



## — ROLE OF PROBIOTICS IN — ANTIBIOTIC-ASSOCIATED DIARRHEA

Women are **27% more likely**  
to receive antibiotics than men.

# ViBact-DS

(Bacillus Mesentericus – 2 million, Clostridium Butyricum – 4 million, Streptococcus Faecalis – 60 million, Lactobacillus Sporogenes – 100 million)

**Vaginal infections** account for significant risk of morbidity in women.<sup>1</sup>

If untreated, these infections can lead to pelvic inflammatory disease, which can cause<sup>1</sup>



- Tubal infertility
- Ectopic pregnancy
- Reproductive dysfunction and adverse pregnancy outcomes (preterm labor and delivery and low birth weight)

### Bacterial Vaginosis

- Prevalent in 30% of women of reproductive age<sup>1</sup>
- Normal vaginal flora (lactobacilli) replaced by a mixed flora of aerobic, anaerobic, and microaerophilic species<sup>1</sup>
- Marked by raised vaginal pH<sup>1</sup>

**Gonococcal infections** constitute the second most prevalent sexually transmitted bacterial infections.<sup>1</sup>

In aerobic vaginitis, **vaginal microbiota** (lactobacilli) gets dominated by **facultative anaerobic or aerobic bacteria**, like *Staphylococcus aureus*, group B streptococci, *Escherichia coli*, and *Klebsiella* spp.<sup>1</sup>

- Bacterial vaginal infections are responsible for **frequent antibiotic use** in women of reproductive age.<sup>1</sup>
- Women are **27% more likely** to receive antibiotics than men.<sup>2</sup>

### Antibiotic-Associated Diarrhea

**Antibiotic usage is associated with gastrointestinal side effects, such as nausea and diarrhea.**<sup>3</sup>

Antibiotics alter the diversity and count of bacteria in the gut.<sup>3</sup>

Antibiotics disrupt the ecology of the intestinal microbiota.<sup>3</sup>

Antibiotics affect the capacity of the resident microbiota to resist the invasion of pathogenic microorganisms.<sup>3</sup>

**Leads to diarrhea**<sup>3</sup>



Antibiotics exert long-lasting effects on the balance of the intestinal microbiota.<sup>3</sup>



**This in turn increases the patient's susceptibility to infection and other diseases.**<sup>3</sup>

### Role of Probiotics in Antibiotic-Associated Diarrhea

Probiotics positively affect the gut health in a variety of conditions, like antibiotic-associated diarrhea.<sup>3</sup>

