

## BIOGRAPHICAL SKETCH

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NAME Bronich, Tatiana	POSITION TITLE Associate Professor		
eRA COMMONS USER NAME BRONICH.TATIANA			
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Moscow State University, Russia	M.S.	1974-1979	Chemistry
Moscow State University, Russia	Ph.D.	1986	Polymer Chemistry

### A. Positions and Honors.

#### Positions and Employment

- 1985-1989 Research Fellow, A.N. Nesmeyanov Institute of Elementoorganic Compounds, Russian Academy of Sciences
- 1989-1995 Research Fellow, Moscow State University
- 1995-1997 Postdoctoral Research Associate, College of Pharmacy, University of Nebraska Medical Center
- 1997-2002 Research Assistant Professor, College of Pharmacy, University of Nebraska Medical Center
- 2000-Present Graduate College Faculty Fellow
- 2002-2007 Research Associate Professor, College of Pharmacy, University of Nebraska Medical Center
- 2007-Present Associate Professor, College of Pharmacy, University of Nebraska Medical Center
- 2004-Present Member, Eppley Cancer Center, University of Nebraska Medical Center
- 2004-Present Member, Center for Drug Delivery and Nanomedicine, University of Nebraska Medical Center

#### Honors & Awards

- 2000 Ad-hoc member of NSF Nanoscale Modeling and Simulation Panel
- 2000-2004 Ad-hoc member of NSF Exploratory Research on Biosystems at the Nanoscale, Directorate of Engineering
- 2006-2007 Ad-hoc member of Gene and Drug Delivery Study Section, NCI panel ZCA1 GRB-I (M1) (SPORE in Lung, Head and Neck, Lymphoma, and Brain Cancers), NIH panel ZRG1 GGG-S 52 R (Therapeutics Delivery for Neurodegenerative Diseases)

#### **B. Selected peer-reviewed publications (in chronological order).**

1. Kabanov AV, **Bronich TK**, Kabanov VA, Yu K and Eisenberg A. (1996) Soluble stoichiometric complexes from poly(N-ethyl-4-vinylpyridinium) cations and poly(ethylene oxide)-block-poly(methacrylate) anions. *Macromolecules* 29, 6797-6802.
2. **Bronich TK**, Kabanov AV, Kabanov VA, Yu, K and Eisenberg A. (1997) Soluble complexes from poly(ethylene oxide)-block-polymethacrylate anions and N-alkylpyridinium cations. *Macromolecules* 30, 3519-3525.
3. **Bronich TK**, Cherry T, Vinogradov SV, Eisenberg A, Kabanov VA, Kabanov AV (1998) Self-assembly in mixtures of poly(ethylene oxide)-block-polyethyleneimine and alkyl sulfate anions. *Langmuir* 14, 6101-6106.
4. Vinogradov SV, **Bronich TK**, Kabanov AV (1998) Self-assembly of polyamine-poly(ethylene glycol) copolymers with phosphorothioate oligonucleotides. *Bioconjugate Chemistry* 9, 805-812.
5. Kabanov A, **Bronich TK**, Kabanov VA, Yu K, Eisenberg A (1998) Spontaneous formation of vesicles from complexes of block ionomers and surfactants. *J Am Chem Soc* 120, 9941-9942.
6. Lysenko EA, **Bronich TK**, Eisenberg A, Kabanov VA, Kabanov AV (1998) Block ionomer complexes from polystyrene-block-polyacrylate anionis and N-cetylpyridinium cations. *Macromolecules* 31, 4511-4515.
7. Lysenko EA, **Bronich TK**, Eisenberg A, Kabanov VA, Kabanov AV (1998) Solution behavior and self-assembly of complexes from poly( $\alpha$ -methylstyrene)-block-poly(N-ethyl-4-vinylpyridinium) cations and aerosol OT anions. *Macromolecules* 31, 4516-4519.
8. Alakhov V, Klinsky E, Li S, Pietrzynski G, Venne A, Batrakova E, **Bronich T**, Kabanov A (1999) Block copolymer-based formulation of doxorubicin. From cell screen to clinical trials. *Colloids and Surfaces B: Biointerfaces* 16, 113-134.

