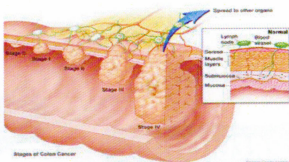


# POWERFUL BENEFITS OF PREBIOTICS

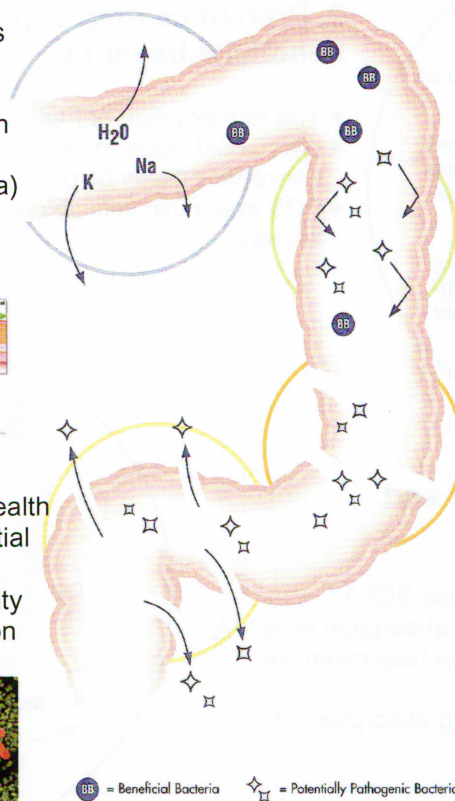
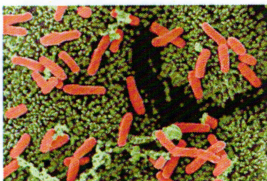
**Prebiotic Definition:** "A non-digestible food ingredient that beneficially affects the host by selectively stimulating the growth and/or activity of one or a limited number of bacterial species (particularly *Bifidobacteria*) already resident in the colon, and thus attempts to improve host health"

## The importance of colon health

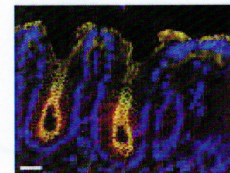
- Fluid, electrolyte, minerals & vitamins absorption.
- Set negative health condition by malabsorption of fluids and electrolytes (ie, constipation & diarrhea)
- Minimize cancer causing toxins to intestine wall



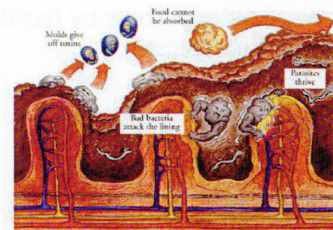
- Compromised colonic health sets the stage for potential negative effects:  
Increased permeability  
Bacterial translocation



- Critical barrier between the body's circulatory system and the colon's numerous species of microbiota.
- Support structure and function of epithelial cell proliferation and differentiation
- Decrease intestinal permeability, increase integrity
- Increase the rate of production of crypt cells in the colon via SCFA



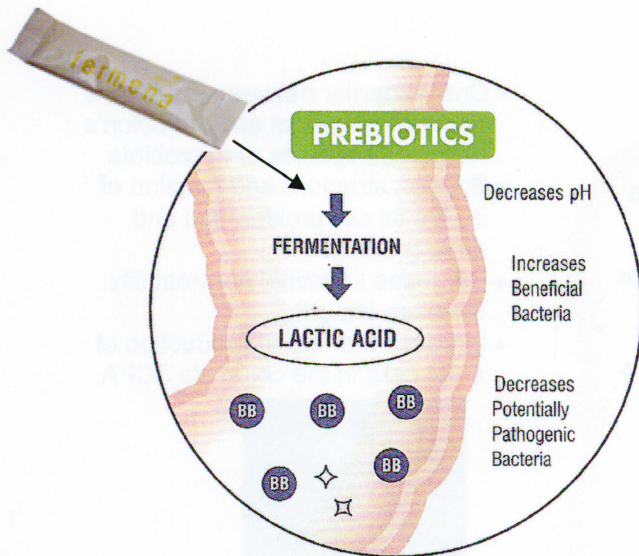
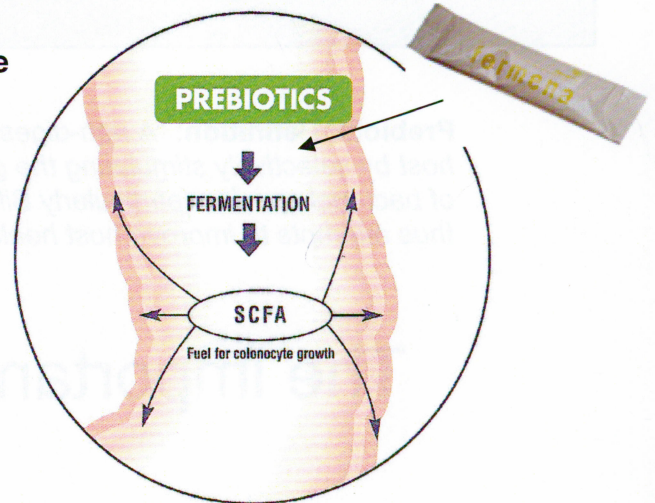
- Protective function
- Minimize invasion of tissues by potential pathogens
- Create unfavorable environment for potential pathogens



