

Cancer stem cell vaccine in development shows antitumor effect

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Scientists may have discovered a new paradigm for immunotherapy against cancer by priming antibodies and T cells with cancer stem cells, according to a study published in *Cancer Research*, a journal of the American Association for Cancer Research.

"This is a major breakthrough in immunotherapy research because we were able to use purified cancer stem cells to generate a vaccine, which strengthened the potency of antibodies and [T cells](#) that selectively targeted cancer stem cells," said Qiao Li, Ph.D., a research assistant professor in the department of surgery at the University of Michigan.

Cancer stem cells are [tumor cells](#) that remain present, and ultimately resistant, after chemotherapy or [radiation treatment](#). Scientists disagree on whether these cells have unique properties, but those who support the uniqueness idea have argued that these cells regenerate the tumors that lead to relapse.

Despite the similar name, cancer stem cells are distinct from [embryonic stem cells](#), and the two avenues of research are separate.

For the current study, Li and colleagues extracted cancer stem cells from two immunocompetent mouse models and used them to prepare the vaccine.

"We found that these enriched cancer stem cells were immunogenic and far more effective as an antigen source compared with the unselected tumor cells normally used in previous immunotherapy trials," said Li. "The mechanistic investigations found that when antibodies were primed with cancer stem cells, they were capable of targeting cancer stem cells and conferring antitumor immunity."

The researchers also found that cytotoxic [I](#)

[lymphocytes](#) harvested from cancer stem cell-vaccinated hosts were capable of killing cancer stem cells in vitro.

Provided by American Association for Cancer Research

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