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Genotoxicity Study of sophoricoside derivatives in mammalian cells system

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To develope the novel anti-allergic drug, many sophoricoside derivatives were synthesized. Among these derivatives, JSH-II-3, JSH-VI-3, JSH-VII-3, and JSH-VIII-3 were selected and subjected to high throughput toxicity screening (HTTS) because they revealed strong IL-5 inhibitory activity and limitation of quantity. Mouse lymphoma thymidine kinase ($tk^{+/-}$) gene assay (MOLY) and single cell gel electrophoresis (Comet) assay in mammalian cells were used as HTTS tool in our laboratory. In MOLY assay, JSH-VII-3 at 50 ~ 6 μg/ml concentrations was not shown significant mutagenic effect in the absence and presence of S-9 metabolic activation system. However, the concentration of JSH-II-3, 38 μg/ml, induced increased mutation frequency (MF) in the presence of S-9 metabolic activation system. Also in comet assay, DNA damage was not observed in JSH-VI-3 and JSH-VII-3, wherase concentration of 32.8 μg/ml in JSH-II-3 and 13.9 μg/ml in JSH-VII-3 were induced DNA damage in the absence of S-9 metabolic activation system. Therefore, we suggest that JSH-VI-3 and JSH-VII-3 have no genotoxic effects but JSH-II-3 and JSH-VIII-3 induce some mutagenicity and DNA strand breaks in mouse lymphoma cell line used this study.