

Researchers identify a promising target for multiple sclerosis treatments

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A team of basic and clinical scientists led by the University of Montreal Hospital Research Centre's (CRCHUM) Dr. Nathalie Arbour has opened the door to significantly improved treatments for the symptoms of Multiple Sclerosis (MS). In a study selected as among the top 10% most interesting articles published in the *Journal of Immunology*, the team identifies the elevated presence in MS patients of a type of white blood cell (CD4 T cell) that expresses NKG2C, a highly-toxic molecule harmful to brain tissues.

In close collaboration with clinicians at the University of Montreal Hospital and the Montreal Neurological Institute, McGill University, Dr. Arbour's team studied tissues from healthy subjects and [MS patients](#). This approach enabled the team to uncover a novel mechanism by which [CD4 T cells](#) expressing NKG2C can directly target [brain cells](#) having a specific corresponding ligand found only in MS patients. "These results are very encouraging," says Arbour, "since they provide us with a much more refined picture of how the brain cells of MS patients are targeted by the immune system and provide us with a clearer understanding of how to go about blocking their action."

There is no known cure for this auto-immune disease of the central nervous system. While there are a number of approved MS therapies targeting molecules expressed by immune cells, they are sometimes too broad in their application. They can suppress the efficiency of the immune system but also open the way for serious infections in some MS patients such as progressive [multifocal leukoencephalopathy](#), a serious

viral disease that can cause death in people with severe immune deficiency, such as MS patients on immunosuppressive medication.

"Our research has made an important step in getting around this problem. Because NKG2C is specifically expressed by a subset of CD4 T cells only found in MS patients, targeting this receptor would not affect large populations of [immune cells](#), but only those which produce the symptoms characteristic of this debilitating disease," explains Arbour.

For patients this discovery could translate into improved treatments aimed at decreasing the progression of the disease and its symptoms, without the risk of potentially lethal infections and therefore improving their quality of life.

Provided by McGill University

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