

Laboratory of Mineral Biotechnologies

(Biotechnologies in mineral processing, bioremediation and material research)
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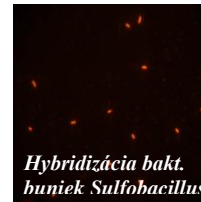


Fluorescence microscopy Leica DM 6000 with photo documentation system

- Visualization of microorganisms stained with fluorescence dyes (DAPI)
- Identification of targeted organisms by fluorescence in-situ hybridization (FISH).



*DAPI farbenie
bakt. buniek
Acidithiobacillus
ferrooxidans*



*Hybridizácia bakt.
buniek Sulfobacillus*

Agilent 2100 Bioanalyzer

Microfluidic chip bio analyzer for the electrophoretic analysis of DNA, RNA, and proteins

DNA Analysis

- sizing and quantification of DNA fragments in the 25-12000 bp size
- sample quality control and the monitoring of critical steps in next-generation sequencing (NSG) workflows, including DNA fragmentation target enrichment and DNA library amplification

RNA Analysis

- integrity checks and sample quantification of total RNA, mRNA, small RNAs
- detection of RNA degradation with sample amount as low as 200 pg of total RNA



Analysis of proteins

- On-chip electrophoresis provides size, purity and concentration information
- sensitivity equivalent to Silver, SDS-PAGE staining
- possible to analyze proteins in the 5-250 kDa range



Real time PCR, Q-PCR system LigCycler® 2.0 Roche

- Two sizes of reaction capillaries 20 µl and 100 µl, provide flexibility for assay design
- 32-position carousel system ensures fast and precise temperature regulation ($\pm 0,4^{\circ}\text{C}$)
- Simultaneous monitoring of 32 products of PCR amplification in real time, six fluorescence detectors measure fluorescence at wavelengths of 530, 560, 610, 640, 670 a 705 nm.

Applications:

- Visualization of targeted groups of microorganisms
- Analysis of DNA fragments, PCR products
- RNA quality control for applications as next-generation sequencing, qPCR, microarray analysis, gene expression
- Protein expression, purification, quantification, high sensitivity protein detection

