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Beneficial probiotic yeast *S. boulardii* - Towards a mechanistic understanding

The probiotic medicinal yeast *Saccharomyces boulardii* CNCM I-745 (*S. cerevisiae* HANSEN CBS 5926) is a well known pre- and probiotic for the treatment and prevention of diarrhea. The yeast exhibits several different modes of action, including trophic effects, immune-modulatory and anti-inflammatory actions, pathogen-binding and antitoxinic effects, as well as effects on the microbiota. Many different studies in rodents and humans have been published on this topic. The yeast enhances the activity of digestive enzymes and nutrient uptake transporters of the brush border membrane (BBM). This is most likely connected to secreted polyamines, which have a role in cell proliferation and differentiation. The yeast also secretes digestive enzymes, for the benefit of yeast and host alike. *S. boulardii* leads to a general unspecific immune system activation, which can be considered advantageous in preventing diarrhea. However, during infections and resulting diarrheic situations, *S. boulardii* causes pronounced anti-inflammatory effects, thereby supporting pathogen elimination. The yeast offers protection against pathogens and their toxins. In addition, it stabilizes the healthy microbiota while functioning as a prebiotic. During diarrhea (including antibiotic-induced dysbiosis), the microbiota are able to regenerate faster in the presence of *S. boulardii*, along with rapid symptomatic improvement. More studies are needed to fully understand the various mechanisms and effects of the beneficial yeast.

Biography

Margret I Moré has completed her PhD in Microbiology at Cornell University, Ithaca NY, USA. She did her postdoctoral studies in developmental neurobiology at the the Max Delbrück Center for Molecular Medicine in Berlin, Germany. She has more than 10 years of professional experience as Senior Consultant at analyze and realize GmbH and as Regulatory Affairs Manager for DendroPharm GmbH and Herbalist and Doc Gesundheitsgesellschaft mbH. She has published numerous research articles on microbiological and health-related topics. She recently published a review article on *S. boulardii* describing its effects on the microbiota. Another manuscript on the yeast is in preparation.

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