

# Therapeutic Options for High *Akkermansia muciniphila* Levels

## Addressing High Levels of *Akkermansia muciniphila*

*Akkermansia muciniphila* has appeared in over 2000 scientific publications, and abundance has been associated with maintaining intestinal integrity. The primary function of *Akkermansia muciniphila* is to support healthy mucin layer turnover in the intestines, and thus strengthen the intestinal lining. Furthermore, this process releases short-chain fatty acids such as acetate and propionate, that support the abundance and diversity of other health-promoting microorganisms in the gut.

Higher levels of *Akkermansia* have been associated with longevity and individuals fighting autoimmune diseases. Higher levels observed in stool may be due to a change in the gut lining, releasing *Akkermansia* into the fecal bolus. The current leading hypothesis on mechanism of action from researchers is that the body upregulates things that help protect it when things are going wrong.<sup>1</sup> During infection, inflammatory markers increase because the inflammatory pathways are turned on to battle infection. More inflammatory proteins in the context of infection are a good sign. The way our microbiome is linked to our immune system is still being elucidated but there are preliminary studies showing the microbiome can respond to the host's immune and inflammatory pathways. There is a lot of ongoing research aimed at elucidating these complex relationships.

## Supplement and Dietary Plan

- Encourage intake of polyphenols such as pomegranate, green tea, and grape seed<sup>2</sup>
  - » Supplement as necessary
  - » Research shows that polyphenols are neuroprotective in conditions associated with high *Akkermansia*<sup>3</sup>
- Encourage intake of prebiotic dietary fibers such as onion, chicory, garlic, asparagus, banana, and artichokes<sup>4</sup>
  - » Supplement as necessary
- Consider supplementation of a multistrain probiotic formulation to help promote a healthy ecosystem in the gut
- Consider supplementation with a probiotic containing *Akkermansia muciniphila*, if indicated by the full clinical picture
- Consider the possibility of intestinal permeability and/or damaged mucosa especially with other GI-MAP findings (low IgA, elevated zonulin)
- Consider a classic 5R protocol or 6R protocol



GI Microbial Assay Plus



"I suspect that elevated levels of *Akkermansia* in the stool may be indicative of another process happening in the body, such as a compromised mucin layer liberating higher amounts of *Akkermansia* in the stool. Given *Akkermansia*'s specificity to inhabit the mucin layer, I am not convinced that elevated stool *Akkermansia* levels are related to a true increase in abundance. Therefore it is critical to look at the entire clinical picture when deciding how to treat the patient."

—Kara Fitzgerald, ND, IFMCP

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1. Cox LM, Maghzi AH, Liu S, Tankou SK, Dhang FH, Willocq V, Song A, Wasén C, Tauhid S, Chu R, Anderson MC, De Jager PL, Polgar-Turcsanyi M, Healy BC, Glanz BI, Bakshi R, Chitnis T, Weiner HL. Gut Microbiome in Progressive Multiple Sclerosis. *Ann Neurol*. 2021 Jun;89(6):1195-1211. doi: 10.1002/ana.26084. Epub 2021 Apr 30. PMID: 33876477; PMCID: PMC8132291.
2. Anhê FF, Pilon G, Roy D, Desjardins Y, Levy E, Murette A. Triggering *Akkermansia* with dietary polyphenols: A new weapon to combat the metabolic syndrome? *Gut Microbes*. 2016;7(2):146-153. doi:10.1080/19490976.2016.1142036
3. Bhullar, Khushwant S, and H P Vasantha Rupasinghe. "Polyphenols: multipotent therapeutic agents in neurodegenerative diseases." *Oxidative medicine and cellular longevity* vol. 2013 (2013): 891748. doi:10.1155/2013/891748
4. Zhou K. Strategies to promote abundance of *Akkermansia muciniphila*, an emerging probiotics in the gut, evidence from dietary intervention studies. *Journal of Functional Foods*. 2017;33:194-201. doi:10.1016/j.jff.2017.03.045