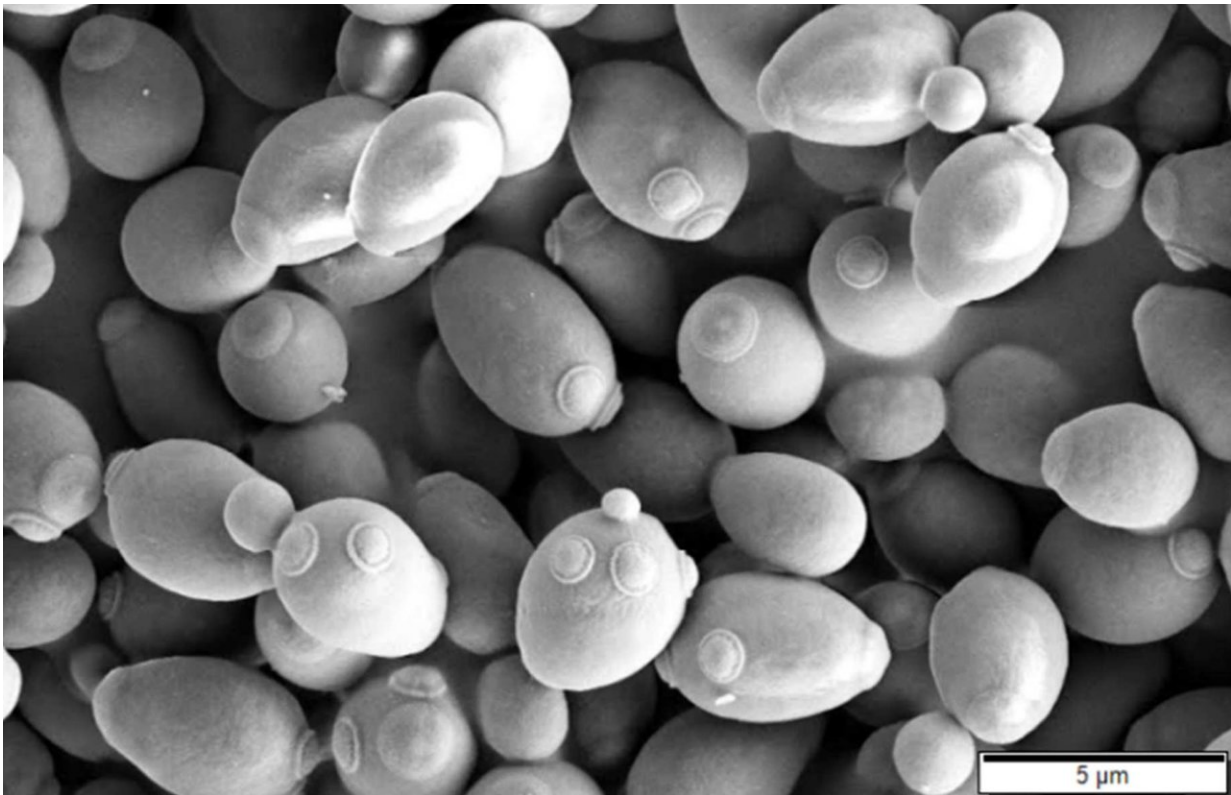


Fungi used in food production could lead to new probiotics, suggest researchers

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Saccharomyces cerevisiae, SEM image. Credit: Mogana Das Murtey and Patchamuthu Ramasamy/CC BY-SA 3.0

Many fungus strains have been used and selected by the food industry for their capacities to ferment, produce flavors or produce heterologous molecules. According to a new study, two fungi used to produce food

products have potential probiotic effects on gut inflammation.

The study, published in [mSystems](#), demonstrates a possible new way to develop new probiotics.

"There is much to learn by studying the role of the fungal strains in the microbiota and host health ... species simply used in food processes can be the source of new probiotics," said lead study author Mathias L. Richard, Ph.D., Research Director at INRAE in the Micalis Institute in Jouy-en-Josas, France.

To date, very little is known about the diversity of food-borne yeasts and their [potential effect](#) on [gut microbiota](#) and gut health. Yeasts are microscopic fungi consisting of solitary cells that reproduce by budding. Some have been used for hundreds of years, like *Saccharomyces cerevisiae* for wine and bread production, or many others for cheese crust production or ripening, like *Debaryomyces hansenii*.

The researchers conducted the new study because they are working to further knowledge of the potential effect of the fungal microbiota on [human health](#).

In this particular study, the idea was to target specifically the fungi that are used by food companies to produce [food products](#) (cheeses, charcuterie). "Since our interest is more focused on the role of fungi in gut health and on the development of inflammatory bowel diseases (Crohn's disease and ulcerative colitis), we monitored the effect of these fungi on adapted in vitro and in vivo models," Richard said.

The researchers first selected yeasts that were intensively used in food production and represented a wide range of different yeasts species and then tested them either in simple interaction tests with cultured human cells or in a specific animal model mimicking ulcerative colitis.

They found that in the collection of strains used for food production, some strains can have a beneficial effect on the gut and the host in inflammatory context. They identified two strains of yeasts, *Cyberlindnera jadinii* and *Kluyveromyces lactis*, that had potential beneficial effects on inflammatory settings in a mouse model of [ulcerative colitis](#).

Several additional experiments were performed in an attempt to decipher the mechanism behind these effects. In the case of *C. jadinii*, the protection seemed to be driven by the modification of the bacterial microbiota after the administration of *C. jadinii* to the mice, which in turn modified the sensitivity to [gut inflammation](#) through a still unknown mechanism.

"These two strains have never been specifically described with such beneficial effect, so even if it needs to be studied further, and particularly to see how they are efficient in humans, it is a promising discovery," Richard said.

C. jadinii and *K. lactis* strains have potential as probiotic [yeast](#) strains to fight against inflammation in the gut, but further studies are needed to understand the mechanisms by which these strains act on gut health.

More information: Cindy Hugot et al, *Cyberlindnera jadinii* and *Kluyveromyces lactis*, two fungi used in food processes, have potential probiotic effects on gut inflammation, *mSystems* (2023). [DOI: 10.1128/msystems.00841-23](https://doi.org/10.1128/msystems.00841-23)

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