

Bone marrow holds secrets for treating colitis and Crohn's

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(Medical Xpress)—Michigan State University researchers have unlocked secrets in bone marrow that could lead to improved treatments for colitis and Crohn's disease.

The results, featured in the current issue of [Proceedings of the National Academy of Sciences](#), show that the havoc inflammatory bowel diseases wreaks on the [digestive tract](#) is mirrored in bone marrow. Early indications also show that the disorders of the gut could potentially be treated through the bone marrow, said Pam Fraker, MSU University Distinguished Professor of biochemistry and molecular biology.

"It's possible that if we could reduce bone marrow's ability to produce [inflammatory cells](#) that we could reduce the severity of colitis and Crohn's disease," said Fraker, who co-authored the study with MSU colleagues Laura McCabe, professor of physiology and radiology, and Mark Trottier, research specialist. "This could limit the damage that the disease causes and reduce the number of patients needing surgery."

Colitis and Crohn's affect more than a million people in the United States, including a growing number of children. There are no preventive treatments; however, steroids are often prescribed to reduce the diseases' pain and inflammation. The side effect of this course is [tissue damage](#), which could lead to surgery and additional complications.

Watching a young patient suffer through the pain of severe colitis bolstered Fraker's need to research this devastating disease.

"She was very frail, sick, addicted to narcotics to numb her pain and had several intestinal surgeries to no avail," Fraker said. "This became a huge motivator for me as it drove home how little real help is available to these patients."

Fraker focused on bone marrow, which is a large, highly active and responsive tissue. When colitis was induced in mice, she was surprised by the significant and swift changes that occurred in their bone marrow. The symptoms of colitis, such as swelling, anemia and unhealthy increases in monocytes and neutrophils, (cells that fight infection but exacerbate the excessive swelling in intestines) were reflected in the bone marrow.

The bone marrow's reactions actually fan the flames of the inflammatory bowel diseases rather than help cure it. When [bone marrow](#) amps up production of [monocytes](#) and neutrophils, it does it at the expense of making lymphocytes and red blood cells, keys to immune defense.

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Provided by Michigan State University

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