

## **Nanodiamonds with New Properties: Biological Research**

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Recently discovered particles of nanodiamonds of explosion synthesis possess a number of positive properties not found in ordinary nanodiamonds [1, 2]. Nanodiamonds with new properties are adapted for biological investigations and animal tests for they possess high colloidal stability in hydrosols and are able to keep these properties after hydrosol sterilization and freezing.

We report on the results of the following tests:

in vitro – interaction of nanodiamonds with mammalian cells (human blood cells, Ehrlich’s carcinoma cells);

in vivo – dynamics of biological parameters of test animals organisms under various types of nanoparticles introduction (oral intake; intravenous, intramuscular, intraperitoneal, hypodermic injections).

We discuss possible mechanisms of nanodiamonds effect on complex biological systems and describe ways of biological and medical applications of new nanodiamonds.

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2. V.S. Bondar, A.P. Puzyr, A.A. Bukayemsky, G.E. Selyutin, and V.F. Kargin, In: *Syntheses, Properties and Applications of Ultrananocrystalline*, NATO Science Series. II. Mathematics, Physics and Chemistry (D.M.Gruen, O.A.Shenderova, A.Ya.Vul’ - Eds.), Springer, Kluwer Academic Publishers. **192**, 261-270 (2005).