

# Marijuana use suppresses immune functions, study shows

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(PhysOrg.com) -- Smoking marijuana can trigger a suppression of the body's immune functions, making cannabis users more susceptible to certain types of cancers and infections, according to a new study led by a University of South Carolina researcher.

The findings also point to the possibility of using compounds found inside the cannabis plant, which is currently used legally in some places for medical purposes such as pain relief, as a treatment for a large number of additional clinical disorders that benefit from a suppressed immune response, including arthritis and multiple sclerosis.

The team of immunologists, led by Dr. Prakash Nagarkatti of the USC School of Medicine, published their findings in this month's *European Journal of Immunology*. Their work focused on cannabinoids, a group of compounds found inside the cannabis plant, including THC (delta-9 tetrahydrocannabinol).

"Cannabis is one of the most widely used drugs of abuse worldwide, and it is already believed to suppress immune functions making the user more susceptible to infections and some types of cancer," Nagarkatti said. "We believe the key to this suppression is a unique type of immune cell, which has only recently been identified by immunologists, called myeloid-derived suppressor cells, MDSCs."

While most immune cells fight against infections and cancers to protect the host, MDSCs actively suppress the [immune system](#). The presence of

these cells is known to increase in cancer patients, and it is believed that MDSCs may suppress the immune system against cancer therapy, actually promoting cancer growth. Nagarkatti's team demonstrated that cannabinoids can trigger a massive number of MDSCs through activation of cannabinoid receptors.

“Our research for the first time demonstrates that marijuana cannabinoids can activate a unique type of immune cell, and the job of these cells is to suppress the immune response,” said Nagarkatti, the Carolina Distinguished Professor in the department of pathology, microbiology and immunology at the School of Medicine.

Suppressing the immune response is important for treating a large number of ailments, including arthritis, multiple sclerosis, lupus and allergies.

“In these, your immune system gets activated and starts destroying your own cells and tissues. You have to try to suppress your immune response,” he said. “In such instances, there is a need to develop drugs that can suppress the immune response.”

“Marijuana cannabinoids present us with a double-edged sword,” Nagarkatti said. “On one hand, due to their immunosuppressive nature, they can cause increased susceptibility to cancer and infections. However, further research of these compounds could provide opportunities to treat a large number of clinical disorders where suppressing the immune response is actually beneficial.”

Provided by University of South Carolina

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