

专论与综述

免疫毛细管电泳-激光诱导荧光分析DNA加合物的方法学研究

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摘要 DNA加合物是一类重要的生物标志物,可应用于人体致癌物暴露监测、癌症风险评价和人群易感性研究。DNA加合物作为生物标志物的应用需要安全、灵敏、快速的先进分析技术。我们利用免疫毛细管电泳-激光诱导荧光分析,发展了高灵敏的DNA加合物分析方法和技术。本文主要介绍了相关的仪器研制及方法学研究。方法学研究涉及DNA加合物荧光探针的合成和表征、抗体与DNA加合物的相互作用及其结合计量学、抗原-抗体复合物的稳定化和DNA驱动电泳聚焦技术。

关键词 [毛细管电泳](#) [激光诱导荧光](#) [DNA加合物](#) [生物标志物](#)

Methodology of capillary electrophoresis-laser induced fluorescence immunoassay for highly sensitive detection of DNA adducts

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Abstract

DNA adducts is a very important class of biomarkers of human exposure to carcinogen, cancer risk assessment, and population susceptibility. There is a lack of a technology with a sufficient sensitivity to detect trace DNA adducts related to low environmental exposure levels. We attempt to develop a highly sensitive assay for the detection of DNA adducts by combining capillary electrophoresis-laser induced fluorescence (CE-LIF) with immunochemical recognition, or CE-LIF immunoassay. This review describes the recent research progress on CE-LIF instrument construction and the methodology of CE-LIF immunoassay for the detection of DNA adducts. The methodology study mainly involves the synthesis and characterization of the adduct containing DNA fluorescent probes, the interaction of DNA adducts and antibody, stabilization of trace DNA adducts-antibody complexes, and DNA-driven focusing.

Key words [capillary electrophoresis \(CE\)](#) [laser induced fluorescence \(LIF\)](#) [DNA adduct](#) [biomarker](#)

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