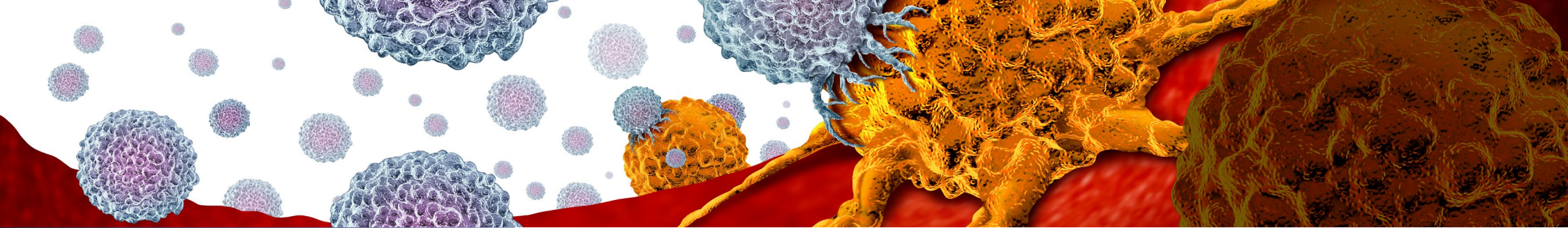
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# Immunotherapy Treatments for Skin Cancer Boost Long-Term Survival Rates

Immunotherapy has changed the face of cancer treatment, particularly for those suffering from advanced skin cancers. With plenty yet to be learnt in this field of medicine, Dr. David Minor and his colleagues based at the California Pacific Medical Center Research Institute and the California Pacific Center for Melanoma Research and Treatment explore the long-term impact of immunotherapy on advanced skin cancer survivors.

## Fighting Killer Melanoma

According to the World Health Organization, skin cancers represent one of the most frequently diagnosed types of cancer in the world, with an estimated 1.5 million new cases reported in 2022. In the same year, approximately 330,000 new cases of the deadliest form of the cancer called melanoma were identified worldwide, resulting in nearly 60,000 deaths.

Dr David Minor works alongside colleagues at the California Pacific Medical Center Research Institute, the California Pacific Center for Melanoma Research and Treatment, and the teams at the Center for Health Science Research at Sutter Health. Together, they work tirelessly to fight this killer, and their recent research aims to shed light on the long-term survival rates of patients with metastatic (stage 4) melanoma, an advanced skin cancer that has spread to other parts of the body.

## Immunotherapy to Tackle Skin Cancer

Dr Minor says that immunotherapy has revolutionised the treatment of patients with advanced melanoma. This treatment uses the patient's immune system to beat the cancer. There are many types of immunotherapy that work in different ways, but they all alter or boost the immune system so it can find and destroy cancer cells. Immunotherapy treatments known as checkpoint inhibitors and cytokines such as interleukin-2 have been very effective in treating melanoma. Checkpoint inhibitor drugs are now FDA-approved for over 14 different forms of cancer, and are part of the treatment of about half of all patients with advanced cancer in the USA.

A crucial function of the immune system is its ability to distinguish between the body's normal cells and those it perceives as foreign,

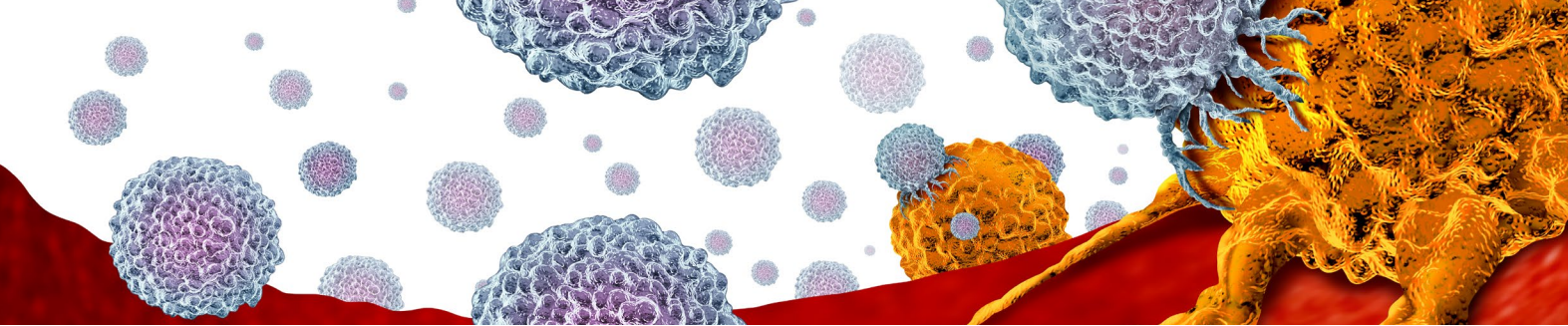
such as cancer cells, which it needs to destroy. It accomplishes this in part through the use of checkpoint proteins, which function like on-off switches for an immune response.

