

7.23

THE PROBLEM OF NANODIAMOND VISUALIZATION IN BIOPHARMACEUTICAL RESEARCH

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under the direction of

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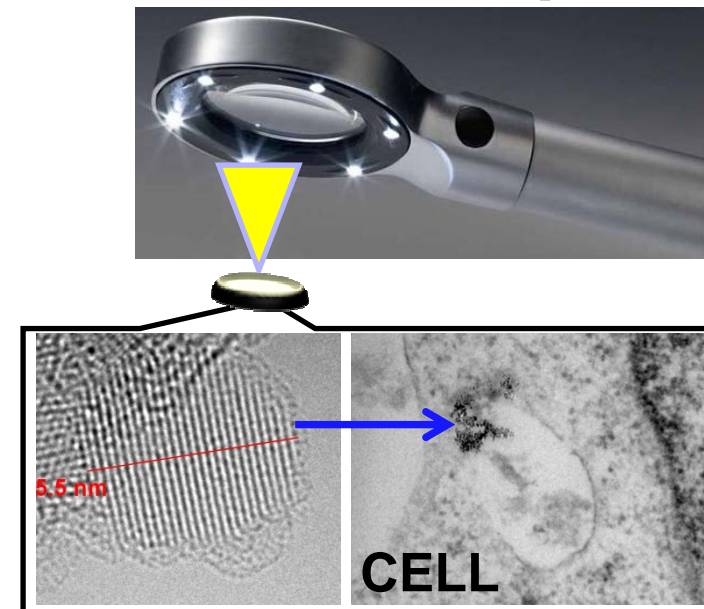
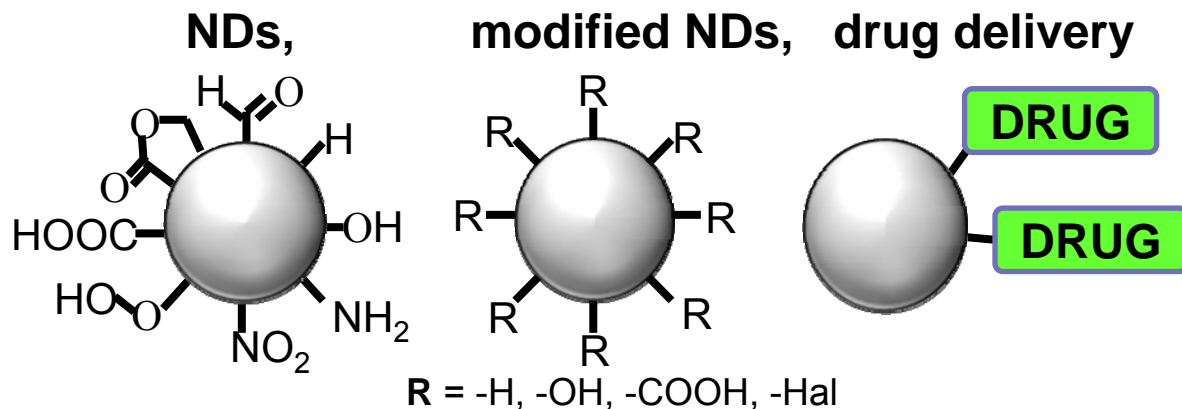
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University**

Object under study – nanodiamonds (NDs)



Goal:
Visualization nanodiamonds particles in research – *in vitro*, *in vivo*, *ex vivo*

OBJECTIVE 1:

Study of the structure and physical-chemical properties NDs

Methods:

TEM, XRD, XPS, IRS, Raman et al.

OBJECTIVE 2:

Study of the biopharmaceutical properties NDs

<i>In vitro</i>	Transmembrane penetration, Cell visualization
<i>In vivo</i>	ADME (Absorption, Distribution, Metabolism, Excretion)
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<i>Ex vivo</i>	Concentration in organs

