



Correspondence

Dostarlimab: The miracle drug for the treatment of colorectal cancer

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Dear Editor,

Cancer is nothing but uncontrolled cellular growth. When this uncontrolled cellular growth takes place in colon or rectum area, it is termed as colorectal cancer or simply colon cancer [1]. The epidemiology of colorectal cancer may change drastically depending on geographical locations. It is the second and third most prevalent type of cancer in females and males respectively. Incidence and mortality rates of this type of cancer is significantly lower in females than males [2,3]. Dostarlimab (brand name JEMPERLI) is a collection of laboratory-synthesized molecules which can act as substitute for human antibodies [4]. Dostarlimab is an antibody to anti-programmed cell death receptor-1 (PD-1) which is used for the treatment of adults with mismatch repair-deficient (dMMR) recurrent or advanced solid tumors as well as dMMR-recurrent or advanced cancer in endometrium [5,6].

JEMPERLI attaches to PD-1, found on the surface of T cells. PD-1 in healthy T cells acts as a brake that prevents the cells from starting an uncontrollable immune response. However, PD-1 can inactivate T cells in tumors as well as prevent them from destroying the cancer cells. Cancer cell or normal cell within the tumor mass has an increased concentration of PD-L1 and PD-L2 molecules on their surfaces, which bind to PD-1. When these two molecules (PD-L1 and PD-L2) attach with the PD-1 receptor present on the T cell, the T cell is inactivated and cannot kill the cancer cells. JEMPERLI binds to the PD-1 in a way that resists PD-L1 and PD-L2 from attaching with the PD-1 receptor. This blockade on PD-1 allows the T cells to activate and to attack and kill cancer cells (Fig. 1) [7].

A small group of colorectal patients (18 individuals) just experienced something no short of a scientific miracle, their disease subsided completely after experimental treatment conducted by a group of doctors at Memorial Sloan Kettering Cancer Center, New York. The trial's result is being labeled as surprising because every patient was cured completely without any exception. These groundbreaking results are unforeseen in cancer research according to some experts [8]. These patients went through treatments like chemotherapy, radiation, and in some cases, life-altering surgery that could alter bowel, urinary and sexual functions. A clinical trial designed by Dr. Diaz in 2017 worked as inspiration for the study. It involved 86 persons who had metastatic

cancer that had spread throughout their bodies. However, all of the tumors had a gene mutation that prohibited cells from repairing DNA damage. These mutations are found in 4% of cancer patients. Pembrolizumab, a Merck checkpoint inhibitor, was given to patients in that experiment for up to two years. In around one-third to one-half of the patients, tumors shrunk or stabilized, and they survived longer. Tumors eliminated in 10% of those who took part in the study. The experiment needs to be duplicated in a much larger study, according to the researchers, who point out that the current study only looked at individuals with a unique genetic signature in their tumors. However, they believe that observing total remission in 100% of the patients studied is a highly positive early sign [9].

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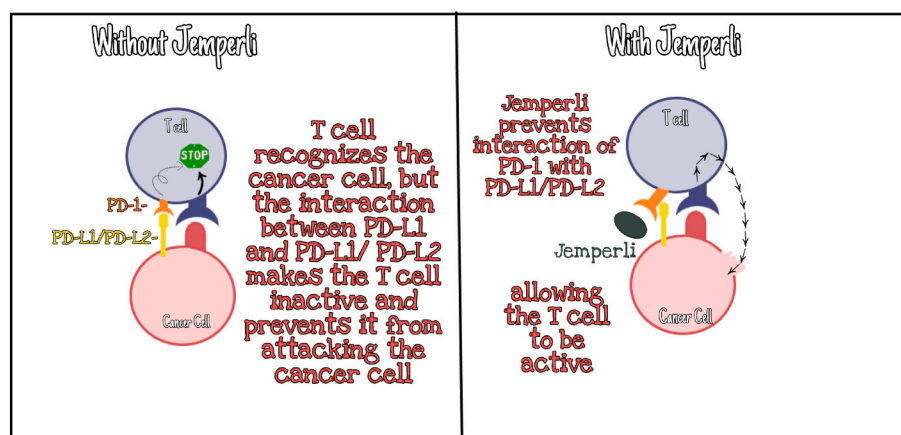


Fig. 1. Mechanism of action of JEMPERLI (dostarlimab-gxly).

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Consent

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References

- [1] Basic information about colorectal cancer | CDC. https://www.cdc.gov/cancer/colorectal/basic_info/index.htm. (Accessed 9 June 2022).
- [2] Colorectal cancer: epidemiology, risk factors, and protective factors - UpToDate. <https://www.uptodate.com/contents/colorectal-cancer-epidemiology-risk-factors-and-protective-factors>. (Accessed 9 June 2022).
- [3] Age Standardized (World) Incidence Rates, Colorectal Cancer, Males, All Ages. doi: 10.2-15.2.
- [4] "Miracle", A drug trial erases cancer from every patient's body - first time in history, Econ. Times. <https://economictimes.indiatimes.com/industry/healthcare/biotech/miracle-a-drug-trial-erases-cancer-from-every-patients-body/first-time-in-history/slideshow/92083596.cms>. (Accessed 9 June 2022).
- [5] Jemperi (dostarlimab-gxly) to treat advanced solid tumours. <https://www.clinicaltrialsarena.com/projects/jemperi-dostarlimab-gxly/>. (Accessed 9 June 2022).
- [6] A. Markham, Dostarlimab: first approval, *Drugs* 81 (10) (2021) 1213–1219, <https://doi.org/10.1007/S40265-021-01539-5>, 2021 8110.
- [7] Dostarlimab-gxly (Jemperi) drug information. <https://www.ucir.org/immunotherapy-drugs/dostarlimab-gxly>. (Accessed 9 June 2022).
- [8] Cancer drug had 100% success rate. : NPR. <https://www.npr.org/2022/06/07/1103545361/cancer-drug-experimental-rectal-chemotherapy-surgery-treatment-immunotherapy>. (Accessed 9 June 2022).
- [9] A cancer trial's unexpected result: remission in every patient | Business Standard News. https://www.business-standard.com/article/current-affairs/a-cancer-trial-s-unexpected-result-remission-in-every-patient-122060701128_1.html. (Accessed 9 June 2022).

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