

〈原 著〉

細胞毒性およびプロスタグランジンE₂遊離を指標とした 界面活性剤の評価：動物試験代替法の検討

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Evaluation of Surfactants by Cell Toxicity and Release of Prostaglandin E₂: An Alternative Method to Animal Test

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Abstract

As an alternative test method for rabbit eye irritation test and guinea pig primary skin irritation test, cell toxicity evaluation method using rabbit SIRC cell and human XX-male cell was investigated. The median inhibitory concentration (IC₅₀) of surfactants, which inhibits the cell adhesion to the culture plate, were well correlated to the eye irritation index (EC₂₀) and the guinea pig primary irritation index (SC₂). After 24 hours occlusive application of Sodium Lauryl Sulfate (SLS) to guinea pig, the release of Prostaglandin E₂ (PGE₂) from the treated site measured by Radioimmunoassay was increased even at the low concentration which didn't induce visible skin irritation reaction compared to nontreated site. PGE₂ released from the isolated skin immersed in the sample solution didn't present clear correlation with the in vivo skin irritation score, but showed the peak at the concentration which elicited the minimal visible skin irritation. From these findings, it was indicated that the cell toxicity test was practically useful alternative method and the release of PGE₂ may be a possible index for the skin irritation as alternative method.

Key words: Alternative, Draize, Skin irritation, Cell toxicity, Prostaglandin E₂