

RAPID AND SPECIFIC DETECTION *CHLAMYDIA TRACHOMATIS* BY FUNCTIONALIZED NANOPARTICLES AS FLUORESCENT BIOMARKERS

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Purpose: The technology is used for rapid, sensitive, specific detection of *C. trachomatis* in biological samples using immunomagnetic separation followed by fluorescent visualization with functionalized nanoparticles. The proposed method will allow to detect surface chlamydial antigens in a simple manner, without special and expensive instrumentation apart from immunomagnetic separation and fluorescent microscopy techniques

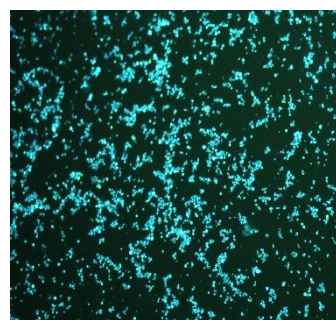
Application:

- medical microbiology
- laboratory diagnostics
- biosensors and biochips technology
- nanotechnology

Technical characteristics of technology:

Principle of the method used is based:

- the extraction of *Chlamydia trachomatis* from the biological samples by magnetic particles
- their coupled with specific polyclonal anti-chlamydial antibodies
- The formed complexes then react with functionalized CdSe/ZnS nanoparticles, which leads to the detection of a fluorescent signal
- examined probes by fluorescence microscopy
- observation complexes in a form of bright-glowing particles, which looked like the separate “points” lying outside of the surface of functionalized magnetic particles.



Operating characteristics of solutions:

- Avidin-coated magnetic particles (MPs) size 1-2 μm , processed with biotinylated polyclonal anti-chlamydial IgG
- CdSe nanoparticles (1,7-2 nm in size) with maximum emission wavelength of 550 nm, shelled ZnS and a polymer coating, which conjugated to polyvalent anti-chlamydial IgG were used as fluorescent probes.
- Concentration of monoclonal anti-chlamydial antibodies (protein recognition) is 0,04 mg/ml

Advantages of the technology:

- This procedure is easy to perform and does not require any expensive equipment.
- The method is accomplished by using a highly active anti-chlamydial antibody which is directed to the genus-specific *C. trachomatis* surface antigens such as MOMP and LPS

Intellectual property:

the technology is protected by Belarussian patent

Forms of cooperation:

technology sale, production of solutions on order.