9. **Bronich TK**, Nehls A, Eisenberg A, Kabanov VA, Kabanov AV (1999) Novel drug delivery systems based on the complexes of block ionomers and surfactants of opposite charge. *Colloids and Surfaces B: Biointerfaces* 16, 243-252.
10. **Bronich TK**, Popov AM, Eisenberg A, Kabanov VA, and Kabanov AV (2000) Effects of block length and structure of surfactant on self-assembly and solution behavior of block ionomer complexes. *Langmuir* 16, 481-489.
11. Nguyen H-K, Lemieux P, Vinogradov S, Gebhart CL, Guérin N, Paradis G, **Bronich T**, Alakhov VYu and Kabanov AV (2000) Evaluation of polyether-polyethyleneimine graft copolymers as gene transfer agents. *Gene Therapy* 7, 126-138.
12. Lemieux, P., Vinogradov, S.V., Gebhart, C.L., Guérin, N., Paradis, G., Nguyen, H.-K., Ochietti, B., Suzdaltseva, Y.G., Bartakova, E.V., **Bronich, T.K.**, St-Pierre, Y., Alakhov, V.Yu., Kabanov, A.V. (2000) Block and Graft Copolymers and Nanogel™ Copolymer Networks for DNA Delivery into Cell. *J Drug Targeting* 8, 91-105.
13. **Bronich TK**, Solomatin S, Yaroslavov A, Eisenberg A, Kabanov VA, and Kabanov AV (2000) Steric stabilization of negatively charged liposomes by cationic graft copolymer, *Langmuir* 16, 4877-4881.
14. **Bronich TK**, Nguyen H-K, Eisenberg A, Kabanov, AV (2000) Recognition of DNA topology in reactions between plasmid DNA and cationic copolymers, *J. Am. Chem. Soc.* 122 (35), 8339-8343.
15. **Bronich TK**, Ouyang M, Eisenberg A, Kabanov VA, Szoka FC, and Kabanov AV (2000) Reactive stabilization of vesicles from cationic surfactant self-assembled on anionic block ionomer template. *Polym Prepr* 41/2, 1645-1646.
16. **Bronich T**, Kabanov AV, and Marky LA (2001) A thermodynamic characterization of the interaction of a cationic copolymer with DNA. *J. Phys. Chem., B* 105, 6042-6050.
17. **Bronich TK**, Vinogradov SV, and Kabanov AV (2001) Interaction of nanosized copolymer networks with oppositely charged amphiphilic molecules. *Nano Letters*, 1, 535-540.
18. Vinogradov SV, **Bronich TK**, and Kabanov AV (2002) Nanosized cationic nanogels for drug delivery: preparation, properties and interaction with cells. *Adv. Drug Del. Rev.*, 54, 135-147.
19. **Bronich TK**, Ouyang M, Eisenberg A, Kabanov VA, Szoka FC, and Kabanov AV (2002) Synthesis of vesicles on polymer template. *J. Am. Chem. Soc.*, 124, 11872-11873.
20. Kabanov AV and **Bronich TK** (2002) Structure, dispersion stability and dynamics of DNA and polycation complexes. In *Pharmaceutical Prospective of Nucleic Acid-Based Therapeutics* (SW Kim and R Machato, Eds.) Taylor & Francis, London, New York, 164-189.
21. Solomatin SV, **Bronich TK**, Bargar TW, Kabanov VA, Eisenberg A, and Kabanov AV (2003) Environmentally responsive nanoparticles from block ionomer complexes: Effects of pH and ionic strength. *Langmuir* 19, 8069-8076.
22. Oh KT, **Bronich TK**, and Kabanov AV (2004) Micellar formulations for drug delivery based on mixtures of hydrophobic and hydrophilic Pluronic block copolymers. *J Control Release* 94, 411-422.
23. Solomatin SV, **Bronich TK**, Eisenberg A, Kabanov VA, and Kabanov AV (2004) Colloidal stability of aqueous dispersions of block ionomer complexes: effects of temperature and salt, *Langmuir* 20, 2066 – 2068.
24. Wang F, **Bronich TK**, Kabanov AV, Rauh RD, and Roovers J (2005) Synthesis and evaluation of a star amphiphilic block copolymer from poly( $\epsilon$ -caprolactone) and poly(ethylene glycol) as a potential drug delivery carrier. *Bioconjugate Chem* 16, 397-405.
25. **Bronich TK**, Keifer PA, Shlyakhtenko LS, and Kabanov AV (2005) Polymer micelle with cross-linked ionic core. *J. Am. Chem. Soc.*, 127, 8236-8237.
26. Bontha S, Kabanov AV, and **Bronich TK**. (2006) Polymer micelles with cross-linked ionic cores for delivery of anticancer drugs. *J Control Release* 115, 163-174.
27. Oh KT, **Bronich TK**, Bromberg L, Hatton TA, and Kabanov AV. (2006) Block ionomer complexes as prospective nanocontainers for drug delivery. *J Control Release* 114, 9–17.
28. **Bronich TK**, Bontha S, Shlyakhtenko LS, Bromberg L, Hatton TA, and Kabanov AV. (2006) Template-assisted synthesis of nanogels from Pluronic-modified poly(acrylic acid). *J Drug Targeting* 14, 357–366.

