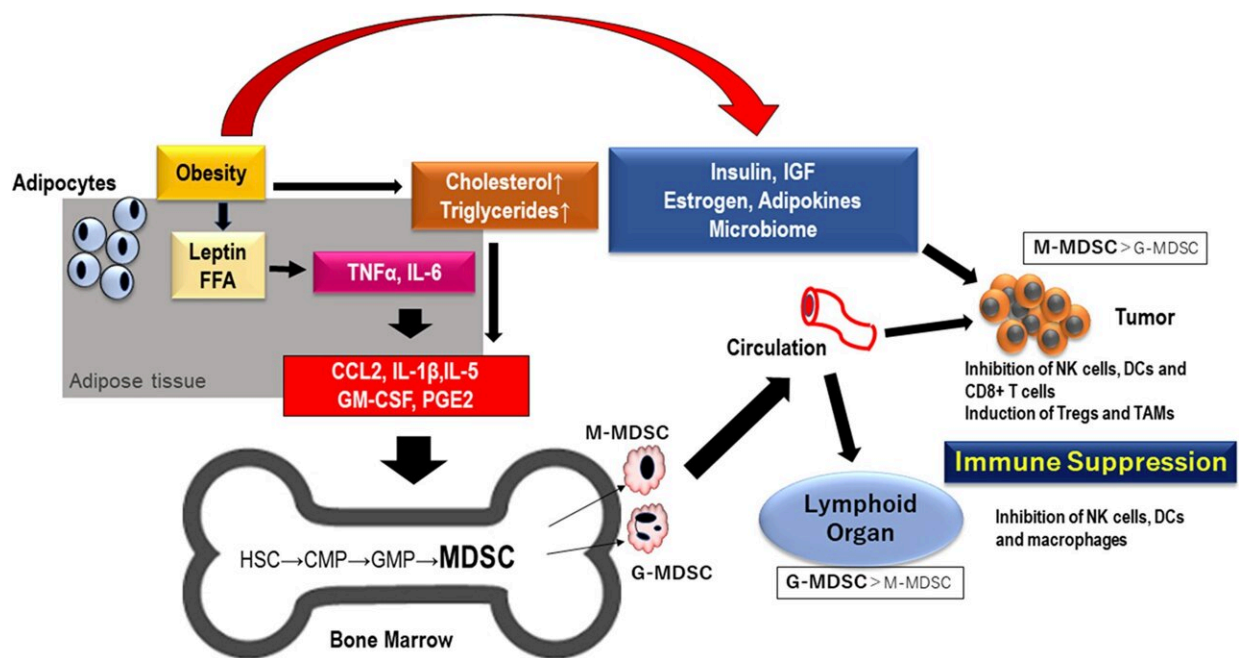


New research reviews myeloid-derived suppressor cells in cancer, autoimmune diseases, and more

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MDSCs generated by obesity migrate to lymphoid organ and TME. Credit: 2022 Shibata et al.

A new review titled "Myeloid-derived suppressor cells: Cancer, autoimmune diseases, and more" has been published in *Oncotarget*.

Although cancer immunotherapy using immune checkpoint inhibitors

(ICIs) has been recognized as one of the major treatment modalities for malignant diseases, the clinical outcome is not uniform in all cancer patients. Myeloid-derived suppressor cells (MDSCs) represent a heterogeneous population of immature myeloid cells that possess various strong immunosuppressive activities involving multiple immunocompetent cells that are significantly accumulated in patients who did not respond well to cancer immunotherapies.

In this new review paper, researchers from Fukushima Medical University, Aizu Chuo Hospital, Aizu Oncology Consortium, Nippon Medical School, and Bange Kousei General Hospital reviewed the perspective of MDSCs with emerging evidence.

"Here, we review the following: the phenotypes and origins of MDSCs; the mechanisms of immunosuppression by MDSCs; MDSC functions in the TME; MDSCs in benign disorders and physiology; and consideration of MDSC manipulation in cancer treatment," the researchers state.

Many studies on MDSCs were performed in malignant diseases. Substantial studies on the participation of MDSCs on non-malignant diseases such as chronic infection and [autoimmune diseases](#), and physiological roles in obesity, aging, pregnancy and neonates have yet to be reported. With the growing understanding of the roles of MDSCs, variable therapeutic strategies and agents targeting MDSCs are being investigated, some of which have been used in clinical trials. More studies are required in order to develop more effective strategies against MDSCs.

ICI therapies have been developed and demonstrated surprising outcomes in many types of cancer. However, the effects of ICIs are not universal or uniform in all [cancer patients](#), and emerging evidence has indicated that MDSCs are a crucial target to overcome this important issue with a growing understanding of the roles of MDSCs, variable

therapeutic strategies and agents targeting MDSCs are under exploration, some of which have been used in clinical trials.

"More studies are required for the development of more effective strategies against MDSCs," the researchers conclude.

More information: Masahiko Shibata et al, Myeloid-derived suppressor cells: Cancer, autoimmune diseases, and more, *Oncotarget* (2022). [DOI: 10.18632/oncotarget.28303](https://doi.org/10.18632/oncotarget.28303)

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