

An Alternative Method to the Draize Eye Irritation Test - Development of Highly Sensitive Test Methods with Human and Insect Cell Lines

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As a partial alternative to the Draize eye irritation test for detergents which are used in shampoos or rinses and general chemicals which have been known toxic to human, we developed a sensitive assay protocol for measuring release of lactate dehydrogenase (LDH) activity into the medium from cultured human cells. Results suggest that some commonly used detergents have relatively high cytotoxicity at low concentrations than the cytotoxicity assumed from their ED50. This method was applied to commercial eye drops. We found that 8 of 9 eye drops tested were apparently cytotoxic to human cells because of undescribed component. One of these eye drops stimulated LDH release into tears 10 second after application to human eyes.

Insect cell lines, instead of human cells, were tested their sensitivity to anti-tumor drugs. Although some of the cells showed high sensitivity to the drugs, patterns of the sensitivities to the drugs were different from those of human cell lines.