However, cancer cells can sometimes exploit these proteins to evade immune attack. Checkpoint inhibitors are drugs specifically designed to target these proteins, making cancer cells more visible to the immune system and making cancer-killing white blood cells more active. Other immunotherapy agents called cytokines, like interleukin-2, act as signals between the cells of the immune system, helping them to grow and divide at a faster pace whilst blocking the growth and spread of cancer cells as well as making them release chemicals that, in turn, attract immune cells to kill them.

## Uncertain Relapse Rates

Dr Minor highlights that because of immunotherapy treatments, it is common for patients with advanced melanoma to achieve complete remission for many years. However, most studies on treatments such as checkpoint inhibitors and cytokines have a limited follow-up after five years, meaning that after this period of time, there is a lack of data on the number of patients that relapse. One study on interleukin-2 reported three relapses in a group of 22 patients between five and ten years after treatment. However, there was no data available after ten years in that study. Only a handful of studies have run past five years for checkpoint inhibitors, with the longest study follow-up being 9.9 years.

Dr Minor also highlights that there has been a lot of interest in the cost-utility of cancer treatments, particularly for immunotherapy, as it is generally very expensive. He adds that the average melanoma patient may have a life expectancy of more than 25 years if they are cured by the treatments, so accurate long-term



data on patient outcomes can be vital for these calculations. Analysing the cost-benefits of treatment options, which are based on inaccurate data (particularly if the relapse rate is far lower in reality), could create significant errors in underestimating the actual benefit of the cancer treatment.

### Promising Data

Dr Minor and his colleagues recently conducted an investigation into the relapse and survival rates of patients with stage 4 melanoma who were in continuous remission for five or more years after immunotherapy treatment was started. The team looked at patients who had received interleukin-2 or checkpoint inhibitors at their institute between 1992 and 2013. They discovered 59 patients alive and in remission five or more years after starting the immunotherapy treatments. The median age at the time of diagnosis was 52 years, ranging from 13 to 76 years old.

The team then reviewed the patients' ongoing clinical progress. They found that 36 patients were followed up for at least ten or more years and that there was a median follow-up of 13.1 years for the whole group of 59 patients, with a minimum of six years and a maximum of 27 years. Only four patients (6.8%) experienced a relapse of their skin cancer (at five, eight, 15, and 17 years) after starting the immunotherapy, and three of these patients were still alive. Dr Minor describes that out of the four relapsed patients, three were diagnosed as they began experiencing symptoms again, and the fourth was discovered when the patient underwent a routine scan.

### Excellent Prognosis and Protective Effects

Dr Minor noted that two surviving patients out of the group of four late relapses are currently undergoing immunotherapy treatment with checkpoint inhibitors in the anti-PD-1 group. This suggests that rescue or salvage therapy might be successful for these types of patients. He also highlights that eleven patients in the study had received the checkpoint inhibitor anti-PD-1 therapy, pembrolizumab or nivolumab, adding that none have experienced a relapse so far, at a median follow-up of 8.7 years. The team reported that about 85% of the patients reviewed were progression-free at 20 years, adding that the survival rate of melanoma patients who have been treated with immunotherapy and are cancer-free after five years is outstanding.

