

Press Release

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Analysis of up to 12,000 base pairs

New reagent kit for the MCE-202 - MultiNA

Shimadzu, one of the world leaders in analytical instrumentation, offers with its MCE-202 MultiNa a microchip-based fully automated and high-speed electrophoresis system for DNA/RNA analysis. The separation time can be reduced to 75 seconds per sample due to an efficient workflow and parallel processing by up to four reusable quartz microchips.

The new DNA-12000 reagent kit extends the product offer of the MCE-202 kit systems and now also enables analysis of up to 12,000 base pairs. This increases the application range considerably for the MCE-202, which now includes analysis of plasmids (analysis of circular double-stranded DNA molecules) and analysis of larger PCR products and longer restriction fragments.

Comparison: agarose gel and microchip electrophoresis

MultiNa is suitable for the analysis of DNA/RNA fragments, supporting all relevant fields of research. The system processes up to 120 samples in a single run – fast, straightforward and reliable. Manual workflow steps for sample preparation, separation, detection and data processing have been completely automated. The operating costs of the MultiNa are lower compared to the costs of agarose gel electrophoresis.

During agarose gel electrophoresis, DNA/RNA is separated in an electrical field according to charge in order to determine the molecular weight. For visualizing of the nucleic acid chains, the samples are stained within the gel using ethidium bromide or a fluorescent dye, and are viewed under UV light. The migration rates provide information about molecular weights and individual identification.

Microchip electrophoresis separates the target substances in microseparation channels on a glass or on a synthetic support. As the technology of the next generation, microchip electrophoresis offers ultrafast, highly reproducible and highly sensitive microanalysis.

Characteristics of MultiNa at a glance

- **Lower analysis costs**
through faster analysis times via reusable microchips
- **Complete high-speed automatic operation**
for up to 120 analysis cycles or the analysis of an individual sample. Automated injection ensures that only small sample amounts (minimum: 2 μ L) and reagents are applied.
- **High separation efficiency and reproducibility**
A control run using two internal standards (with low and high molecular weights) together with the sample improves the reproducibility and ensures high separation efficiency.
- **Speed and ease of operation**
Automated analysis – from rinsing of the microchips, filling of the separation buffer, loading the sample and electrophoretic separation up to data analysis: numerous tools simplify the analysis strategy.
- **Increased sensitivity**
The built-in fluorescence detector is approximately 10 times more sensitive than conventional ethidium bromide staining.

Live demo at analytica

The MCE-202 MultiNA is on display daily in three live demonstrations.

- 17 – 19 April, at 10:30, 13:00 and 15:30, hall A3



Figure 1: MCE-202 – MultiNA is a microchip-based electrophoresis system for fully automated, low cost DNA-RNA analysis.



Figure 2: The five reagent kits: DNA-500 for analysis of 25 to 500 base pairs, DNA-1000 for analysis of 100 to 1,000 base pairs, DNA-2500 for analysis of 100 to 2,500 base pairs, DNA-12000 for analysis of 100 to 12,000 base pairs and RNA for RNA analysis of up to 5,000 nucleotides.



Figure 3: The new DNA-12000 kit enables DNA analysis of up to 12,000 base pairs.

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