# How do prebiotics help to support the gut?

## 1. Prebiotics help to support gut integrity and the critical mucosal barrier.

- The prebiotics fructooligosaccharides (FOS) and inulin provide substrate for fermentation by the intestinal microbiota.
- Fermentation of FOS and inulin in the colon results in the production of short-chain fatty acids (SCFA).
- SCFAs provide fuel for ileal and colonic epithelial cells which may help maintain the integrity of the colon wall.

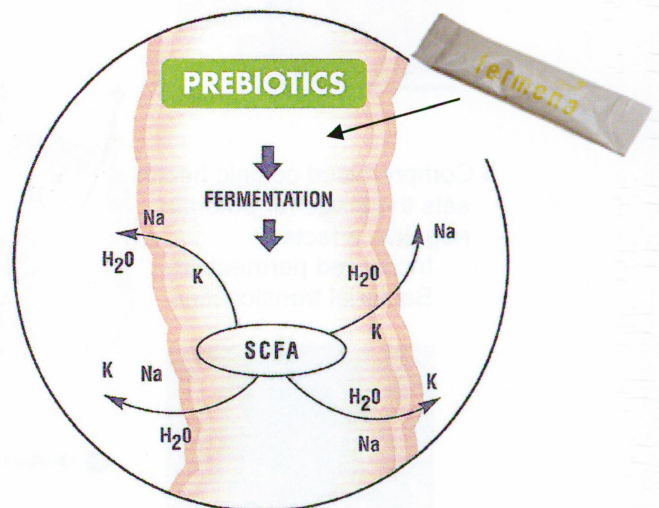


## 2. Prebiotics help support the growth of potentially beneficial bacteria.

- The fermentation of FOS and inulin produces lactic acid.
- Lactic acid helps to decrease colonic pH, making the colonic environment less favorable for potentially pathogenic bacteria.
- FOS and inulin selectively promote the growth of beneficial bacteria.

## 3. Prebiotics help improve water and electrolyte absorption.

- Fermentation of FOS and inulin produces SCFA.
- Water and electrolytes accompany the absorption of SCFA.
- Absorption of water and electrolytes can help minimize risk of diarrhea.
- Help prevent osteoporosis by facilitating absorption of Magnesium and Calcium.



Fermena is a unique prebiotic blend of 50 potent “SUPER FOOD” from rich Brazilian soil and naturally fermented over 6 months, making a powerful enzyme-rich prebiotic.

Visit us at [Diamondtreeglobal.com](http://Diamondtreeglobal.com)

For additional Fermena information, contact your representative.

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### REFERENCES

1. Roberfroid MB. Crit Rev Food Sci Nutr 1993;33:103-48.
2. Sakata T. Br Journal Nutr 1987;58-95-103.
3. Roberfroid MD, Delzenne NM: Annu Rev Nutr 1998;18:117-43
4. Gibson GR, Beatty ER, Wang X, et al, Gastroenterology 1995; 108:975-982
5. Kleessen B, et al. RepAm J Clin Nutr 1997;65:1397-1402
6. Bowling T, et al, The Lancet 1993; 242:1266-1268.