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Review paper by @hopkinskimmel, @bloombergkimmel researchers: Immune checkpoint blockade (ICB) immunotherapy “just scratching the surface of what is possible.”

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For Immediate Release

Review paper: Immune Checkpoint Blockade Prior to Surgery Promising in Multiple Cancer Types

Authors available for media interviews

Treating cancer patients with immunotherapies known as immune checkpoint blockade (ICB) prior to surgery (neoadjuvant) has been a rapidly growing area of research, but the scientific community is just scratching the surface of what is possible, according to a review paper coauthored by several investigators at the [Johns Hopkins Kimmel Cancer Center](#) and its [Bloomberg~Kimmel Institute for Cancer Immunotherapy](#).

“We consider this approach to cancer immunotherapy to be a gold mine for advancing our scientific knowledge of how immune checkpoint blockade is working, to define better biomarkers that predict clinical outcomes and to help us design the next generation of treatments with combination therapies,” says lead author [Suzanne Topalian, M.D.](#), director of the [Johns Hopkins Melanoma/Skin Cancer Program](#) and associate director of the Bloomberg~Kimmel Institute for Cancer Immunotherapy.

Neoadjuvant ICB is now being tested in multiple types of cancer in hundreds of clinical trials. Some neoadjuvant ICB regimens in certain tumors have led to a pathologic complete response, or no evidence of live tumor cells. The review paper, [published online August 17](#) in the journal [Cancer Cell](#), covers notable studies using ICB in lung cancer, triple-negative breast cancer, melanoma and non-melanoma skin cancers and gastrointestinal cancers.

In lung cancers, the reviewers note, changes that happen in cancer tissue after ICB occur much more rapidly than what is seen on computed tomography imaging. In some cases, a tumor mass may still be visible on imaging but be much smaller when experts go to operate or look under a microscope. Pathologic response can tell scientists more, Topalian says.

In ICB trials in breast cancers, investigators have learned that a combination of chemotherapy plus ICB is effective, and giving ICB to patients with earlier cancers prior to surgery is more effective than giving it to patients with advanced, inoperable disease. In skin cancers, investigators have learned that combination therapies are helpful and that some patients who have complete responses as seen under a microscope may not need extensive surgery. In gastrointestinal cancers, investigators have learned that a group of GI cancers called MSI-high responds so well to neoadjuvant ICB that some patients may not end up needing surgery.

A number of themes are emerging from ICB clinical trials, the authors say:

- Neoadjuvant immunotherapy regimens that show significant efficacy against advanced, inoperable cancers also play a role in many pathologic responses when given prior to surgery.
- The amount of pathologic response seen correlates with the length of time for survival without relapses.

- Neoadjuvant ICB may not only prime anti-tumor activity in the immune system but also can have a positive effect on surgery, either shrinking tumors to the point where removing them is less disfiguring or making surgery potentially unnecessary.

Topalian and coauthor [Drew Pardoll, M.D., Ph.D.](#), director of the Bloomberg~Kimmel Institute for Cancer Immunotherapy, are available for comment. To schedule an interview, contact Valerie Mehl at mehlva@jhmi.edu or Amy Mone at amone1@jh.edu. Johns Hopkins investigators [Patrick Forde, M.B.B.Ch.](#), and [Kellie Smith, Ph.D.](#), also contributed to the review.