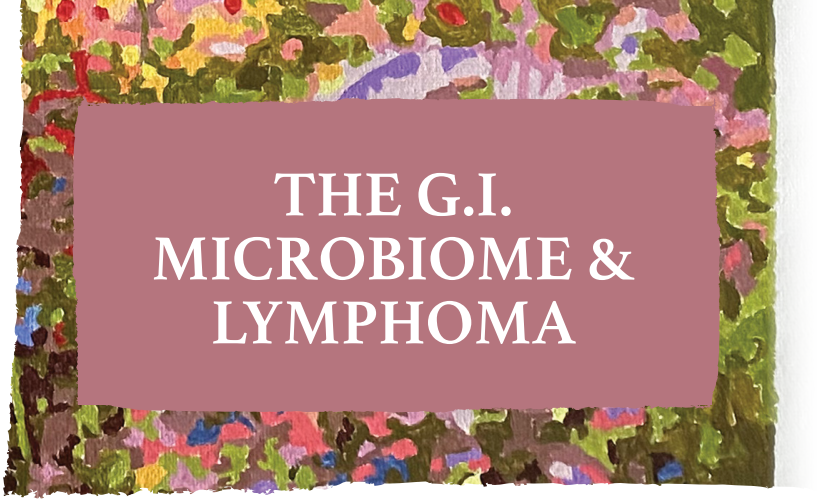
Healing Cancer at the Root
HYPERION
Functional Medicine



THE G.I. MICROBIOME & LYMPHOMA

Growth and development of lymphoma tumors, otherwise known as lymphomagenesis, can be impacted by the microbiome. Research has demonstrated that the eradication of specific microorganisms from the gut microbiome leads to improved outcomes. Increased dominance by specific microbes in the microbiome can also play a role. The disease burden of lymphoid cancer has been rising globally over the last decade. Studies are compounding that delineate the crucial role of the gut and the bacterial microbiome in the pathogenesis of disease, the gut provides a defensive barrier for crucial physiological processes in cancer patients especially immunity and metabolism[1].

In functional oncology, we want to know the condition and what bacteria live in the G.I. microbiome of our lymphoma patients.

Research has shown the microbiome of patients prior to chemotherapy and/or immunotherapy can be a predictor of treatment outcomes across many lymphoma types. Higher microbial diversity, meaning you have a high number of different species that are evenly spread across your gut microbiome, is more common in patients who achieve a response to treatment compared with those who do not[2].

Bacteria in the gut send signals to the mitochondria, this has been observed to alter mitochondrial metabolism, activate immune cells, induce inflammation, and alter the intestinal barrier. Dysbiosis of the microbiome in the gut and the resulting mitochondrial dysfunction are associated with chronic intestinal inflammation and cancer[3].

There is a definitive causal link between the G.I. microbiome and the development of lymphoma. There are potential causal roles in the development of lymphoma and probiotics have been identified that may impact disease progression[4 5].

The inflammatory state of the G.I. system in the state of dysbiosis increases the risk of a leaky gut allowing microbes, food particles, and toxins to leak out from the intestine itself into the bloodstream. This creates a chronic inflammatory response that affects many systems in the body. The stress on healthy cells from chronic inflammation increases the risk of damage to their DNA and can lead to cancer cell development.

A comprehensive stool analysis is essential to evaluate the health of the cancer patient's microbiome and the overall function of the G.I. system. Hyperion functional medicine uses stool testing in patients who are in the Phase 1 Functional Oncology Program. The G.I. stool test is used to evaluate the microbiome for dysbiosis, immune dysfunction, inflammatory markers, bacterial metabolites, infectious bacteria, yeasts, who parasites, and overall microbial diversity.

A bacterial metabolite identified in the stool test we use; butyrate, has been found to significantly inhibit the growth of lymphoma tumors. In this study, butyrate induced cancer cell death of lymphoma tumor cells. It is important to know levels of butyrate in patients with lymphoma[6].

A detailed and stepwise functional treatment plan is made based on the results of the stool test which may include prescribed beneficial probiotics or prebiotic's, G.I. specific nutritional recommendations, pharmaceutical grade supplements as indicated, and botanical antibiotic treatment remedies based on the microbiome testing results.

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CANCER ROOTS
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