

# 新型快速显微多道分光光度系统及其应用

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介绍一种新型快速显微多道分光光度系统。利用倒置显微镜、衍射光栅、线阵CCD等构成的显微多道分光光度系统,可对微区样品在350nm-800nm(波长分辨率为0.2nm)光谱波长范围内进行快速光谱检测,最快检测时间为1ms。利用该系统进行的人血红细胞内血红蛋白测量分析表明,系统具有高灵敏度、快速、无扰、在位、多光谱显微测量的特点,可在生命科学研究中动态监测细胞生命过程的变化。

## A NOVEL FAST MULTI-CHANNEL MICRO-SPECTROPHOTOMETER

A novel fast micro multi-channel spectrophotometer is developed based on an inverted microscope with monochromator, linear array CCD, and a personal computer. This system can obtain absorption spectrum from a micro region of  $1\mu\text{m}$  in diameter in the range of wave length from 350nm to 800 nm with resolution of 0.2nm within 1ms. The spectrum of hemoglobin in red blood cell, and the time course of the absorption spectrum of single red blood cell during hemolysis process obtained by the system show that the new spectrophotometer is of the ability of performing non-invasive, in situ, multi-channel measurement with high sensitivity and high speed. It is suitable for monitoring the instant molecular change of a single intact cell in response to the variation of its physiological and biochemical conditions.

### 关键词

显微分光光度 (Micro-spectrophotometer); 多道 (Multi-channel); 光谱 (Spectrum); 单个活细胞 (Single intact cell)