



Quantification and Pharmacokinetic Study of Sorafenib in Rat Plasma Using UPLC-MS/MS

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SUMMARY. In this study, a simple, rapid and sensitive ultra performance liquid chromatography tandem mass spectrometry (UPLC-MS/MS) method is described for determination of sorafenib in rat plasma samples using carbamazepine as the internal standard (IS) from pharmacokinetic assays. Sample preparation was accomplished through a simple protein precipitation with acetonitrile, and chromatographic separation was performed on an Acquity BEH C18 column (2.1 mm × 50 mm, 1.7 μm) with gradient profile at a flow of 0.4 mL/min. The linearity of this method was found to be within the concentration range of 10-10000 ng/mL for sorafenib in rat plasma. Only 3.0 min was needed for an analytical run. The method was applied to a pharmacokinetic study of sorafenib in rats.

RESUMEN. En este estudio se describe un método de espectrometría de masas en tándem con cromatografía líquida de ultra desempeño (UPLC-MS/MS) simple, rápido y sensible para la determinación de sorafenib en muestras de plasma de rata usando carbamazepina como estándar interno (IS) a partir de ensayos farmacocinéticos. La preparación de la muestra se llevó a cabo a través de una sencilla precipitación de proteínas con acetonitrilo y la separación cromatográfica se realizó en una columna Acquity BEH C18 (2,1 mm × 50 mm, 1,7 μm) con perfil de gradiente a un caudal de 0,4 mL/min. La linealidad de este método se encontró dentro del intervalo de concentración de 10-10000 ng/mL para sorafenib en plasma de rata. Sólo se necesitaron 3,0 min para una serie de análisis. El método se aplicó a un estudio farmacocinético de sorafenib en ratas.

KEY WORDS: pharmacokinetics, rat plasma, sorafenib, UPLC-MS/MS.

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