Gut microbes linked to immunotherapy response in melanoma patients

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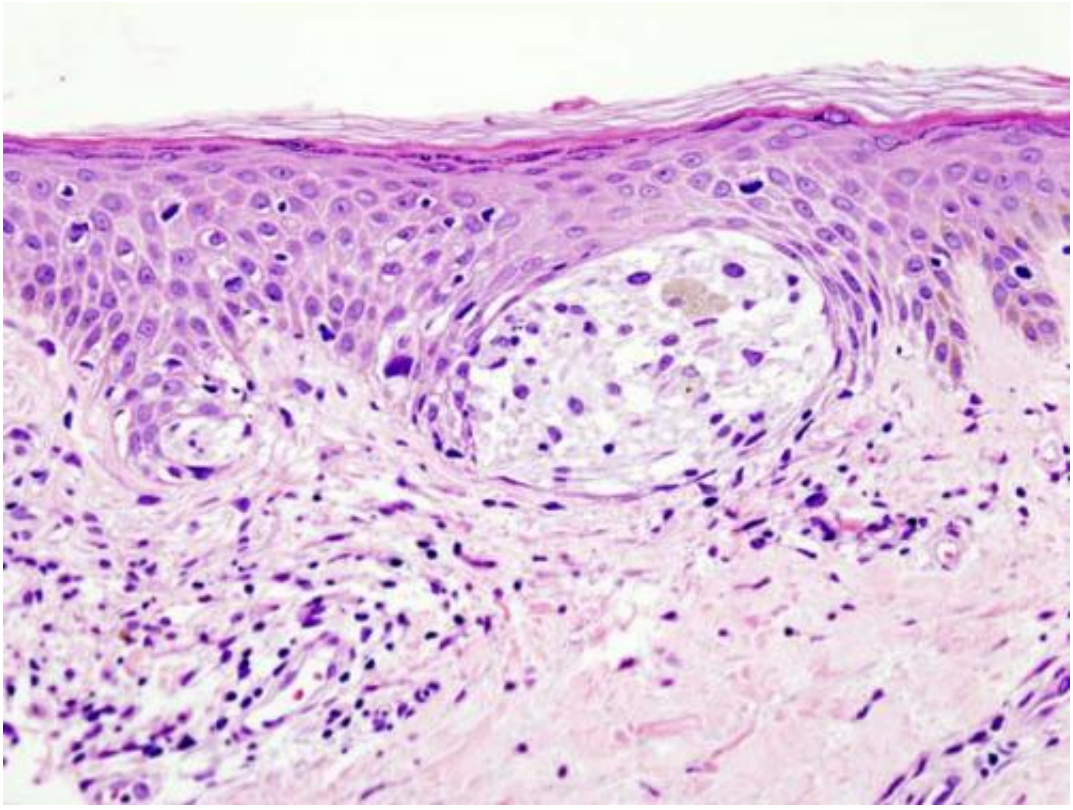

Melanoma in skin biopsy with H&E stain—this case may represent superficial spreading melanoma. Credit: Wikipedia/CC BY-SA 3.0

Patients with malignant melanoma - whose disease has spread - are more likely to respond to immunotherapy treatment if they had greater diversity in their gut bacteria, according to new research presented at the National Cancer Research Institute's (NCRI) Cancer Conference in

Liverpool.

Scientists at the University of Texas MD Anderson Cancer Centre studied over 200 mouth and over 100 gut microbiome samples from people who had advanced melanoma.

They discovered that people whose cancer responded to immunotherapy treatment had more diversity in the types of bacteria found in their gut. They also found significant differences in the type of bacteria found in the gut of people whose cancer responded versus those who didn't.

There was no difference in the type of mouth bacteria between patients.

Early studies in mice have shown that changing the type of bacteria that live in the gut can improve the response to immunotherapy, but this is one of the first studies to look at the link in patients.

Immunotherapy, which harness the body's immune system to target cancer cells, are an exciting avenue of cancer treatment. However, not all patients respond to these treatments, and researchers are trying to understand why.

This research suggests that adapting people's gut bacteria, such as giving antibiotics, probiotics, or a faecal transplant before immunotherapy, could increase the benefits already achieved with new immunotherapy drugs now being used to treat several different types of cancer. However, this needs to be tested clinical trials.

Melanoma is the fifth most common cancer in the UK with about 14,600 people being diagnosed each year. And each year about 2,300 die from the disease.

Dr Jennifer Wargo, lead researcher at the University of Texas, said:

"Our research shows a really interesting link that may mean the immune system is aided by gut bacteria when responding to these drugs. Not all patients respond to immunotherapy drugs and it's hard to know who will benefit from the treatment prior to it being given.

"The gut microbiome can be changed through a number of different strategies, so there is real potential here to modify the gut microbiome to boost an immunotherapy response."

Dr Pippa Corrie, Chair of the NCRI's Skin Cancer Clinical Studies Group, said: "There is growing evidence that gut bacteria play a vital role in warding off disease, absorbing nutrients from the food we eat, and maintaining normal function of our immune systems.

"Gut microbes have been shown to influence the role of conventional chemotherapy, so it's probably not surprising that they impact on response to new immunotherapies being used in the clinic. Manipulating the gut flora may be a new strategy to enhance activity of immunotherapy drugs, as well as to manage problematic toxicity in the future."

More information: Plenary session: Understanding responses to cancer therapy: The tissue is the issue but the scoop is in the poop – Jennifer Wargo, The University of Texas MD Anderson Cancer Center, USA, presented at the National Cancer Research Institute's (NCRI) Cancer Conference in Liverpool.

Provided by Cancer Research UK

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