

## Microscopy of Nanostructures

### Morphological changes in metallic core – polymer shell nanostructures at the interaction with physiological media

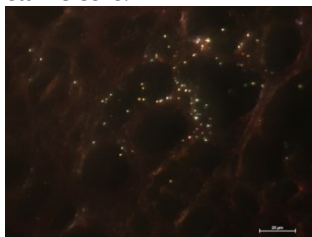
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Following in vivo studies, in which it was found that no morphological changes occurred in brain tissue in rats after administration gold nanoparticles, size distribution analysis of nanoparticles in the areas where they were localized showed that these are more dispersed in tissue than within the colloidal solution. Also compared to the size distribution of nanoparticles in the colloidal solutions, it was observed that nanoparticles localized in brain tissue were smaller. Gold nanoparticles were synthesized using high molecular weight chitosan.

To understand the factors that caused the decrease of nanoparticles dimensions, the current study focused on simulating the physiological conditions of acid pH and basic pH environments similar to that hydrocephalus and gastric media; also to follow if in excessive basic medium polymer coating significantly modify its configuration around the metallic core.



*Fig.1 Gold nanoparticles well dispersed in biological medium*

1. *Sathish kumar K., Madhusudhanan J., Thanigaivel, Robin Abraham, Veni V. Biofunctionalized nanoparticle for drug delivery//Research Journal of Biotechnology.-2013.-8, N 4.-P. 70-77.*
2. *Czechowska-Biskup R., Jarosińska D., Rokita B., Ulański P., Rosiak M. Determination of degree of deacetylation of chitosan - comparison of methods// Progress on Chemistry and Application of Chitin.- 2012.-17.-P. 5-20.*
3. *Bhumkar D.R., Joshi H.M., Sastry M., and Pokharkar V. B. Chitosan Reduced gold nanoparticles as novel carriers for transmucosaldelivery of insulin//Pharmaceutical Research-. 2007.-24, N 8.-P.1415-1426.*