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Short communication

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Influence of the Metabolism of Anti-Leukaemia Drugs by Bisphenol A (BPA) Derivatives Exposed to Children

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***SUMMARY*. Many factors have been reported to induce cancers, including leukaemia. The exposure of bisphenol A (BPA) derivatives has been regarded to be a key factor. UDP-glucuronosyltransferases (UGTs) are important drug-metabolizing enzymes (DMEs) catalyzing the metabolism process of anti-leukemia drugs. This study aims to investigate the inhibition of BPA derivatives on the activity of one representative UGT isoform UGT2B17. Initial screening experiment was firstly carried out using 100 μM of BPA derivatives. The results showed that some BPA derivatives showed strong inhibition on the activity of UGT2B17, including BPAF ($p < 0.001$), BPE ($p < 0.01$), and 3,3',5,5'-tetrabromobisphenol ($p < 0.05$). BPF did not show not significant inhibition on the activity of UGT2B17. Furthermore, multiple concentrations of BPAF were used to determine the value of IC_{50}, and this value was calculated to be 40 μM. In conclusion, potential BPA derivatives-drugs interaction existed between BPA derivatives and drugs mainly undergoing UGT2B17-catalyzed metabolism.**

RESUMEN. Se ha informado que muchos factores inducen cáncer, incluyendo leucemia. La exposición de derivados de bisfenol A (BPA) se ha considerado un factor clave. Las UDP-glucuronosiltransferasas (UGT) son importantes enzimas metabolizadoras de fármacos (DMEs) que catalizan el proceso de metabolismo de fármacos antileucemia. Este estudio tiene como objetivo investigar la inhibición de derivados de BPA sobre la actividad de una isoforma de UGT representativa, UGT2B17. El experimento de selección inicial se llevó a cabo en primer lugar utilizando 100 μM de derivados de BPA. Los resultados indican que algunos derivados de BPA mostraron una fuerte inhibición de la actividad de UGT2B17, incluyendo BPAF ($p < 0,001$), BPE ($p < 0,01$) y 3,3',5,5'-tetrabromobisfenol ($p < 0,05$). El BPF no mostró inhibición significativa de la actividad de UGT2B17. Además, se usaron concentraciones múltiples de BPAF para determinar el valor de IC_{50}, y este valor se calculó que era 40 μM. En conclusión, la potencial interacción entre BPA y derivados de drogas existía entre derivados de BPA y fármacos que sufren principalmente un metabolismo catalizado porUGT2B17-.

KEY WORDS: anti-leukaemia, bisphenol A derivatives, UDP-glucuronosyltransferase (UGT) 2B17

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