

研究论文

## 高效液相色谱法同时测定血清中的犬尿氨酸和色氨酸

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**摘要** 建立了一种能同时检测血清中的犬尿氨酸(kynurenine, Kyn)和色氨酸(tryptophan, Trp)的高效液相色谱-紫外检测法。采用的色谱柱为Symmetry Shield RP-C18柱(150 mm×3.9 mm i.d., 5 μm),流动相为15 mmol/L乙酸钠-乙酸溶液(含2.7%乙腈, pH 3.6),流速为1.0 mL/min,紫外检测波长为225 nm。血清标本经5.0%(体积分数)高氯酸溶液去除蛋白质后取上清液直接进样分析测定。研究表明, Kyn保留时间为3.5 min, 线性范围为0.098~49 μmol/L, 最低检出浓度为0.02 μmol/L, 回收率为90.82%~93.45%; Trp保留时间为8.1 min, 线性范围为4.9~490 μmol/L, 最低检出浓度为0.20 μmol/L, 回收率为95.51%~98.67%。Kyn和Trp日内、日间测定的相对标准偏差均小于4%, 苯丙氨酸、酪氨酸、5-羟色胺和犬尿喹啉酸等物质对该法均无干扰。该方法简便、快速、稳定、可行, 可应用于临床和科研工作。

**关键词** [高效液相色谱法](#) [紫外检测](#) [色氨酸](#) [犬尿氨酸](#) [血清](#)

分类号

## Simultaneous Determination of Kynurenine and Tryptophan in Serum by High Performance Liquid Chromatography

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### Abstract

A method was established for the simultaneous determination of kynurenine (Kyn) and tryptophan (Trp) in serum by high performance liquid chromatography-ultraviolet detection (HPLC-UV). It employed a Symmetry Shield RP-C18 column (150 mm×3.9 mm i.d., 5 μm) and a mobile phase of 15 mmol/L sodium acetate-acetic acid solution containing 2.7% (v/v) acetonitrile (pH 3.6) at a flow rate of 1.0 mL/min. The ultraviolet detector was operated at 225 nm. Serum samples were first precipitated with a 5.0% perchloric acid solution, then centrifuged to remove protein residue and finally analyzed by HPLC. The retention time of Kyn was 3.5 min, the linear range of the method was from 0.098 to 49 μmol/L, and the detection limit was 0.02 μmol/L. The recoveries of Kyn were from 90.82% to 93.45%, the intraday and interday variations were 2.37% and 3.66%, respectively. The retention time of Trp was 8.1 min, the linear range of the method was from 4.9 to 490 μmol/L, and the detection limit was 0.20 μmol/L. The recoveries of Trp were from 95.51% to 98.67%, the intraday and interday variations were 1.50% and 2.65%, respectively. The method is simple, fast, accurate, and suitable for routine analysis.

**Key words** [high performance liquid chromatography \(HPLC\)](#) [ultraviolet detection \(UV\)](#) [tryptophan](#) [kynurenine](#) [serum](#)

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