

基础研究和新技术

# 超高压液相色谱-质谱联用法研究 *L,L*-双半胱氨酸的氧化反应动力学

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## 摘要

关键词

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## Study the Oxidation Reaction of *L,L*-Ethylene Dicycysteine by Ultra-Performance Liquid Chromatography Tandem Mass Spectrometry

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**Abstract** *L,L*-ethylene dicycysteine(*L,L*-EC) is a diaminodithiol( $N_2S_2$ ) ligand used in nuclear medicine for the preparation of  $^{99m}Tc$ -*L,L*-EC, a tracer agent for renal function studies. The dithiol groups of *L,L*-EC are easily oxidized and form the corresponding disulfide. In this paper, the dynamic oxidation process of *L,L*-EC was studied by ultra-performance liquid chromatography tandem mass spectrometry(UPLC/MS/MS) in multiple reaction monitoring(MRM) mode. The kinetic experiments were conducted at three different temperatures. The reaction order and the rate constants for the transformation of *L,L*-EC were calculated using kinetic data under pseudo-first-order reaction conditions. The activation energy of the oxidation of *L,L*-EC was calculated by an Arrhenius graph.

**Key words** *L,L*-ethylene dicycysteine -  $N_2S_2$  ligand - UPLC/MS/MS - oxidation kinetics

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