

Cancer genomics continued: Triple negative breast cancer and cancer immunotherapy

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Continuing *PLOS Medicine's* special issue on cancer genomics, Christos Hatzis of Yale University, New Haven, CT, USA and colleagues describe a new subtype of triple negative breast cancer that may be more amenable to treatment than other cases of this difficult-to-treat disease.

Triple negative breast cancer is so called because it lacks molecular characteristics that are associated with response to modern targeted treatments. Hatzis and colleagues selected individual tumors from patients who had exhibited either good or poor sensitivity to [cytotoxic chemotherapy](#), and characterized 29 cases of the disease by whole exome sequencing, with validation in further groups of patients. Patients with a newly-defined "BRCA deficient" subtype experienced better survival with chemotherapy, and had a higher burden of mutations and neoantigens that could be targeted by the immune system. Based on these findings, the authors suggest that immunotherapies might be tested in [patients](#) with BRCA deficient, triple negative [breast cancer](#).

In a commissioned Perspective article, Mack Su and David Fisher of Massachusetts General Hospital, Boston, MA, USA discuss developments in cancer immunotherapy, an area which has had a long history. During the past decade there have been notable advances in the treatment of melanoma, an aggressive tumor type which is increasing in incidence in some populations.

Alongside development of drugs which target the BRAF mutations that are common in melanoma, therapies have been discovered that stimulate

the [immune response](#) to tumors—blocking so-called checkpoints, or inhibitors of the immune response. Su and Fisher describe the potential for use of different combinations of immune and targeted therapies and conclude that, as new immunotherapies are developed and tested in different tumor types, "deeper mechanistic insight will be required to inform clinical decisions."

More information: Tingting Jiang et al, Predictors of Chemosensitivity in Triple Negative Breast Cancer: An Integrated Genomic Analysis, *PLOS Medicine* (2016). [DOI: 10.1371/journal.pmed.1002193](#)

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