USE OF THE AUTOMATED IMMUNOFLUORESCENCE ANALYZER AFIAS IN LABORATORY DIAGNOSTICS

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INTRODUCTION

Automation of laboratory research is a key area for improving the accuracy and reproducibility of analytical results.

Modern laboratory diagnostics are highly relevant and require accurate, reproducible, and safe analysis methods. Using the automated AFIAS immunofluorescence analyzer reduces the likelihood of errors, speeds up testing processes, and improves personnel biosafety.

The aim of the study was to evaluate the effectiveness of using the automated immunofluorescence analyzer AFIAS in clinical diagnostic laboratories.

Research objectives: to study the operating principle of the AFIAS analyzer, describe the analysis algorithm, identify the advantages of using the device in laboratory practice, and prepare recommendations for implementation in clinical diagnostic laboratories.

How the AFIAS analyzer works

AFIAS is based on a fluorescence immunoassay using disposable test cartridges containing all necessary reagents.

Algorithm of the device operation

1. Identification and sample preparation.

2. Inserting the sample into the test cartridge.

3. The course of the antigen–antibody reaction with the formation of a fluorescently labeled immune complex.

4. Incubation and washing inside the cartridge (without operator intervention).

5. Registration of the fluorescent signal intensity by a built-in detector.

6. Automatic calculation of the concentration of the analyzed indicator and display of the result on the display.

Benefits of using AFIAS

● High sensitivity and specificityAFIAS uses advanced immunofluorescence technologies that allow for highly accurate detection of even low concentrations of vitamin D, minimizing the risk of false positive or false negative results.
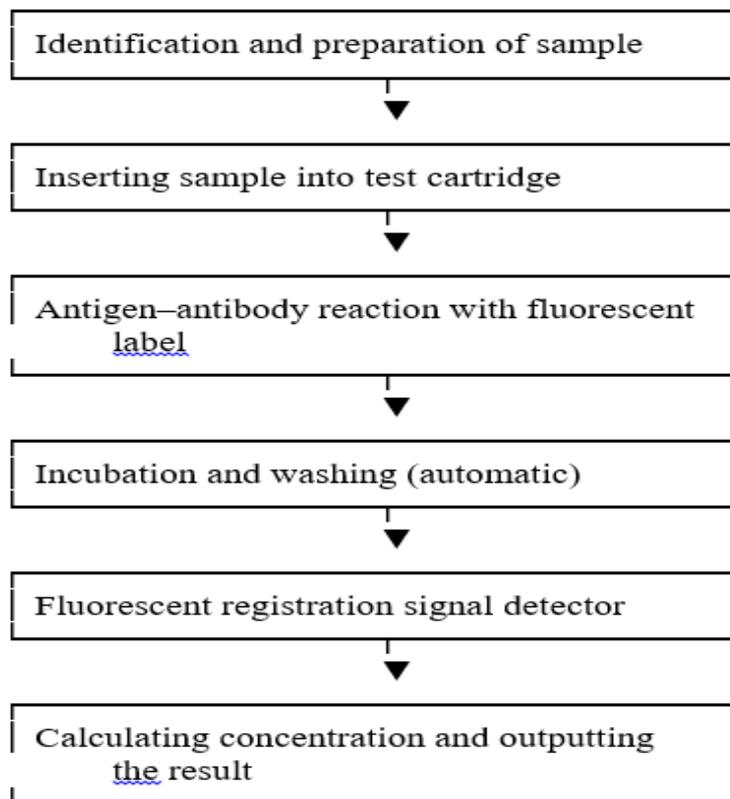
● Speed of analysisThe device provides results in the shortest possible time, which is especially important in clinical practice for prompt decision-making.

● Process automation: Full automation minimizes the influence of human factors on the results, ensuring reproducibility and reliability of measurements.

● Minimum sample volume: AFIAS requires a small volume of biological material (e.g. blood serum), which makes the collection procedure less

Conclusion: AFIAS is an effective tool for modern laboratory diagnostics and is recommended for use in clinical diagnostic laboratories of various profiles.

AFIAS operating algorithm flowchart

Identification and preparation of sample

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Inserting sample into test cartridge

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Antigen–antibody reaction with fluorescent label

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Incubation and washing (automatic)

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Fluorescent registration signal detector

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Calculating concentration and outputting the result

LIST OF SOURCES:

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