

# ROLE OF SCV-LA VIRUS IN TRANSPOSITION FREQUENCY OF YEAST *SACCHAROMYCES CEREVISIAE*

Gerda Skinderytė<sup>1</sup>, Saulius Serva<sup>1</sup>, Aleksandras Konovalovas<sup>1</sup>

<sup>1</sup>Department of Biochemistry and Molecular Biology, Vilnius University, Lithuania  
[gerda.skinderyte@gmail.com](mailto:gerda.skinderyte@gmail.com)

Yeast *Saccharomyces cerevisiae* is one of the best understood eukaryotic model organisms. It is used for research of various biological processes like gene expression, cell cycle, metabolism and also for virus research. L-A-1 is a dsRNA yeast virus belonging to *Totiviridae* family, with unknown extracellular phase and not interfering with cell growth rate. Another endogenous yeast element is mobile genetic elements – transposons. Five families of transposons Ty1-Ty5 belonging to LTR-retrotransposons are known in yeast. In this work, interactions between L-A-1 virus and Ty1 retrotransposon and virus role in transposition were studied.

The transposition rates in yeast BY4741 strains carrying deletions of genes affecting L-A-1 virus replication cycle were tested using model plasmid, containing Ty1 transposon sequence and reporter gene. Range of mutant strains were analyzed along with control strain that possess the L-A-1 virus, and strain cured from the virus. The influence of transposition efficiency on L-A virus replication was tested by extracting and analyzing nucleic acids of BY4741 strains carrying deletions of genes coding for proteins known to affect the rate of transposition. It was established that the change of transposition efficiency does not influence replication of virus, whereas elimination of virus increases the rate of transposition. Also, two proteins modulating both the transposition and the replication of L-A virus were identified. The experiment design for new transposition rate test of higher efficiency suitable for wild type yeast strains was developed and a functional fluorescent reporter gene that will be used in the further development of method was constructed.