TEM, Weight method,
Tritium label method

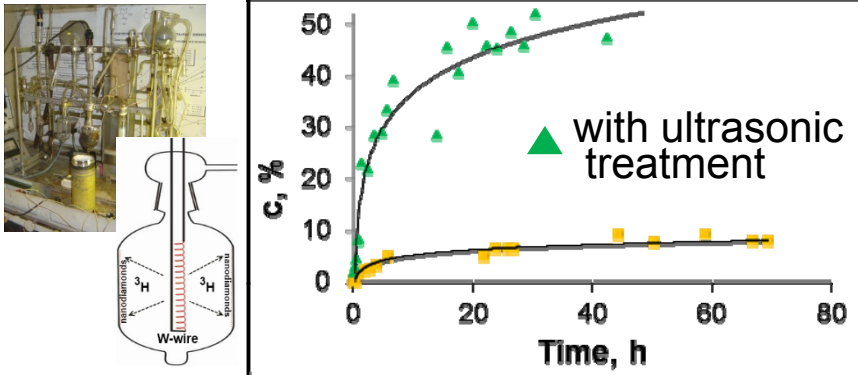
Don't work

ICP-MS, Tritium label method

Results

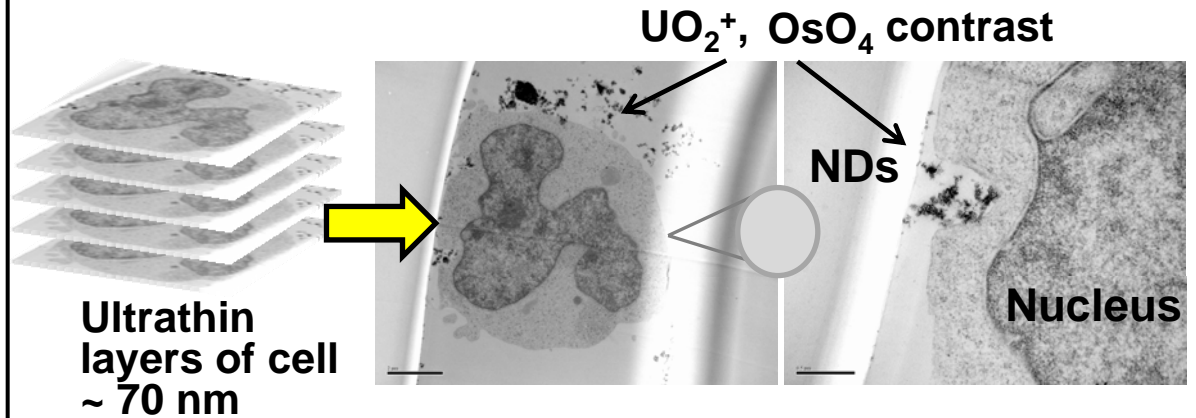
Tritium label method

Time dependence of mass $[^3\text{H}]$ -ND passed through the cellophane membrane

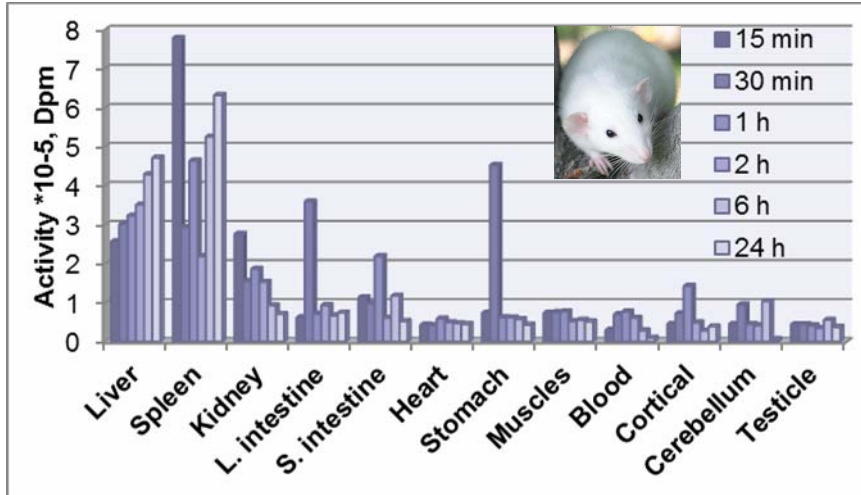


TEM + Cell biology methods

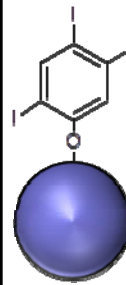
Visualization NDs in cells lymphoblast



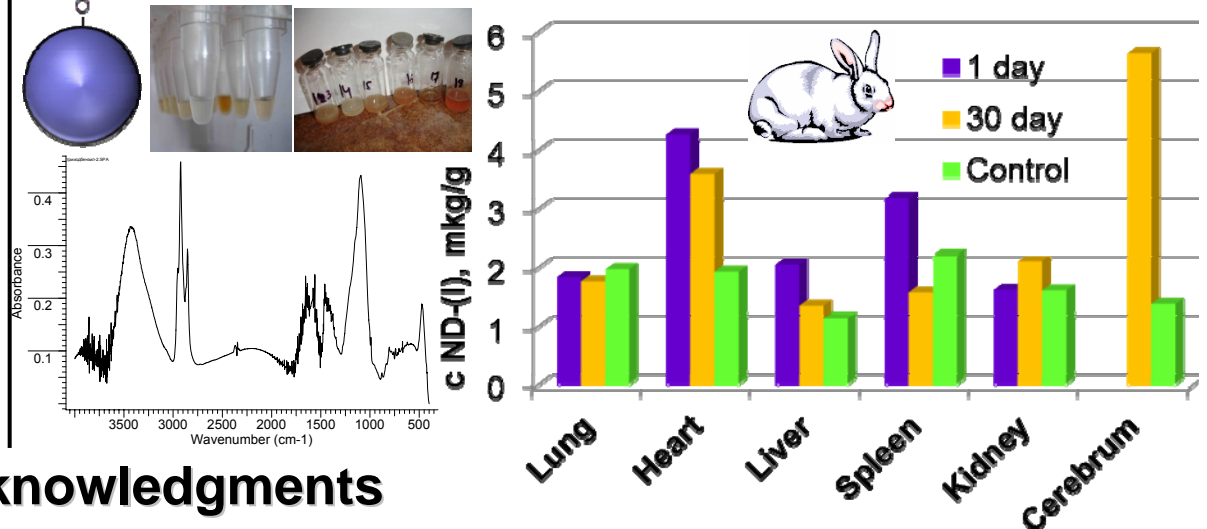
Biodistribution $[^3\text{H}]$ -ND in organs of rats



ICP-MS



Biodistribution ND-(I) in organs of rabbits



Acknowledgments

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