

Ovarian cancer stem cells identified, characterized

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Researchers at Yale School of Medicine have identified, characterized and cloned ovarian cancer stem cells and have shown that these stem cells may be the source of ovarian cancer's recurrence and its resistance to chemotherapy.

“These results bring us closer to more effective and targeted treatment for epithelial ovarian cancer, one of the most lethal forms of cancer,” said Gil Mor, M.D., associate professor in the Department of Obstetrics, Gynecology & Reproductive Sciences at Yale School of Medicine.

Mor presented his findings recently at the annual meeting of the American Association for Cancer Research (AACR) Meeting in San Diego, California.

Cancerous tumors are made up of cells that are both cancerous and non-cancerous. Within cancerous cells, there is a further subclass referred to as cancer stem cells, which can replicate indefinitely.

“Present chemotherapy modalities eliminate the bulk of the tumor cells, but cannot eliminate a core of these cancer stem cells that have a high capacity for renewal,” said Mor, who is also a member of the Yale Cancer Center. “Identification of these cells, as we have done here, is the first step in the development of therapeutic modalities.”

Mor and colleagues isolated cells from 80 human samples of either peritoneal fluid or solid tumors. The cancer stem cells that were

identified were positive for traditional cancer stem cell markers including CD44 and MyD88. These cells also showed a high capacity for repair and self-renewal.

The isolated cells formed tumors 100 percent of the time. Within those tumors, 10 percent of the cells were positive for cancer stem cell marker CD44, while 90 percent were CD44 negative.

Mor and his team were able to isolate and clone the ovarian cancer stem cells. They found that these cells were highly resistant to conventional chemotherapy while the non-cancer stem cells responded to treatment. “Isolating and cloning these cells will lead to development of new treatments to target and eliminate the cancer stem cells and hopefully prevent recurrence,” said Mor.

Source: Yale University

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