**Core benefits of probiotics in antibiotic-associated diarrhea**<sup>3</sup>

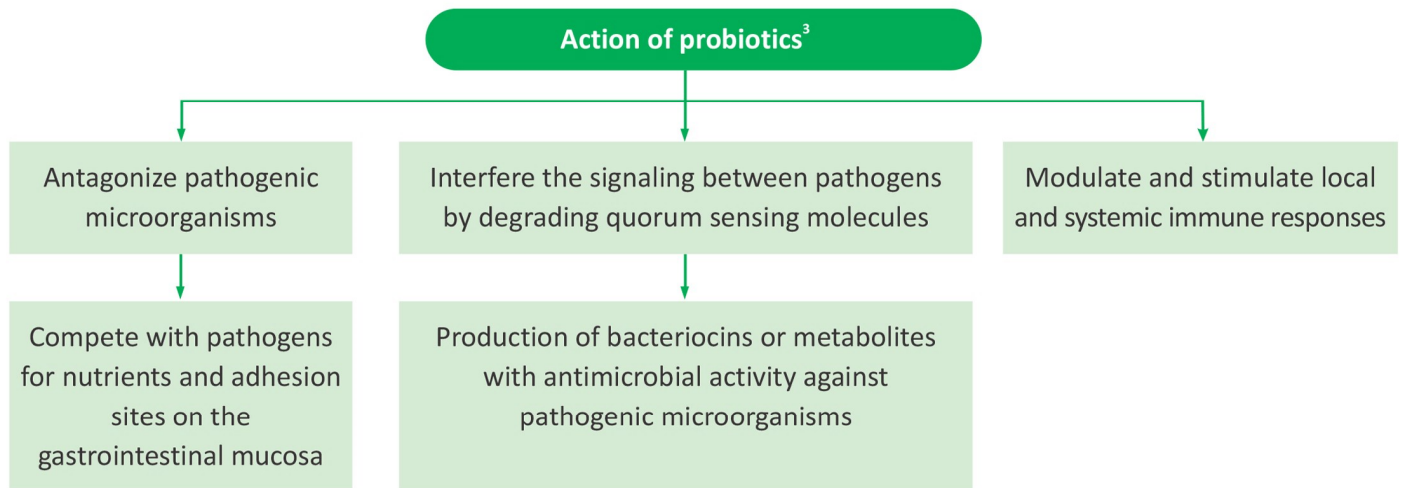
Maintenance of a balanced microbiota

Creation of a favorable gut environment

Support to the health of the digestive tract and the immune system



## Mechanism of Action of Probiotics



Probiotics thus help to maintain healthy microbiota and restore the microbial ecosystem after disturbance.<sup>4</sup>

## Importance of Prebiotics

Addition of nutrients in the form of **prebiotics** helps to stimulate the growth of natural microbiota.<sup>4</sup>

- Stimulates the growth of the health-promoting microorganisms<sup>4</sup>
- Controls the composition of the natural ecosystems<sup>4</sup>
- Promotes the growth of vaginal lactobacilli, but not of pathogenic microorganisms that cause urogenital infections<sup>4</sup>

The key aspects of a prebiotic is that it is indigestible and leads to health benefits through a positive influence on native beneficial microbes.<sup>5</sup>

Fermentation of prebiotics in the colon results in<sup>5</sup>:

- Increased bifidobacteria in the colon
- Increased calcium absorption
- Increased fecal weight
- Shortened gastrointestinal transit time
- Reduced blood lipid levels

Symbiotic use of prebiotics or probiotics helps to influence the gut environment for the benefit of human health.<sup>5</sup>

Probiotics



Prebiotics



Symbiotic association can help to maintain a "healthy" microbiota.<sup>4</sup>

**References:** 1. Mulu W, Yimer M, Zenebe Y, Abera B. Common causes of vaginal infections and antibiotic susceptibility of aerobic bacterial isolates in women of reproductive age attending at Felegehiwot Referral Hospital, Ethiopia: A cross sectional study. *BMC Womens Health*. 2015 May 13;15:42. 2. Schröder W, Sommer H, Gladstone BP, Foschi F, Hellman J, Evengard B, *et al*. Gender differences in antibiotic prescribing in the community: A systematic review and meta-analysis. *J Antimicrob Chemother*. 2016 Jul;71(7):1800–6. 3. Agamennone V, Krul CAM, Rijkers G, Kort R. A practical guide for probiotics applied to the case of antibiotic-associated diarrhea in The Netherlands. *BMC Gastroenterol*. 2018 Aug 6;18(1):103. 4. Borges S, Barbosa J, Teixeira P. Gynecological health and probiotics [Internet]. Available at: <https://www.researchgate.net/publication/301253554>. Accessed on Mar 24, 2020. 5. Probiotics and prebiotics [Internet] [Updated Feb, 2017]. Available at: <https://www.worldgastroenterology.org/UserFiles/file/guidelines/probiotics-and-prebiotics-english-2017.pdf>. Accessed on Mar 26, 2020

## In Antibiotic-Associated Diarrhea

# <sup>Rx</sup> ViBact-DS

(Bacillus Mesentericus – 2 million, Clostridium Butyricum – 4 million, Streptococcus Faecalis – 60 million, Lactobacillus Sporogenes – 100 million)

## Synergistic combination of **Pre & Probiotic**



**Prebiotic:**  
Genetically Modified  
Bacillus Mesentericus (GMBM)



**Probiotic:**  
Clostridium  
Butyricum



**Probiotic:**  
Streptococcus  
Faecalis



**Probiotic:**  
Lactobacillus  
Sporogenes



### Benefits of Vibact DS

- Can withstand gastric acid pH as low as 1.2<sup>1</sup>
- Promotes the growth of Bifidobacterium species<sup>2</sup>
- Improves stool consistency and frequency in diarrhea<sup>3</sup>
- Stimulates the mucosal immunity<sup>4</sup>

### Prescribe as an adjuvant to

- Antifungals
- Antibiotics

BV: Bacterial Vaginosis, VVC: Vulvovaginal Candidiasis,  
AAD: Antibiotic Associated Diarrhea

**1 Cap  
OD**



Developed and Designed by



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