

Determination of Omeprazole in Human Plasma by Capillary Electrophoresis and Clinical Application

FAN Guo-Rong, LI Zhen, HU Jin-Hong, LIN Mei¹, AN Deng-Kui¹

Department of Clinical Pharmacology, Changhai Hospital, Second Military Medical University, Shanghai 200433; ¹Department of Pharmaceutical Analysis, China Pharmaceutical University, Nanjing 210009

Abstract A capillary electrophoretic method was established for the separation and determination of omeprazole in human plasma with theophylline as the internal standard and dichloromethane as the extracting solvent. Based on the mode of capillary zone electrophoresis, electrophoretic separation was achieved with 50 mmol/L phosphate-12.5 mmol/L borate (pH 10.10) running buffer and a constant voltage of 16 kV applied to the CElect-FS50 uncoated capillary (45 cm×50 μm). The analytes were introduced into capillary by pressure (15 Psi×s) and determined with on-column UV monitoring at 200 nm. No interference was found in the omeprazole or internal standard theophylline peak situation. The good linear relationship was obtained within the range of omeprazole plasma concentration 100.0 ~ 5000.0 ng/ml ($r = 0.9991$, $n = 5$). The method recovery was more than 95% and the intraday or interday precision in replicate injections ($n = 5$) was less than 9.0%. This capillary electrophoretic method has been successfully applied to clinical plasma samples analysis and the pharmacokinetic study after a single infusion administration of 80 mg omeprazole to 4 healthy volunteers.

Key words Omeprazole; Plasma drug concentration; Capillary electrophoresis; Clinical pharmacokinetics

【文摘 009】 钙调素拮抗剂 E6 对缺血性损伤神经细胞的保护作用 启龙, 张 珙, 刘国卿, 黄文龙. 中国药学杂志, 1999, 34(11): 742

目的: 观察具有较强钙调素拮抗活性的双苄基异喹啉类化合物 E6 对缺血性神经损伤的保护作用。方法: 采用 NaCN 加缺糖引起肾上腺髓质瘤细胞(PC12 细胞株)损伤和谷氨酸(glutamate, Glu)引起乳大鼠脑皮质神经细胞损伤模型。结果: E6 对 NaCN 加缺糖损伤的 PC12 细胞保护作用较弱, 而对 Glu 损伤的原代皮质细胞有较强的保护作用, 并降低培养液中一氧化氮(NO)的含量。NO 合成前体 L-精氨酸(L-arginine, L-Arg)可减弱 E6 的保护作用。E6 对硝普钠(sodium nitroprusside, SNP)损伤的原代神经细胞无保护作用。结论: E6 可能是作用于 Glu 引起神经元损伤途径中 NO 生成之前的环节, 从而表现出对缺血样损伤神经细胞的保护作用。

【文摘 010】 色氨酸酶基因工程菌固定化及其培养条件的研究 韦平和, 吴梧桐, 余方兵. 中国生化药物杂志, 1999, 20(6): 271

目的: 对色氨酸酶基因工程菌 WW-11 进行固定化及培养条件研究, 为工业化生产 L-色氨酸奠定基础。方法: 通过色氨酸酶活力测定, 考察三种固定化材料及温度、pH、单价阳离子降乙醇对固定化 WW-11 色氨酸酶活力的影响。结果: 以聚乙烯醇作为 WW-11 的固定化载体, 其活力回收为 60.9%。固定化 WW-1 色氨酸酶降解反应最适 pH 为 9.0, 最适温度为 50℃; 固定化 WW-1 色氨酸酶合成反应最适 pH 为 7.5, 最适温度为 45℃。K⁺、NH₄⁺ 对固定化工程菌色氨酸酶有明显激活作用, 而 Na⁺ 则有一定的抑制作用。结论: 固定化工程菌色氨酸酶对温度、乙醇等的稳定性比游离菌有显著提高。