

Freeze-dried & dairy/lactose-free strain of *Saccharomyces boulardii*

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FloraMyces™ is a special strain of non-GMO *Saccharomyces boulardii* isolated from Litchi fruits. Unlike other products containing this organism, FloraMyces™ is dairy and lactose free and does not require refrigeration. Benefits of this source may include broader bioactivity and increased protection of the digestive mucosa. Also, it is this strain that has been most studied for its efficiency in the prevention of antibiotic-associated diarrheas, and as a general supplement for optimum gastrointestinal health. Each two capsule serving contains 10 billion live freeze-dried cells at time of manufacture.

FloraMyces™ *S. boulardii* is obtained through a proprietary patented drying process. Freeze-drying causes a shock to yeast cells which alters their integrity. The very low temperature (freezing) and high vacuum applied can:

- damage the cell walls and consequently the integrity of the cell
- damage proteins and cell enzymes, leading to cell damage and high mortality

Moreover, rehydration of the lyophilisate increases mortality, depending on the liquid used and the temperature, causing further damage to and weakening of the cell, with an increase in mortality and low viability in gastrointestinal transit.

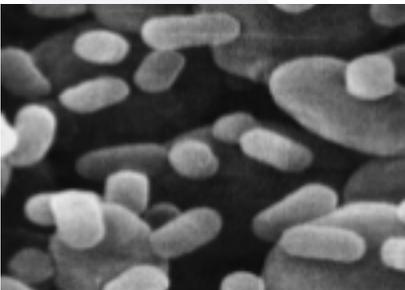
The FloraMyces™ *S. Boulardi* patent is based on less aggressive drying at controlled temperature and lower vacuum:

- to eliminate the drawbacks associated with freeze-drying
- to preserve whole yeast cells
- to maintain the water content unchanged over time
- to delay consequential aging processes, cell deterioration and contamination of the product
- to provide greater stability over time

## FloraMyces™ may be helpful for the following:

- ▶ Diarrhea
  - Antibiotic-associated diarrhea
  - Traveler's diarrhea
- ▶ Imbalanced GI mucosal immune function
- ▶ Restoration of optimal GI microflora and mucosal health
- ▶ Dysbiosis
  - Opportunistic bacterial overgrowth
  - Opportunistic Candida and other yeast overgrowths

Gut ecology is a complex system based on the equilibrium of different bacterial species. Disturbance of this equilibrium (dysbiosis) by infectious diseases and very often by antibiotic treatments can lead to clinical symptoms of diarrhea. Severe antibiotic-associated diarrhea can give rise to *Clostridium difficile* diarrhea, a severe disorder which has a high rate of relapse and is difficult to cure with conventional treatments. The use of probiotics, particularly *Saccharomyces boulardii*, as alternatives to antibiotics is therefore becoming more and more attractive.



### Binding of enterohaemorrhagic *E. coli*

Through its mannose-dominant outer membrane *S. boulardii* has the ability to bind *E. coli* and *Salmonella* - the bacteria responsible for diarrhea, especially traveler's diarrhea. The large cell surface of the yeast allows the binding of many bacterial cells, limiting their capacity to bind to the intestinal epithelium. In this way the bacteria are likely to be eliminated in the stool.

The approach of keeping a healthy gut flora by consuming live microorganisms was first proposed by Metchnikoff in 1907. Following the same philosophy, French microbiologist Henri Boulard isolated a very special natural yeast now known as *Saccharomyces boulardii*, which was proven to be efficient in the prevention and treatment of antibiotic-associated diarrheas and in *Clostridium difficile*-recurrent infections. Modern science has now elucidated most of the mechanisms of action of *Saccharomyces boulardii* such as the inactivation of *wClostridium difficile* toxins, competitive exclusion of pathogens like *E. coli* and various yeasts, specific immune stimulation of the gut, and restoration of functional lactic acid-producing flora.

