

Interaction Between the Metabolism of Thyroxine and Respiration Diseases Treatment Drugs

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SUMMARY. UDP-glucuronosyltransferases (UGTs) are important phase II drug-metabolizing enzymes catalyzing the metabolic elimination of xenobiotics and endogenous substances. This study aims to investigate the influence of thyroxine metabolite thyroxine 4'-O-sulfate on the metabolism of respiration diseases treatment drugs catalyzed by UGT1A1, -1A3, and -1A9; 100 μ M of thyroxine 4'-O-sulfate inhibited more than 80% activity of UGT1A1 but 100 μ M of thyroxine 4'-O-sulfate did not show significant inhibition on the activity of UGT1A3. Approximately 90% activity of UGT1A9 was inhibited by 100 μ M of thyroxine 4'-O-sulfate. In conclusion, this study demonstrates the inhibition of thyroxine 4'-O-sulfate on the activity of UGT1A1 and UGT1A9, indicating the influence of metabolism of endogenous substance towards the metabolism of clinical drugs.

RESUMEN. Las UDP-glucuronosiltransferasas (UGT) son importantes enzimas metabolizadoras de fármacos de fase II que catalizan la eliminación metabólica de xenobióticos y sustancias endógenas. El objetivo de este estudio es investigar la influencia del tiroxina 4'-O-sulfato en el metabolismo de medicamentos para el tratamiento de enfermedades respiratorias catalizadas por UGT1A1, -1A3 y -1A9; 100 μ M de 4'-O-sulfato de tiroxina inhibieron más del 80% de la actividad de UGT1A1, pero 100 μ M de 4'-O-sulfato de tiroxina no mostraron una inhibición significativa de la actividad de UGT1A3. Aproximadamente el 90% de la actividad de UGT1A9 fue inhibida por 100 μ M de 4'-O-sulfato de tiroxina. En conclusión, este estudio demuestra la inhibición del 4'-O-sulfato de tiroxina sobre la actividad de UGT1A1 y UGT1A9, lo que indica la influencia del metabolismo de la sustancia endógena hacia el metabolismo de los fármacos clínicos.

KEY WORDS: respiration diseases treatment drugs, thyroxine, UDP-glucuronosyltransferases (UGTs).

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