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The inhibitory effect of new phenothiazine derivatives of ABC transporters in *Candida albicans*

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Patients with AIDS and those who are undergoing chemotherapeutic modalities are always at a risk of developing *C. albicans* infections. Morbidity and mortality from invasive candidiasis and candidemia have increased significantly over the last four decades. With the development of azoles and other antifungal medicines, the potential for treatment of these infections has improved significantly. However, the possibility of timely diagnosis of fungal infections is limited, and therefore the outcome of the disease is not favorable. The pivotal membrane transporters that *C. albicans* is exploiting as one of the strategies to develop multidrug resistance (MDR), belong to either the ATP binding cassette (ABC) or the major facilitator superfamily (MFS) classes of efflux pumps. Overexpression of the efflux pumps Cdr1p, Cdr2p and Mdr1p is the main mechanism of fluconazole resistance in *C. albicans*. For experiments cells were preloaded with R6G, a well-known substrate of ABC pumps, by glucose starvation. Like all xenobiotics the R6G is removed from the cells by active transporters. This efflux of R6G was initiated by adding 2% of glucose to the medium. The efflux of the indicator substrate was detected by the increase of fluorescence. Measurements estimated the dependence of R6G efflux kinetics on the activity of MDR pumps in the yeast cells when various concentrations of inhibitors were used. The investigation of substituted 10H-phenothiazines has strong growth during the last years because of a wide range of applications. There we studied how phenothiazine and its derivatives (10-methyl-10H-phenothiazine, 10-ethyl-10H-phenothiazine, and 10-hexyl-10H-phenothiazine) inhibiting ABC pumps.

Biography

Neringa Kuliešienė has completed her Master degree at Vytautas Magnus University and now she is pursuing her Doctorate in Biochemistry at same University. She is working with three projects as the Youngest Scientist. She is the Main Executive of the joint projects of Lithuania-Latvia-Taiwan and Lithuania-Ukraine. She has published one paper in reputed journal.

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