

# New diagnostic and therapeutic techniques show potential for patients with metastasized melanoma

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With low survival rates for patients with metastasized melanoma, accurate staging and effective treatments are critical to extending life. New research published in *The Journal of Nuclear Medicine* highlights the potential of newly developed radiopharmaceuticals with benzamide for the imaging of metastases and as a targeted systemic therapy.

Malignant melanoma is the fifth most common cancer in men and the sixth most common cancer in women, and its incidence rate is increasing rapidly. It accounts for nearly 80 percent of all deaths related to cutaneous cancer. When discovered early, localized melanoma can be cured by surgical removal. However, this cancer displays a strong tendency to metastasize and has very low survival rates for patients, with fewer than five percent surviving longer than five years.

In the study "<sup>123</sup>I-BZA2 as a Melanin-Targeted Radiotracer for the Identification of Melanoma Metastases: Results and Perspectives of a Multicenter Phase III Clinical Trial," researchers developed a specific single photon emission computed tomography (SPECT) radiopharmaceutical for [malignant melanoma](#)—<sup>123</sup>I-BZA2. Imaging of patients with metastasized melanoma was then performed with both <sup>18</sup>F-FDG positron emission tomography/computed tomography (PET/CT) and <sup>123</sup>I-BZA2 SPECT to compare the accuracy in staging and restaging.

Eighty-seven patients were examined with a total of 86 metastatic

lesions. In the analysis of lesions, the sensitivity for  $^{18}\text{F}$ -FDG for diagnosis of melanoma metastases was higher than that of  $^{123}\text{I}$ -BZA2 (80 percent vs. 23 percent). The specificity of  $^{18}\text{F}$ -FDG, however, was lower than  $^{123}\text{I}$ -BAZ2 (54 percent vs. 86 percent). The sensitivity and specificity of  $^{123}\text{I}$ -BAZ2 for the diagnosis of melanin-positive lesions were 75 percent and 70 percent, respectively.

"We have demonstrated that  $^{123}\text{I}$ -BZA2 tumor accumulation was clearly correlated to melanin content of the melanoma metastases. Thus,  $^{123}\text{I}$ -BZA2 could be theoretically used for the diagnosis of melanoma metastases," said Florent Cachin, MD, PhD, lead author of the study. "However, given its low sensitivity due to the high proportion of non-pigmented lesion in the natural course of [metastatic melanoma](#),  $^{123}\text{I}$ -BZA2 cannot be used for melanoma staging. Such results could appear discouraging, but the concept of melanin targeting may offer a real opportunity for therapy."

In the study "Radiopharmaceutical Therapy of Patients with Metastasized Melanoma with the Melanin-Binding Benzamide  $^{131}\text{I}$ -BA52," the first use of a melanoma-seeking agent for therapeutic application was analyzed. Researchers used a theranostic approach in which the same molecule was given first as a diagnostic isotope ( $^{123}\text{I}$ -BA52) to identify the patients possibly profiting from therapy, and then as a therapeutic radiopharmaceutical ( $^{131}\text{I}$ -BA52) for those patients who would benefit. Twenty-six patients were imaged with  $^{123}\text{I}$ -BA52, and nine patients were selected for therapy with  $^{131}\text{I}$ -BA52.

Some of the patients treated with  $^{131}\text{I}$ -BA52 were found to have a survival rate of more than two years. Researchers also found that higher treatment doses would have been tolerated in these patients, as only moderate side effects were observed. "We believe that the tracer could be useful in the setting of a combination therapy in patients with metastasized melanoma, especially when applied in earlier stages of the

disease where the melanin production is higher as compared to later stages of the disease," noted Uwe Haberkorn, MD, lead author of the study.

Even though new treatments are now available, the prognosis for patients with metastatic [melanoma](#) remains very poor. "Innovative strategies are necessary to improve [patients'](#) survival. Research focused on innovating targeted-therapy reflects modern oncology, as new theranostic concepts. This strategy nicely illustrates the future of [nuclear medicine](#) oncology," said Cachin.

**More information:** "123I-BZA2 as a Melanin-Targeted Radiotracer for the Identification of Melanoma Metastases: Results and Perspectives of a Multicenter Phase III Clinical Trial," *Journal of Nuclear Medicine*, 2014.

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