

Abstract

Fluorescence in situ hybridization (FISH) is a technique that allows the localization and identification of specific sequences of nucleotides in DNA or RNA, which is subsequently visible under the microscope. FISH involves first denaturing the nucleic acids, either using high temperatures or by treatment with denaturing agents such as formamide. After subsequent induction of reassociation, the examined DNA or RNA pairs according to the complementarity rules with the short molecule called the probe, this process is called hybridization. Hybridization occurs *in situ*, that is within the examined specimen. Probes can be labeled either directly using fluorophores, or indirectly with a hapten, which is a substance having antigenic properties, which is subsequently detected using labeled antibodies or streptavidine. FISH has a large number of applications in molecular biology and medical science. In laboratory research in protistology FISH can be used for example to map the chromosomal genes to study the evolution of genome, analysis of nuclear organization or to confirmation of the origin of DNA sequence.

Key words: FISH, fluorescence, probe, cell identification, environmental studies