



## Drug candidate glabridin affects UDP-glucuronosyltransferase (UGT) 1A4-catalyzed Metabolism of Children Neurological Diseases' Drug Trifluoperazine

Shu-Fen LI \*

Department of Paediatrics, The Second Affiliated Hospital  
of Xinjiang Medical University, Urumqi, 830028, China

**SUMMARY.** The neurological diseases are common in clinical children diseases, including epileptic, meningitis, and cerebral palsy. Trifluoperazine (TFP) has been clinically used to treat neurological diseases in children. The present study aims to show that drug candidate glabridin affects UDP-glucuronosyltransferase (UGT) 1A4-catalyzed metabolism of children neurological diseases' drug trifluoperazine. *In vitro* human liver microsomes (HLMs)-catalyzed glucuronidation of TFP was used to investigate the inhibition of glabridin on the glucuronidation of TFP. The initial screening was carried out using 100  $\mu$ M of glabridin, and the results showed that 100  $\mu$ M of glabridin can significantly inhibit the activity of TFP glucuronidation. Furthermore, the concentration-dependent inhibition behavior of glabridin on the glucuronidation of TFP was investigated, and 5, 10, 20, 40, 60, 80, and 100  $\mu$ M of glabridin inhibited TFP glucuronidation by 13.4%, 27.8%, 37.6%, 56.0%, 77.9%, 92.0%, and 100%, respectively. In conclusion, drug candidate glabridin affects UGT1A4-catalyzed metabolism of children neurological diseases' drug trifluoperazine.

**RESUMEN.** Las enfermedades neurológicas son comunes en niños, incluyendo epilepsia, meningitis y parálisis cerebral. La trifluoperazina (TFP) se ha utilizado clínicamente para tratar enfermedades neurológicas en los niños. El presente estudio tiene como objetivo mostrar que la glabridina afecta el metabolismo de TFP catalizada UDP-glucuronosyltransferase (UGT)-1A4 en niños con enfermedades neurológicas. Se utilizaron microsomas de hígado humano (HLMs) para investigar *in vitro* la inhibición por la glabridina de la glucuronidación de TFP. La selección inicial se llevó a cabo utilizando 100  $\mu$ M de glabridina y los resultados mostraron que esa cantidad puede inhibir significativamente la glucuronidación de TFP. Además, se investigó el comportamiento de la inhibición dependiente de la concentración de glabridina en la glucuronidación de TFP, comprobando que 5, 10, 20, 40, 60 80, y 100  $\mu$ M de glabridina inhibieron la glucuronidación de en un 13,4%, 27,8%, 37,6%, 56,0 %, 77,9%, 92,0% y 100%, respectivamente. En conclusión, glabridina afecta metabolismo de TFP catalizado por UGT-1A4 en el tratamiento de enfermedades neurológicas infantiles

**KEY WORDS:** drug-drug interaction, glabridin, trifluoperazine (TFP), UDP-glucuronosyltransferase (UGT) 1A4.

\* Author to whom correspondence should be addressed. E-mail: yang789yang78910@163.com