

## BIOGRAPHICAL SKETCH

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NAME Serguei V. Vinogradov, Ph.D.		POSITION TITLE Research Associate Professor	
eRA COMMONS USER NAME Vinogradov.Serguei			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Chemistry Department, Moscow State University, Russia	M.S.	1973	Chemistry
Ovchinnikov-Shemyakin Institute of Bioorganic Chemistry, Russian Academy of Sciences.	Ph.D.	1979	Bioorganic Chemistry and Chemistry of Biologically Active Natural Compounds

### A. Positions and Honors.

#### Positions and Employment

- 1978-1984 Researcher, Department of Gene Synthesis, Institute of Bioorganic Chemistry, Russian Academy of Science, Moscow, Russia
- 1984-1988 Senior Researcher, Department of Interleukins, Institute of Bioorganic Chemistry, Russian Academy of Science, Moscow, Russia
- 1988-1994 Principal Researcher, Department of PCR Diagnostics, Russian Center of Molecular Diagnostics and Therapy, Ministry of Public Health, Moscow, Russia
- 1992 Research Fellowship of International Program of Scientific Collaboration (PICS), CNRS, Laboratory of Biophysics, National Museum of Natural History, Paris, France
- 1994-1996 Visiting Scientist, Center of Molecular Biophysics, CNRS and University of Orleans, Orleans, France
- 1995 Rhone-Poulenc Roher' Scientific Fellowship (BRITEST), Orleans, France
- 1996-1998 Visiting Professor, College of Pharmacy, University of Nebraska Medical Center (UNMC), Omaha
- 1998-2005 Research Assistant Professor, College of Pharmacy, UNMC, Omaha
- 2004-present Graduate Faculty, UNMC, Omaha
- 2004-present Member, Eppley Cancer Center, UNMC, Omaha
- 2005-present Research Associate Professor, College of Pharmacy, Center for Drug Delivery and Nanomedicine, UNMC, Omaha

#### Other Experience and Professional Memberships

- 1978-1988 Mendeleev Russian Chemical Society, Moscow, Russia
- 1989-1991 Head of the Oligonucleotide Synthesis Facility, Pharminvestprom, Moscow, Russia
- 1996 Member, American Association of Pharmaceutical Scientists
- 1999 Member, American Chemical Society
- 2002 Member, European Society of Gene Therapy
- 2003 Member, Controlled Release Society
- 2004 Member, American Society of Gene Therapy

### B. Selected peer-reviewed publications (from total of 65 papers and book chapters)

1. Vinogradov SV, Bronich TK, Kabanov AV (2002). Nanosized cationic hydrogels for drug delivery: preparation, properties and interactions with cells. *Adv Drug Deliv Rev* 54: 135-147.
2. Ochiatti, B, Guerin, N, Vinogradov, SV, St-Pierre, Y, Lemieux, P, Kabanov, AV, Alakhov, VY (2002). Altered organ accumulation of oligonucleotides using polyethyleneimine grafted with poly(ethylene oxide) or Pluronic as carriers. *J Drug Target* 10: 113-121.

