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**Dietary wheat amylase trypsin inhibitors exacerbate central nervous system (CNS) inflammation**

Zevallos V, Yogev N, Hauptmann J, et al. [Dietary wheat amylase trypsin inhibitors exacerbate CNS inflammation in experimental multiple sclerosis.](https://gut.bmj.com/content/73/1/92) Gut 2024; 73: 92-104. doi: 10.1136/gutjnl-2023-329562.

The cause for rising immune-mediated inflammatory diseases (IMIDs) remains unknown, with many postulating that environmental trigger(s) such as diet may play a key role. However, one major problem has been that dietary studies examining functional biology have historically lacked robustness and detail to allow appropriate conclusions to be drawn.

In this publication, Zevallos et al., provide a welcome reminder that high-quality dietary studies can be performed in the field of IMIDs via studying the effect of pro-inflammatory dietary proteins in a mouse model of experimental autoimmune encephalitis (EAE) and then the effect on peripheral blood mononuclear cells (PBMCs) from patients with multiple sclerosis (MS).

EAE was induced in C57 black 6 mice receiving dietary regimens with a varying concentration of gluten and amylase trypsin inhibitors (ATI). The effect of dietary ATI on clinical EAE severity and on subsets of myeloid cells and lymphocytes was analysed. Activation of PBMCs from patients with MS and healthy controls was compared.

Dietary ATI in the mice dose-dependently caused higher EAE clinical scores than other dietary regimens, including on gluten alone. The main biological process driving this appeared to be mediated by myeloid cells and CNS-infiltrating T lymphocytes. In the human data, ATI activated PBMCs in both patients with MS and healthy controls.

Zevallos et al., conclude that dietary wheat ATI activates murine and human myeloid cells, and that the amount of ATI present may cause or exacerbate inflammation, and therefore be a potential future target for therapeutic modulation in inflammatory CNS disease.