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MICRONUCLEI ELIMINATION IN HUMAN BREAST ADENOCARCINOMA CELLS MCF-7

O. I. Sutyagina[a], *, O. P. Kisurina-Evgenieva[a], G. E. Onishchenko[a]

[a] *Department of Cell Biology and Histology, School of Biology, Lomonosov Moscow State University, Moscow, 119234, Russia*

**e-mail: oksanasutyagina@yandex.ru*

According to recent researches, cells are able to eliminate some of micronuclei. Micronuclei formation inducted by using antimitotic agents has widely use in antitumor chemotherapy, so micronuclei elimination could probably lead to micronuclear cells survival during therapy. Micronuclei elimination ways and mechanisms are still insufficiently studied. That is why investigation of micronuclei elimination has both fundamental and practical importance. In the present study, we show presence of two subpopulations of micronuclei: small single and large multiple micronuclei

in MCF7 cells (human breast adenocarcinoma cell line, p53+) both in control and after paclitaxel treatment. Each of these subpopulations obviously has individual way of formation. We identify ways of micronuclei elimination: lysosome-dependent degradation (for small single micronuclei) and structural destruction (for large multiple micronuclei). We show that micronuclei elimination is a rare process. Major part of micronuclear population persists, but micronuclei could have morphological defects. We describe different defects in micronuclear envelope: lack of periferal heterochromatin, perinuclear space expansion, micronuclear membrane breaks, full or partial lack of nuclear lamina. We show presence of p53-negative micronuclei. Lack of p53 activation is more characteristic for small single micronuclei. Received data allow to conclude that micronuclei elimination is unable to change antitumor chemotherapy's results, however there is a danger of MN cell's progressing through the cell cycle (primary for cells with small single micronuclei).

Keywords: micronuclei elimination, nuclear envelope, nuclear lamina, p53