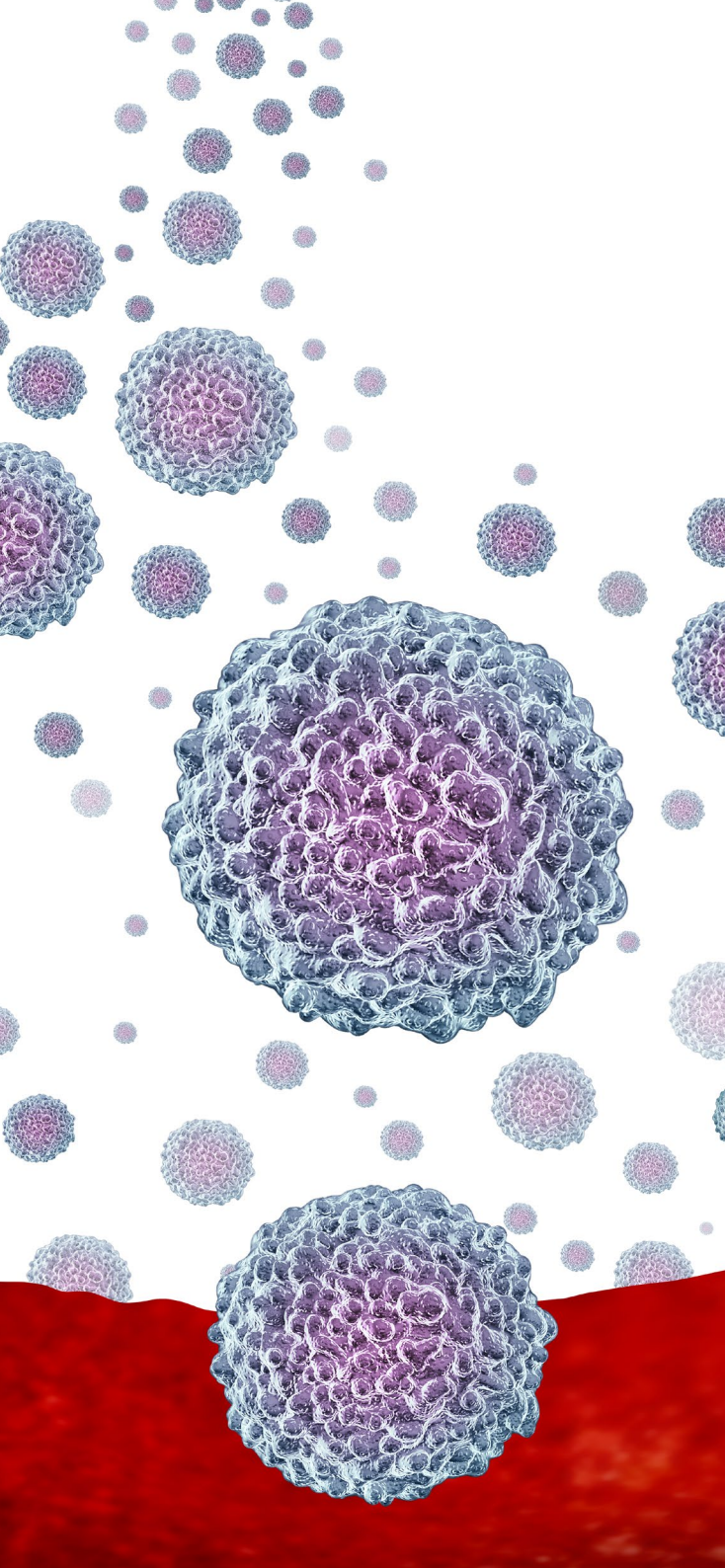
Even better still, they found the melanoma-specific survival rate to be 95% over the following 15 years. Despite a few cases of relapses, they concluded that the long-term survival was excellent in patients who were cancer-free five years after having started immunotherapy. Truly, immunotherapy can cure patients with advanced melanoma.

The team believes this investigation, with a median follow-up of 13 years, to be the longest follow-up of any currently published study into immunotherapy for stage four melanoma. Dr Minor adds that their data support the findings from other studies that suggest treating metastatic melanoma with checkpoint inhibitors might, in fact, have a protective effect from secondary primary melanomas, new skin cancers unrelated to the initial case.

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## MEET THE RESEARCHER

**Dr David R Minor**, California Pacific Medical Center Research Institute and Center for Melanoma Research and Treatment, San Francisco, CA, USA

**Dr David Minor** obtained his medical degree from the University of California San Francisco in 1974. He completed his medical residency at the California Pacific Medical Center and became a Postdoctoral Fellow in Medical Oncology at Yale University in 1976. He held the role of Clinical Instructor and then Assistant Clinical Professor in the School of Medicine at the University of California. He has worked in several research positions since, including at the UCSF Melanoma Clinic, California Kidney Cancer Center, and California Pacific Medical Center. He is a Research Scientist at the California Pacific Medical Center Research Institute and the Associate Director of the California Pacific Center for Melanoma Research and Treatment. Throughout his career, Dr Minor has held several community positions, such as President of the California Kidney Cancer Foundation (1994–2008) and has served on the Board of Directors for the American Cancer Society, as well as being a member of the American Society of Clinical Oncology.



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### FURTHER READING

DR Minor, KB Kim, RKM Karuturi, *et al.*, [Extended long-term follow-up of metastatic melanoma patients treated with immunotherapy: late relapses and second primary melanomas](https://doi.org/10.3389/fonc.2023.1241917), *Frontiers in Oncology*, 2023, 13, 1241917. DOI: <https://doi.org/10.3389/fonc.2023.1241917>



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