ABSTRACT

Rpg1/Tif32/eIF3a is an essential and the largest subunit of translation initiation factor eIF3 in yeast *Saccharomyces cerevisiae.* Besides interactions within the eIF3 complex it has been shown to interact with microtubules. Preliminary data of the laboratory obtained using strains of the W303 genetic background indicated that there is a synthetic phenotype between *rpg1-2* mutant and microtubule inhibitor nocodazole. Aim of this work to elucidate this „microtubule phenotype" of the *rpg1-2* mutant and its dependency on used genetic background. I confirmed that independently on genetic background (W303, BY, SEY) all mutants *rpg1-1*, *rpg1-2* and *rpg1-3* were temperature-sensitive. I found that in contrast to published data on *rpg1* mutants of the W303 background these mutants of the BY and the SEY backgrounds do not arrest the cell cycle in G1 phase during cultivation at the restrictive temperature (37°C, 4 hours). In addition, all three mutants did not show an increased sensitivity to benomyl and none of them affects microtubule rearrangement after a release of cells from the nocodazole treatment. I constructed new strains with a combination of the *BUB1* gene deletion with the particular *rpg1* mutation. Phenotypic analyses of new double mutants revealed that simultaneous dis-function of Bub1 and Rpg1 results in a synthetic defect. Presented results indicate that translation factor Rpg1/eIF3a is crucial for a successful exit from mitosis in strains of BY and SEY genetic backgrounds.

Keywords: Rpg1, initiation of translation, microtubules, *BUB1*