Latin American Journal of Pharmacy
(formerly *Acta Farmacéutica Bonaerense)*
Lat. Am. J. Pharm. **33** (10): 1731-4 (2014)

Short Communication
Received: May 20, 2014
Accepted: September 28, 2014

Therapeutic Window Alteration of Irinotecan by Ginsenosides

Xiaojing XING [1], Pin WANG [3], Xu SUN [4] & Xinyu LI [2] *

[1] *Liaoning Cancer Hospital & Institute, 44 Xiao He Yan Road, 110042, Shenyang, People's Republic of China.*
[2] *Department of Neurosurgery, 2nd Affiliated Hospital of Dalian Medical University, 467 Zhong Shan Road, 116023, Dalian, People's Republic of China.*
[3] *Dalian Medical University, No. 9 West Segment of South Lvshun Road, 116044, Dalian, People's Republic of China.*
[4] *Department of Neurosurgery, 2nd Affiliated Hospital of Dalian Medical University, 467 Zhong Shan Road, 116023, Dalian, People's Republic of China.*

***SUMMARY*. The toxicity of irinotecan has been mainly induced by its active metabolite SN-38, and the inhibition of the glucuronidation process of SN-38 can significantly increase the toxicity of irinotecan. The present study aims to evaluate the inhibition of SN-38 glucuronidation by ginsenoside C-K, trying to indicate the influence of the administration of ginsenosides or ginseng towards the therapeutic window and toxicity of irinotecan. *In vitro* incubation system was used to determine the inhibition of ginsenoside C-K towards the glucuronidation of SN-38 catalyzed by two different enzyme sources: recombinant UGT1A1 and human liver microsomes (HLMs). The results showed ginsenoside C-K exhibited noncompetitive inhibition towards recombinant UGT1A1-mediated glucuronidation of SN-38, and competitive inhibition towards HLMs-catalyzed glucuronidation of SN-38. The obtained inhibition kinetic parameters can be employed to extrapolate *in vivo* inhibition magnitude when the *in vivo* concentration will be clarified in the future.**

RESUMEN. La toxicidad de irinotecán es inducida principalmente por su metabolito activo SN-38 y la inhibición del proceso de glucuronidación de SN-38 puede aumentar significativamente la toxicidad de irinotecán. El presente estudio tiene como objetivo evaluar la inhibición de glucuronidación de SN-38 por el ginsenósido CK, tratando de establecer la influencia de la administración de ginsenósidos o ginseng sobre la ventana terapéutica y la toxicidad de irinotecan. Se utilizó un sistema de incubación *in vitro* para determinar la inhibición de ginsenósido CK sobre la glucuronidación de SN-38 catalizada por dos fuentes de enzimas diferentes, UGT1A1 recombinante y microsomas de hígado humano (HLMs). Los resultados mostraron que el ginsenósido CK exhibe una inhibición no competitiva hacia la glucuronidación de SN-38 mediada por UGT1A1 recombinante y una inhibición competitiva hacia la glucuronidación de SN-38 catalizada por HLMs. Los parámetros cinéticos de inhibición obtenidos se pueden emplear para extrapolar *in vivo* la magnitud de inhibición cuando la concentración *in vivo* se estudie en el futuro.

KEY WORDS: Anti-tumor, Apoptosis, Drug-drug interaction, Irinotecan, Gliomas, SN-38.

* Author to whom correspondence should be addressed. *E-mail:* 185452835@qq.com

ISSN 0326 2383 (printed ed.)
ISSN 2362-3853 (on line ed.)