## Supplement Facts

Serving Size 2 capsules  
Servings Per Container 30

Amount Per Serving	% Daily Value
Saccharomyces boulardii	500 mg *

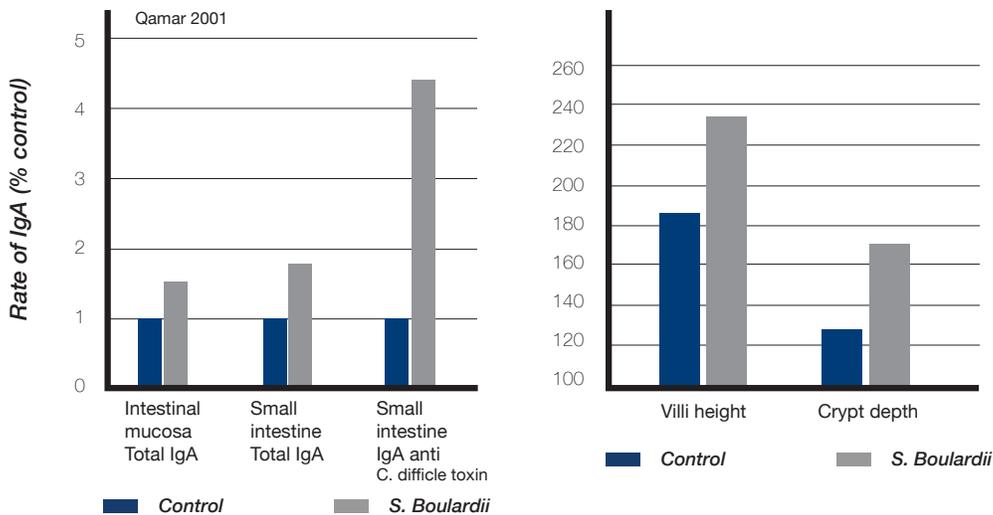
\*Daily Value not established.

Other Ingredients: Cellulose (capsule), microcrystalline cellulose, vegetable stearate.



## The History of *Saccharomyces Boulardii*

The history of *Saccharomyces* started around 1920 when Dr. Boulard made a unique discovery in Vietnam. He noticed that consuming a particular local drink could alleviate symptoms of diarrhea in villagers afflicted by an epidemic of cholera. This drink was made from tropical fruits such as lichee and mango. Dr. Boulard isolated an active agent from this drink, which proved to be a live yeast of natural origin, now known as *Saccharomyces boulardii*.



## Mechanisms of Action

Today our understanding of the probiotic properties of *S. boulardii* includes the following: (a) Binding of enterohaemorrhagic *E. coli* and *Salmonella*; (b) Protection of the digestive mucosa; (c) Promotion of growth of lactic acid producing bacteria in the gut; (d) Protection against *Clostridium difficile* toxins; and (e) Stimulating effects on the intestinal mucosa and mucosal immunity.

## Genetic Identification

For many years taxonomists have discussed whether *S. boulardii* was a new species of *Saccharomyces* or a specific strain or variant of *Saccharomyces cerevisiae*. Mitochondrial DNA analysis (Mallié, 2001) and microsatellite typing techniques (Hennequin, 2001) have shown that *S. boulardii* is a unique strain or variant of *S. cerevisiae*, but not a new species of the genus *Saccharomyces*. The proper taxonomic name is therefore *Saccharomyces cerevisiae boulardii* (Mallié, 2001).

For more than a decade Institut Rosell and its mother company Lallemand, Inc. have developed specific research programs to increase the use of *Saccharomyces boulardii* in both animal and human health. Institut Rosell's *Saccharomyces boulardii* (ATCC74012), contained in FloraMyces™ has been compared by genetic typing to the original type *Saccharomyces cerevisiae* var *boulardii* (Hansen CBS 5926) and has been shown to be genetically identical.

In a placebo-controlled study (Surawicz et al., 1989) on patients under antibiotic treatment the following results at right were obtained. Although *S. boulardii* does not suppress all antibiotic-associated diarrhea, the fact that it reduces the risk by half is significant (Marteau, 2000).

	Placebo group	<i>S. boulardii</i> group
% of patients with diarrhea	21.8%	9.5%

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