

Combining radiation with immunotherapy showing promise against melanoma

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Melanoma in skin biopsy with H&E stain — this case may represent superficial spreading melanoma. Credit: Wikipedia/CC BY-SA 3.0

Combining radiation treatments with a new generation of immunotherapies is showing promise as a one-two-punch against melanoma, Loyola Medicine researchers report in the *Journal of Radiation Oncology*.

Radiation kills [cancer cells](#) by damaging their DNA. Immunotherapies work by harnessing a patient's immune system to attack and kill cancer cells. When combined, the two therapies appear to have synergistic effects, according to the article by James S. Welsh, MD and colleagues.

Dr. Welsh is a professor in the department of [radiation](#) oncology of Loyola University Chicago Stritch School of Medicine.

Melanoma is one of the most aggressive forms of skin cancer. Among patients with Stage 4 metastatic [melanoma](#), in which the cancer has spread to other organs, one-year survival rates

range from just 33 percent to 62 percent. This year in the United States, about 76,000 patients will be diagnosed with melanoma and about 10,000 people are expected to die of the disease, according to the American Cancer Society.

On rare occasions, melanoma patients can spontaneously go into remission. More common are partial spontaneous regressions of melanoma lesions. While scientists aren't certain what causes these effects, evidence points to the immune system mounting an attack on cancer cells.

A key observation that supports the role of the immune system in melanoma is the abscopal effect. This rare phenomenon occurs when a localized treatment such as radiation not only shrinks the targeted tumor but also stimulates the immune system to mount a systemic attack on cancer cells throughout the body. Dr. Welsh saw the abscopal effect firsthand when he gave radiation treatment to a patient who had melanoma that had spread to his liver and bones. The radiation was intended merely to shrink a tumor in the patient's thigh bone, to relieve his pain and reduce the risk of fracture. But three months later, a CT scan found no trace of cancer anywhere.

Many new immunotherapies for melanoma are being tried, some with notable results. One such example is a [new generation](#) of "checkpoint inhibitors." These are drugs that, in effect, remove the brakes that normally prevent the immune system from attacking cancer cells.

Radiation increasingly is being used alongside checkpoint inhibitors and other immunotherapies, with encouraging results, Dr. Welsh and colleagues write.

Despite the recent successes of radiation and immunotherapy, not all [patients](#) are able to mount an effective [immune system](#) response to fight melanoma. So it is important to discover proteins or

other biomarkers that can predict whether a patient will respond to immunotherapy. Such biomarkers also could help quantify how well experimental therapies are working, Dr. Welsh and colleagues write.

The review article summarizes the latest research in how radiation can be integrated with immunotherapy in the treatment of melanoma. It is titled "The integration of radiation therapy and immunotherapy in melanoma management."

More information: Kyle Stang et al, The integration of radiation therapy and immunotherapy in melanoma management, *Journal of Radiation Oncology* (2016). [DOI: 10.1007/s13566-016-0256-5](https://doi.org/10.1007/s13566-016-0256-5)

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