Candida albicans is a yeast-like fungus, the natural component of human and animal microbial flora. According to scientific literature, these yeast inhabit skin and mucosal surfaces in 40-80% human population, without causing any diseases. However, under certain conditions *C. albicans* may inflict infections of skin as well as gastrointestinal and genitourinary mucosa. In medical language this type of *Candida* genus infections are collectively named as candidiasis (or thrush). Despite the fact that other *Candida* genus fungi are also human pathogens, *C. albicans* is the most prevalent factor responsible for causing candidiasis. Fungal colonization of skin and mucosal surfaces is mostly connected with immune deficiencies in humans, those kinds of infections are called opportunistic infections. Increasing candidiasis progress is among other things connected with human immunodeficiency virus (HIV) infections. Temporary immune system deficiencies might also be the result of taking immunosuppressing medicines. It has been proven that patients after liver or kidney transplantations are prone to enhanced oral candidiasis as well. Patients under corticoids therapy are another group susceptible to infections. Candidaisis are also accompanying human microbial flora exhaustion by prolonged treatment with wide spectrum antibacterial antibiotics. Nowadays it is noticible that a variety of different antibiotics are taken at short time intervals with no protective drugs. Such actions alter human microbiota permanently which makes humans more prone to candidiasis development in the future. *Candida* overgrowth is also observered during diabetes and conditions affecting general health, such as undergoing cancer treatment.

One of the main defence mechanisms of *C. albicans* is the presence of multiple drug resistance (MDR) transporters, which can export drugs directly out of the cell. This group of transporters has the ability to pump out wide spectrum of antifungals, such as fluconazole, which is the most common drug in antifungal treatment. Additionally, drug presence causes fungal cells to produce even more transporters, making drug treatment completely ineffective.

The factors which are responsible for immune system deficiencies and also predisposing for *C. albicans* infections, are connected with increased concentrations of fructose and glucose in the blood. For a long time it is known that sugars stimulate *C. albicans* virulence but there is no scientific data on the influence of fructose alone on multidrug resistance (abbr. MDR) transporters in *C. albicans.* This project aims to investigate the influence of fructose on MDR transporters activity and understaning how this activity corelates with cell physiology. By proving positive influence of fructose on the activity of MDR we hope to establish a new scientific trend, concentrating on better understanding of the molecular mechanism of fructose-induced transporters activity and lead to research on inhibiting this process.