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The capric acid from *Saccharomyces boulardii* as an antifungal agent: A mechanism study

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Candida albicans is a pathogenic yeast-like fungus that causes exo- and endogenous infections. *C. albicans* strains exhibit multidrug-resistance to commonly used antifungal agents which correlate with overexpression of Cdr and Mdr efflux pumps located in the plasma membrane. Growing resistance of pathogenic *C. albicans* strains to many classes of antifungal drugs has stimulated efforts to find new agents to combat more invasive infections. A selected number of probiotic organisms, *Saccharomyces boulardii* among them, have also been tested as potential biotherapeutic agents. *S. boulardii* is a yeast strain that has been shown to have applications in the prevention and treatment of intestinal infections caused by microbial pathogens. We have similarly shown that *S. boulardii* secretes capric acid (C10:0), which is most effective in inhibiting essential virulence factors of *C. albicans*, especially morphological transition, partial adhesion, as well as biofilm formation. Our latest research on the mechanism of action of capric acid and its influence on the *C. albicans* cells clearly show its interaction with the plasma membrane. Capric acid decreases fluidity, while increasing the potential of the plasma membrane. For these reasons, we have probably not observed antifungal activity of amphotericin B in the presence of capric acid. The antagonism between capric acid and amphotericin B is a strong indication for physicians to not use both compounds simultaneously in the treatment of candidiasis.

Biography

Anna Krasowska is an assistant professor at the Department of Biotransformation, University of Wrocław, Poland. She is currently involved in the isolation and characterization of biosurfactants produced by arctic microorganisms. She has also examined the activity of lipases and proteases released into the environment by microorganisms isolated from different environments. Her research interests lie in multidrug resistance of pathogenic microorganisms like *Saccharomyces cerevisiae*, yeast and *Candida albicans*.

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