P003 The activities of mycotoxins derived from *Fusarium* and related substances in a new short term transformation assay using v-Ha-*ras*-transfected BALB/c 3T3 cells (Bhas 42 cells)

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Cell transformation assays using BALB/c 3T3 cells and C3H10T1/2 cells can mimic the two-stage process of chemical carcinogenesis in experimental animals. A short term transformation assay using v-Ha-*ras*-transfected BALB/c 3T3 cells (Bhas 42 cells), which was developed by Ohmori et al. and modified by Asada et al., has been reported to detect both tumor initiators and promoters as transformation initiators and promoters, respectively, with their differences based on their protocols. In this new short-term assay, we examined mycotoxins derived from *Fusarium* and related substances for the initiation and promotion activities of the transformation. The substances tested were deoxynivalenol, nivalenol, fusarenone-X, T-2 toxin, fumonisin B1, fumonisin B2, zearalenone, α-zearalanol, β-zearalanol, α-zearalenol and β-zearalenol. Fumonisin B1 and T-2 toxin were positive for promoting activity in the assay. Especially, T-2 toxin was active at concentrations as low as 0.001-0.002 μg/ml in the culture medium. From a comparison between the results of this study and published carcinogenicity assay data, it was expected that the short term cell transformation assay had good correlation with the two-stage carcinogenicity tests using experimental animals for estimation of the tumor promoting activity.
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v-Ha-*ras* 導入 BALB/c 3T3 細胞（Bhas 42 細胞）を用いる形質転換試験における *Fusarium* 由来マイコトキシンおよび関連物質の活性

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P004 Induction of apoptosis by chlorinated bisphenol a irradiated with ultraviolet on Jurkat cells

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Chlorinated derivatives of bisphenol A (ClBPAs) have been reported to be detected in wastewater from waste paper recycling plants. In previous studies, we have demonstrated that acute cytotoxicity of BPA and ClBPAs [3-chlorobisphenol A (3-ClBPA), 3,3'-dichlorobisphenol A (3,3'-diClBPA) and 3,3', 5-trichlorobisphenol A (3,3', 5-triClBPA)] increased by exposure to UV. 3-Hydroxybisphenol A (3-OHBPA) was detected in the photoproducts of ClBPAs irradiated with UVB and UVC. These results indicated that the formation of hydroxylated BPAs might contribute to the increase in toxicity. However, the mechanism of cytotoxicity is not clarified. In this study, we investigated the induction of apoptosis by BPA and ClBPAs after UV irradiation (UVA, UVB and UVC). Chromatin condensation and DNA fragmentation were detected in Jurkat cells by adding 3,3'-diClBPA irradiated with UVB and UVC and 3-OHBPA. In addition, activation of caspase-3, 8, 9 and cytochrome c release were observed. Induction of apoptosis was not detected by 3,3'-diClBPA irradiated without UV. These results indicate that the photoproducts produced by UV irradiation contributed to the induction of apoptosis.

ビスフェノール A 塩素化体の紫外線照射生成物によるアポトーシスの誘導

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