A NOVEL DETERMINATION METHOD FOR CROSS AND MYCOPLASMA CONTAMINATION IN CELL CULTURES WITH FRAGMENT ANALYSIS

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KEYWORDS

- ✓ Cross- contamination
- ✓ Cell culture
- ✓ Short tandem repeats
- ✓ Mycoplasmas
- ✓ Microsatellites

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Everything was going along fine until they discovered their HeLa cell line expressed Y chromosome markers.

TEZ ÖZETİ

Ensuring reproducibility in scientific research is crucial. However, reproducibility risks such as cross-contamination and mycoplasma contamination exist in cell culture studies. These risks can affect research accuracy, delaying progress in crucial areas like disease treatment and drug production. Therefore, reproducibility is taken seriously by the scientific community. Organizations like ICLAC and NIH recommend or mandate routine cell line authentication testing. However, there are no regulations in our country, and researcher awareness is low.

This thesis aims to develop a new protocol to simultaneously detect cross-contamination and mycoplasma contamination in cell culture studies. STR protocol optimization studies were conducted for high sensitivity, specificity, and selectivity to meet international standards. As a result, a panel with high sensitivity for mycoplasma and allele detection, specificity in human samples, high discriminative power in mixed samples, and compatibility with existing STR kits was developed. This panel will provide a cost-effective, rapid method for cell authentication and mycoplasma detection, aiding researchers in our country.

APPLICATION AREAS OF THESIS RESULTS

Medical Research and Cancer Studies, Drug Development, Vaccine Production, Biotechnology and Genetic Engineering, Forensic Sciences, Clinical Diagnostic Laboratories, Basic Science Research

AKADEMİK FAALİYETLER

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