

研究论文

柱前衍生反相高效液相色谱-荧光检测法测定大鼠血浆中的奈替米星

常晓娟, 彭敬东*, 刘绍璞, 刘丽敏, 代永矿

School of Chemistry and Chemical Engineering, Southwest University, Education Ministry Key Laboratory on Luminescence and Real-Time Analysis, Chongqing 400715, China

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摘要 建立了一种简便、灵敏的氯甲酸茚甲酯(FMOC-Cl)柱前衍生反相高效液相色谱-荧光检测血浆中奈替米星的新方法,同时研究了其药代动力学。对色谱条件进行了优化,采用ZORBAX Eclipse XDB-C8柱(150 mm×4.6 mm, 5 μm),流动相为乙腈-水(体积比为85:15),流速为1.0 mL/min,荧光检测激发波长为265 nm,发射波长为315 nm,得到奈替米星的平均加标回收率为96.62%~100.84%(n=3),对奈替米星检测的线性范围为0.045~8.88 mg/L,相关系数为0.9993,方法的日内与日间精密度分别低于3%与3.5%,最低检出限(S/N=3)与定量限(以3倍检出限计)分别为0.01和0.03 mg/L。方法简便、快速、灵敏,样品用量少(30 μL奈替米星血浆溶液已能满足该药含量的测定以及药物代谢的研究),为大鼠体内奈替米星的药代动力学研究提供了可靠的分析手段。

关键词 [柱前衍生化](#) [氯甲酸茚甲酯\(FMOC-Cl\)](#) [高效液相色谱](#) [奈替米星](#) [药代动力学](#) [大鼠血浆](#)

Determination of netilmicin in rat plasma by reversed-phase high performance liquid chromatography with fluorescence detection and pre-column derivatization

CHANG Xiaojuan, PENG Jingdong*, LIU Shaopu, LIU Limin, DAI Yongkuang

School of Chemistry and Chemical Engineering, Southwest University, Education Ministry Key Laboratory on Luminescence and Real-Time Analysis, Chongqing 400715, China

Abstract

A new, simple and sensitive method based on pre-column derivatization by reversed-phase high performance liquid chromatography (HPLC) is described for the separation and quantification of netilmicin in plasma, using 9-fluorenylmethyl chloroformate (FMOC-Cl) as the derivatization reagent. Its pharmacokinetics is also presented. The derivatization modes and chromatographic conditions were optimized. The separation was performed on an Agilent ZORBAX Eclipse XDB-C8 column (150 mm×4.6 mm, 5 μm) with a mixture of water-acetonitrile (15:85, v/v) as mobile phase and the flow rate was 1.0 mL/min. The excitation wavelength was 265 nm and the emission wavelength was 315 nm. The linear range was 0.045~8.88 mg/L and the correlation coefficient (r) was 0.9993. The limit of detection (LOD) (S/N=3) was about 0.01 mg/L, and the limit of quantification was 0.03 mg/L (3LOD) for netilmicin. The relative standard deviation was less than 3% for intra-day assay (n=5) and 3.5% for inter-day assay (n=5) and the relative recovery was in the range of 96.62%~100.84%(n=3). The plasma volume of 30 μL was sufficient for the determination of netilmicin. The method provides a reliable bioanalytical methodology to carry out netilmicin pharmacokinetics in rat plasma.

Key words [pre-column derivatization](#) [9-fluorenylmethyl chloroformate \(FMOC-Cl\)](#) [high performance liquid chromatography \(HPLC\)](#) [netilmicin](#) [pharmacokinetics](#) [rat plasma](#)

DOI:

通讯作者 彭敬东 hxpengjd@swu.edu.cn.

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