

Anti-worm drug inhibits tumor growth and spread in mice

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used to inhibit melanoma growth and spread in mice.

The [drug](#), which is available over-the-counter in Europe, is a so-called anthelmintic used to control parasitic infections.

The researchers found that the drug, flubendazole, inhibits growth and metastasis of human tumors grown in mice. The finding is the result of a 3-year collaboration between researchers at UNSW and in the United States.

Lead author of the study Professor Levon Khachigian said, "We were surprised to discover that flubendazole's anti-tumor effects involve its inhibition of a cell surface protein called programmed cell death protein-1 or PD-1."

"When PD-1 is bound to another protein called PD-L1, it helps stop the immune system from killing [cancer cells](#)."

"PD-1 suppression releases the brakes on the [immune system](#) and allows immune [cells](#) to find and destroy tumors."

"These studies associate flubendazole with PD-1 in an experimental system."

Treatment for melanoma has changed dramatically in recent years, with improvements in immunotherapy and the introduction of PD-1 inhibitors.

However, currently all clinically available PD-1 inhibitors are antibodies, requiring patients to undergo intravenous infusion, typically once every 3 weeks. Unfortunately, significant challenges remain: many patients do not respond to existing PD-1 inhibitors or the response is not sustained.

No small molecule alternatives to antibody-based checkpoint inhibitors are clinically available, although a number are under development and one is currently being assessed in clinical trials.

The research has found that in mice, flubendazole is a novel small molecule inhibitor of PD-1.

Professor Khachigian said, "Patients on small molecule PD-1 inhibitors could potentially be dosed as outpatients. This would mean greater convenience, avoidance of intravenous administration and cost savings for chemotherapy units."

Professor Khachigian adds caution. "Whilst flubendazole is an old drug, its use as a treatment for melanoma has not yet been tested in human trials. There is no regulatory approval for use of flubendazole for cancer [patients](#), and thus it is not available for this indication. Patients should continue seeking the advice of their health professional."

Provided by University of New South Wales

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