

## AGING-RELATED CHANGES IN *S. CEREVISIAE* WILD-TYPE AND *RAS2<sup>val19</sup>* MUTANT CELLS

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**KEY WORDS:** yeast, *RAS2<sup>val19</sup>* mutant cells, cell wall, aging, fluorescence microscopy, electron microscopy

During their aging, the cells of *Saccharomyces cerevisiae* yeast exhibit many changes in their shape. Amongst them, the most remarkable one is the enlargement of mother cells that is accompanied by the wrinkling of cell surface. The buds of such old mother cells become extremely elongated, while giving raise normal progeny in the next generations. We have studied the changes of cell shape and of cell surface in the wild type and *RAS2<sup>val19</sup>* mutant *S. cerevisiae* cells using scanning electron microscopy and fluorescence microscopy (both wide-field and confocal). In the fluorescence microscopy assays, the yeast cells have been stained with Calcofluor, a fluorochrome whose main use is as a brightener. However, Calcofluor also appears to be a highly selective fluorescent stain for the rapid detection of yeasts, fungi and parasitic organisms [1,2]. Since it is a nonspecific fluorochrome that binds to glucan and chitin in cell walls, Calcofluor makes it possible to visualize the aging-related changes in yeast cell walls using fluorescence microscopy. We will show and discuss in this presentation a difference between the respective appearances of aged *S. cerevisiae* wild-type and *RAS2<sup>val19</sup>* mutant cells. A part of this presentation deals also with spectral properties of Calcofluor fluorescence from stained yeast cells, which spectroscopic study has been focused to the optimization of yeast cell fluorescence microscopy assays, particularly to the employment of a green Calcofluor emission that is observed upon an excitation using a blue light. This green fluorescence seems to be more suitable for the visualization of fine changes in yeast cell surface details than the blue part of Calcofluor emission is.

### References:

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**Acknowledgements:** This work was supported by MSM 0021620835 and ME 938 grants from the Ministry of Education, Youth and Sports of the Czech Republic, and GACR 301/07/0339 from the Czech Science Foundation. Samples for SEM studies were prepared with the help of Dr. Olga Kofroňová.