*Latin American Journal of Pharmacy*
(formerly *Acta Farmacéutica Bonaerense)*
*Lat. Am. J. Pharm.* **32** (9): 1329-34 (2013)

Regular article
Received: May 16, 2013
Revised version: August 27, 2013
Accepted: August 29, 2013

# Determination Of Vorinostat in Rat Plasma By LC-MS and Its Application to Pharmacokinetics Study

Haiya WU [1], Mengchun CHEN [2], Congcong WEN [2], Qingwei ZHANG [3] & Chongliang LIN [4]*

[1] *The Second Affiliated Hospital of Wenzhou Medical College, Wenzhou 325000, China*
[2] *Laboratory Animal Centre, Wenzhou Medical College, Wenzhou 325035, China*
[3] *Shanghai Institute of Pharmaceutical Industry, Shanghai 200437, China*
[4] *The First Affiliated Hospital of Wenzhou Medical College, Wenzhou 325000, China*

***SUMMARY*. Vorinostat, a hydroxamic acid derivative, is an analogue of trichostatin A and has pan-HDACi (histone deacetylase inhibitor) effects. The US Food and Drug Administration (FDA) approved vorinostat for the treatment of relapsed or refractory cutaneous T-cell lymphoma (CTCL). A sensitive and selective liquid chromatography mass spectrometry (LC–MS) method for determination of vorinostat in rat plasma was developed. After addition of linezolid as internal standard (IS), protein precipitation by acetonitrile was used for sample preparation. Chromatographic separation was achieved on a Zorbax SB-C18 (2.1 mm × 150 mm, 5 $\mu$m) column with acetonitrile-0.1% formic acid as mobile phase with gradient elution. Electrospray ionization (ESI) source was applied and operated in positive ion mode; selective ion monitoring (SIM) mode was used for quantification using target fragment ions *m/z* 266.2 for vorinostat and *m/z* 338.7 for the IS. Calibration plots were linear over the range of 5-500 ng/mL for vorinostat in plasma. Lower limit of quantification (LLOQ) for vorinostat was 5 ng/mL. Mean recovery of vorinostat from plasma was in the range 83.9-90.6%. Coefficient of variation (CV) of intra-day and inter-day precision were both less than 15%. This method is simple and sensitive and applied successfully in pharmacokinetic research for determination of vorinostat in rat plasma.**

*KEY WORDS:* LC-MS, Pharmacokinetics, Rat plasma, Vorinostat.

* Author to whom correspondence should be addressed. *E-mail:* lcl3@wzhospital.cn.