



# How Fermented Foods Boost your Immune System

**Don't hold off on the sauerkraut!**



Fermented foods feed our gut good bacteria that support our immune health

Kimchi, kombucha, and other fermented foods provide our gut microbiome with additional protection and support in the face of contagious disease. But how exactly do fermented foods boost our immune system?

Fermented vegetables have AHR (Aryl Hydrocarbon Receptor) molecules that feed the good bacteria in our gut. These AHR molecules are also able to recognize a variety of substances in the body. These AHR molecules “blow the whistle” on invasive bacteria, which allows the immune system to quickly respond to the attack.

Fermented vegetables help produce a beneficial substance called butyrate. This butyrate is crucial for the cells lining our intestines, which create

immune-boosting killer cells. These cells rely on butyrate for repair and replenishment. Without enough butyrate, our immune system could weaken, making us more susceptible to diseases. Therefore, the connection between gut bacteria and immune function is vital for our overall health and disease resistance. When we eat any type of fermented food, we're supporting our intestinal cells that create the immune system.

**Check out this abstract from a study on fermented foods from *Science* magazine**

## Natural Aryl Hydrocarbon Receptor Ligands Control Organogenesis of Intestinal Lymphoid Follicles

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### Abstract

Innate lymphoid cells (ILC) expressing the transcription factor ROR $\gamma$ t induce the postnatal formation of intestinal lymphoid follicles and regulate intestinal homeostasis. ROR $\gamma$ t<sup>+</sup> ILC express the aryl hydrocarbon receptor (AhR), a highly conserved, ligand-inducible transcription factor believed to control adaptation of multicellular organisms to environmental challenges. We show that AhR is required for the postnatal expansion of intestinal ROR $\gamma$ t<sup>+</sup> ILC and the formation of intestinal lymphoid follicles. AhR activity within ROR $\gamma$ t<sup>+</sup> ILC could be induced by dietary ligands such as those contained in vegetables of the family *Brassicaceae*. AhR-deficient mice were highly susceptible to infection with *Citrobacter rodentium*, a mouse model for attaching and effacing infections. Our results establish a molecular link between nutrients and the formation of immune system components required to maintain intestinal homeostasis and resistance to infections.