TRIETHYLLEAD AFFECTS THE MOTILE ACTIVITY OF WALKER CARCINOSARCOMA CELLS

JOLANTA SROKA¹, RAFAŁ KAMIŃSKI¹, MARTA MICHALIK¹, ZBIGNIEW MADEJA¹, STANISŁAW PRZESTALSKI² and WŁODZIMIERZ KOROHODA¹
¹Department of Cell Biology, The J. Zurzycki Institute of Molecular Biology and Biotechnology, Jagiellonian University, Gronostajowa 7, 30-387 Kraków, Poland, ²Department of Physics and Biophysics, Agricultural University, Norwida 25, Wrocław, Poland

We investigated the effect of triethyllead (TriEL) on the morphology and motile activity of Walker carcinosarcoma cells. It was found that both 2 and 5 µM TriEL affected cellular motility in a dose- and time-dependent manner. Initially, 2 µM TriEL increased the proportion of polarised cells and stimulated the migration of Walker cells. After 30 minutes of 2 µM TriEL-treatment a reduction in the degree of cellular motility was observed. In the presence of 5 µM TriEL Walker carcinosarcoma cells rounded up and their movement was inhibited. We also found that neither folic acid nor ascorbic acid, known as antioxidants, could prevent the TriEL toxic effect.

Moreover, the treatment of Walker carcinosarcoma cells with TriEL caused the disruption of the microtubules and affected the actin distribution. At 2 µM TriEL concentration, the actin staining intensity was the greatest in the tail of front-tail polarized motile cells, while at the leading edge the actin layer was very thin up to completely cortical F-actin absence at the blebs area. Cells treated with 5 µM TriEL showed a steady, under-membrane pattern of actin distribution.