3. Kabanov AV, Lemieux P, Vinogradov S, Alakhov V (2002). Pluronic block copolymers: Novel functional molecules for gene therapy. *Adv Drug Deliv Rev* 54: 223-233.
4. Gebhart CL, Sriadibhatla S, Vinogradov S, Lemieux P, Alakhov V, Kabanov AV (2002). Design and formulation of polyplexes based on Pluronic-polyethylenimine conjugates for gene transfer. *Bioconjug Chem* 13: 937-44.
5. Ochiatti B, Lemieux P, Kabanov AV, Vinogradov S, St-Pierre Y, Alakhov V (2002). Inducing neutrophil recruitment in the liver of ICAM-1-deficient mice using polyethylenimine grafted with Pluronic 123 as organ-specific carrier for transgenic ICAM-1. *Gene Ther* 9: 939-945.
6. Vinogradov S, Roig V, Sergueeva Z, Nguyen CH, Arimondo P, Thuong NT, Bisagni E, Sun J-S, Helene C, Asseline U (2003). Synthesis and binding properties of oligo-2'-deoxyribonucleotides conjugated with triple-helix-specific intercalators: benzo[e] and benzo[g] pyridoindoles. *Bioconjug Chem* 14: 120-135.
7. Vinogradov SV, Batrakova EV, Kabanov AV (2004). Nanogels for oligonucleotide delivery to the brain. *Bioconjug. Chem.* 14: 50-60.
8. Vinogradov SV, Batrakova EV, Shu Li, Kabanov AV (2004). Mixed polymer micelles of amphiphilic and cationic copolymers for delivery of antisense oligonucleotides. *J Drug Target* 12: 517-526.
9. Batrakova EV, Yan Zhang, Yili Li, Vinogradov SV, Persidsky Y, Alakhov VY, Miller DW, Kabanov AV (2004). Effects of Pluronic P85 on GLUT1 and MCT1 transporters in the blood-brain barrier. *Pharm Res*, 21: 1993-2000.
10. Belenkov AI, Alakhov VY, Kabanov AV, Vinogradov SV, Panasci LC, Monia BP, Chow TYK (2004) Polyethylenimine grafted with pluronic p85 enhances ku86 antisense delivery and the ionizing radiation treatment efficacy in vivo. *Gene Ther* 11, 1665-1672.
11. Vinogradov SV (2004). The second annual symposium on nanomedicine and drug delivery: exploring recent developments and assessing major advances, 19-20 August 2004, Polytechnic University, Brooklyn, NY, USA. *Expert Opin Drug Deliv* 1: 181-184.
12. Vinogradov SV, Kabanov AV (2004). Synthesis of Nanogel carriers for delivery of active phosphorylated nucleoside analogues. *Polymer Preprints (ACS)*, 45(2): 378-379.
13. Batrakova EV, Vinogradov SV, Robinson SM, Niehoff ML, Banks WA, Kabanov AV (2005) Polypeptide Point Modifications with Fatty Acid and Amphiphilic Block Copolymers for Enhanced Brain Delivery. *Bioconjugate Chem* 16: 793-802.
14. Vinogradov SV, Zeman AD, Batrakova EV, Kabanov AV (2005) Polyplex Nanogel formulations for drug delivery of cytotoxic nucleoside analogs. *J Contr Release*: 107: 143-157.
15. Vinogradov SV, Kohli E, Zeman AD (2005) Cross-linked polymeric Nanogel formulations of 5'-triphosphates of nucleoside analogs: role of the cellular membrane in drug release. *Mol Pharm* 2: 449-461.
16. Vinogradov SV, Kohli E, Zeman AD (2006) Comparison of nanogel drug carriers and their formulations with nucleoside 5'-triphosphates. *Pharm Res* 23: 920-930.
17. Vinogradov SV (2006) Colloidal microgels in drug delivery applications. *Curr Pharm Design* 12: 4703-4712.
18. Vinogradov SV (2007) Polymeric nanogel formulations of nucleoside analogs. *Expert Opin Drug Deliv* 4: 5-17.
19. Kohli E, Han H-Y, Zeman AD, Vinogradov SV (2007) Formulations of biodegradable Nanogel carriers with 5'-triphosphates of nucleoside analogs that display a reduced cytotoxicity and enhanced drug activity. *J Contr Release*: 121: 19-27.
20. Kabanov AV, Vinogradov SV (2007) Nanogels as Pharmaceutical Carriers. In: *Multifunctional Pharmaceutical Nanocarriers* (Ed. by Victor Torchilin), Springer, 2007 (in press).

### C. Ongoing Research Support:

RO1 Research Grant (CA102791-A1) PI: Vinogradov, SV. 4/1/2004 – 3/31/2008

National Institutes of Health (NCI)

Polymer-Nucleotide Complexes with Cytotoxic Activity

The major goals of this project it to evaluate complexes of phosphorylated nucleoside analogues with polymeric cationic nanogels as cancer-targeting cytotoxic formulations.

Role: PI

R01 NS050660-A1 PI: Vinogradov, SV. 7/1/2005-6/30/2009  
NIH/NINDS  
Bioengineering of the Blood-Brain Permeability  
The major goal of this project is to modulate drug permeability in the blood-brain barrier using targeted Nanogels for transfection of the epithelial cells with genetic inhibitors of specific drug efflux transporters.  
Role: PI

R01 NS051334 PI: Kabanov, AV 1/1/2006-12/31/2008  
NIH/NINDS  
Polypeptide Modification for Enhanced Brain Delivery  
The major goal of this project is to develop polymer-protein conjugates as a tool for delivery of bioactive polypeptides to the central nervous system.  
Role: Co-In

R21 EB005683 PI: Vetro, J 07/01/2007-06/30/2009  
NIH/NIBIB  
Development of Targeted Nanogels for siRNA Delivery to Tumor Vasculature  
The major goal of this project is to develop peptide-vectorized Nanogels for delivery of antiangiogenic siRNA to tumor vasculature.  
Role: Co-In

#### **D. Recent Research Support:**

Postdoctoral Grant PI: Kohli, E 7/1/2006-6/31/2007  
American Heart Association  
Targeted Approach for Sustained Inhibition of Cholesteryl Ester Transfer Protein in the Treatment of Atherosclerosis.  
The objective of this project is to develop liver-targeted Nanogel drug delivery vehicles for siRNA therapeutics.  
Role: Sponsor

BC053471 Seed Grant PI: Vetro, JA 08/01/2006-07/30/2007  
Department of Defense Breast Cancer Research Program 2005 Concept Award  
Development of Targeted Nanogels for the siRNA-Mediated Anti-Angiogenesis Treatment of Breast Cancer  
The objective of this project is to develop more efficient targeted drug delivery vehicles for siRNA delivery to breast tumor vasculature.  
Role: Co-In

Research, Seed Grant PI: Vetro, JA 07/01/2006-06/30/2007  
Nebraska Health and Human Services (#2007-41)  
Targeted Nanogels for the siRNA Treatment of Skin Cancer  
The major goal of this project is to develop more efficient targeted drug delivery vehicles for the siRNA-mediated treatment of skin cancer.  
Role: Co-In

Instrument Grant PI: Vinogradov, SV 5/1//2005-4/30/2006  
Nebraska Bankers Association  
Multi-Detection Automatic Microplate Reader for Optimization of Drug Delivery and Drug Efficacy  
Purchase of the BioTek fluorescent/chemoluminescent microplate reader for research purposes.  
Role: PI