### C. Research Support

#### Ongoing Research Support

**Type:** 1R01 CA116591-01A1

**Principal Investigator:** T. Bronich

**Dates:** 7/01/06-5/31/11

**Source:** NIH/NCI

**Title:** "Cross-linked Polymer Micelles in Cancer Therapy"

The major goal of this project is to develop a new type of functional nanosystems - polymer micelles with cross-linked ionic cores, and evaluate their utility as tumor-directed carriers for delivery of cisplatin.

**Type:** DMR 0513699

**Principal Investigator:** A. Kabanov

**Co-Investigator:** T. Bronich

**Dates:** 6/1/05-5/31/08

**Source:** NSF

**Title:** "Structure and Dynamics of Block Ionomer Complexes"

The major goal of this project is to explore environmentally dispersed nanocomposite materials synthesized by reacting block (or graft) copolymers, containing ionic and nonionic segments, with oppositely charged surfactants and polyions.

**Principal Investigators:** V. Gilman (InfoScitech), T. Bronich (UNMC)

**Co-Investigator:** T. Bronich

**Dates:** 12/10/06-12/09/08

**Source:** DoD

**Title:** "Self-Assembling System for Targeted Nanodelivery of Proteins (STOP)"

The goal of this project is to develop a protein drug delivery carrier targeting biological warfare agents.

**Type:** W81XWH-07-1-0218

**Principal Investigator:** A. Kabanov

**Co-Investigator:** T. Bronich

**Dates:** 4/01/07-4/30/10

**Source:** DoD

**Title:** "Non-Invasive Nanodiagnostics of Cancer (NINOC)"

The goal of this project is to develop a platform nanotechnology based on hydrophilic polymer nanogels of core-shell morphology to deliver imaging and diagnostic agents to the cancer cells.

Completed Research Support:

**Type:** REB000551B

**Principal Investigator:** F. Wang

**Co-Investigator:** T. Bronich

**Dates:** 12/22/03-6/30/05 (\$ 178,000)

**Source:** NIH/NCI

**Title:** "Star Polymer Unimolecular Micelles for Drug Delivery"

The objective of this program was optimization of star polymer structures and their evaluation as delivery vehicles for etoposide.

**Principal Investigator:** S. Batra

**Co-Investigator:** T. Bronich

**Dates:** 2/01/06-1/31/07 (\$ 40,000)

Source: UNMC Eppley Cancer Center

**Title:** "Nanoparticle-based Human Pancreatic Cancer Therapy"

The objective of this program was evaluation of block copolymer-surfactant structures as delivery vehicles for gemcitabine.