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Micronucleus (MN) test for testing chemical clasto- and anticlastogenicity in vivo

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Two xenobiotics (ethyl methansulfonate, EMS, and dimethyl terephthalate, DMtP) were tested in mouse: *CBAxC57Bl/6$_j$* males and pregnant females were exposed to chemicals by i.p. Frequencies of micronucleated polychromatic erythrocytes (MN PCEs) in bone marrow of adults and in foetal liver were analysed 6, 12, 18, 24, 30, 36, 48 or 24, 36, 48 and 72 h after injection. In males, a peak of MN induction was observed 24 h after treatment with DMtP and 24 or 36 h after exposure to EMS (depending on doses and sampling procedure). EMS induced the same effect in females. In foetuses, peak of MN PCEs was observed 24 h after female exposure to EMS, i.e. earlier than in a maternal organism. DMtP (at the dose of 1/40 LD_{50}) did not induce MNs in bone marrow of pregnant females but slightly increased their level in foetal cells. It should be noted that DMtP at the same dose induced 4–7,3‰ of MN PCEs in males. The data displaying clastogenicity of both chemicals in MN test corresponded to previous findings in *Drosophila*. Simultaneously, effects of two derivatives of 1,4-dihydropyridine were studied. It was interesting that antimutagens (AMs) inhibited EMS-clastogenicity in adult animals, but their efficiency in pregnant females was essentially higher than in males (70% as opposed to 30% at a peak of MN induction). Unfortunately, we failed in revealing anticlastogenic effects in foetuses.

Thus, in contrast to EMS, DMtP clastogenicity depended on the animal physiological status. Foetuses were sensitive to both clastogens. AMs prevented EMS-clastogenicity in adults, but their efficiency also depended on the animal physiological status. Clastogenic and anticlastogenic effects observed in MN test conformed to the findings in other test-systems.