

EXHIBIT A

CURRICULUM VITAE

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Distinguished Professor and Chairman, Department of Pharmaceutical Sciences, and Director, Center for Pharmaceutical Biotechnology and Nanomedicine, School of Pharmacy, Bouve College of Health Sciences, Northeastern University

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Education:

M.S. in Polymer Chemistry from Moscow State University, Moscow, Russia, 1968
Ph.D. in Chemical Kinetics and Catalysis from Moscow State University, Moscow, Russia, 1971
D.Sc. in Bioorganic Chemistry from Moscow State University, Moscow, Russia, 1980
Since 1985 - Professor in Bioorganic Chemistry, Chemistry of Natural and Physiologically Active Compounds

Academic Appointments:

1971-1973 Junior Scientist, Moscow State University
1974-1980 Senior Scientist, Academy of Medical Sciences of the USSR
1985-1991 Professor of Biochemistry, Academy of Medical Sciences of the USSR
1989-1991 Professor in Biotechnology, Lomonosov Institute of Fine Chemical Technology, Moscow, USSR
1991 Visiting Professor of Biochemistry, University of Tennessee
1991 Visiting Professor, University of California, San Diego
1993-1999 Associate Professor of Radiology, Harvard Medical School
1998- Professor of Pharmaceutical Sciences, Northeastern University
2004- Distinguished Professor of Pharmaceutical Sciences, Northeastern University
2005- Director, Center for Pharmaceutical Biotechnology and Nanomedicine, Northeastern University

Hospital Appointments:

1974-1980 Senior Researcher, USSR Cardiology Research Center, Moscow
1981-1991 Head, Laboratory of Enzyme Engineering, USSR Cardiology Research Center, Moscow
1985-1991 Professor, Laboratory of Enzyme Engineering, USSR Cardiology Research Center, Moscow
1991-1993 Associate Chemist, Massachusetts General Hospital (MGH), Boston, MA
1993-1998 Head, Chemistry Program, Center for Imaging and Pharmaceutical Research (CIPR), MGH, Boston, MA
1998 Associate Director, CIPR, MGH, Boston, MA

Awards and Honors:

1982	Lenin Prize of the USSR in Science and Technology (the highest scientific award in the former USSR)
1978, 82, 85 87,89, 90	Exchange Scientist, US/USSR Exchange Program in Cardiovascular Research - Myocardial Metabolism
1991	Full member (Academician), Russian Academy of Biotechnology
1994	1993 Outstanding Pharmaceutical Paper Award, Controlled Release Society
1994	1993 Outstanding Paper Award from the <i>Journal of Controlled Release</i>
1995-1998	Board of Governors, Controlled Release Society
1999	Co-Chair, 26 th International Symposium on Controlled Release of Biologically Active Materials
2001,03,04	Creativity Awards from Northeastern University
2002	Co-Chair, Gordon Research Conference on Drug Carriers in Biology and Medicine
2002	Fellow, American Institute for Medical and Biological Engineering
2002	Innovation Award from Northeastern University
2002	Member, European Academy of Sciences
2003	Vice President, Controlled Release Society
2003	Fellow, American Association of Pharmaceutical Scientists (AAPS)
2003	ATOMS Research Excellence in Mentorship Award, National Institute of General Medical Sciences
2004	Distinguished Northeastern University Professor of Pharmaceutical Sciences
2004	Member, Board of Directors, International Liposome Society
2005	President, Controlled Release Society
2005	Founding Member, American Academy of Nanomedicine
2005	Research Achievements Award in Pharmaceutics and Drug Delivery, AAPS
2005	The Joy Goodwin Lecturer, Auburn University
2005	Member, Research and Graduate Affairs Committee, AACP
2006	2006 CRS-Baxter Healthcare Outstanding Parenteral Drug Delivery Award (with postdoc, T.Elbayoumi)

Major Committee Assignments:

1982-1991	The Highest Certifying Commission of the USSR (VAK)
1986-1991	International Commission on Pharmaceutical Enzymes.

Editorial Boards:

1979-1986	<i>Enzyme Microbial Technology</i>
1984-1995	<i>Journal of Controlled Release</i>
1987-	<i>Advanced Drug Delivery Reviews</i>
1988-1996	<i>Hemostasis</i>
1989-1992	<i>Biokhimiya</i> (Russian)
1989-	<i>Journal of Microencapsulation</i>
1990-	<i>Bioconjugate Chemistry</i>
1992-	<i>Journal of Liposome Research</i>
1995-	<i>Journal of Drug Targeting</i>
1999-	<i>Journal of Controlled Release</i> , Review Editor

1999- *European Journal of Pharmaceutics and Biopharmaceutics*
2002- *Journal of Bioactive and Compatible Polymers*
2003- *Molecular Pharmaceutics*
2003- *Current Drug Delivery*
2003- *Drug Discovery Today*
2004- *Chinese Journal of Interventional Imaging and Therapy*
2004- *Journal of Biomedical Nanotechnology*
2004- *Expert Opinion on Drug Delivery*
2004- *Current Protein and Peptide Science*
2005- *International Journal of Nanomedicine*
2005- *Journal of Biopharmaceutics and Biotechnology*
2005- *Nanotechnology, Diagnostics, and Therapeutics* (web journal from
BioMedCentral)

Referee for the Following Journals:

Proceedings of the National Academy of Sciences of the USA
Nature Biotechnology
Trends in Biotechnology
Biochimica et Biophysica Acta
Cancer Research
Journal of Nuclear Medicine
Bioconjugate Chemistry
Biotechnology and Bioengineering
Biophysical Journal
Journal of Lipid Research
Pharmaceutical Research
Journal of Pharmaceutical Sciences
Journal of Controlled Release
International Journal of Pharmacology
Hemostasis
Biopolymers
Journal of Drug Targeting
Drug Delivery
Gene Therapy
Journal of Liposome Research
Journal of Microencapsulation
Journal of Molecular Recognition
Designed Monomers and Polymers
Colloids and Surfaces B: Biointerfaces
Reactive and Functional Polymers
European Journal of Pharmaceutics and Biopharmaceutics
European Journal of Pharmaceutical Sciences
Biotechnology Progress
Journal of Bioactive and Compatible Polymers

Grant and Proposal Reviews for:

Academy of Sciences of the USSR
Academy of Medical Sciences of the USSR

Scientific Council on Medical Biotechnology (USSR)
International Science Foundation
United States Army Medical Research
University of British Columbia, Canada
North Carolina Biotechnology Center
Natural Sciences and Engineering Research Council of Canada
The Israel Science Foundation
National Institutes of Health
Fund for Scientific Research, Austria
The Dutch Cancer Society
The Canadian Institutes of Health Research
Swiss National Science Foundation
United States-Israel Binational Science Foundation
Ireland Foundation Science

Ph.D. and D.Sc. Thesis Committees:

The Highest Certifying Commission of the USSR
Scientific Council of the USSR Cardiology Research Center, Academy of Medical Sciences
of the USSR
Scientific Council of the Institute of Experimental Cardiology, Academy of Medical Sciences
of the USSR
Scientific Council of the Institute of Petrochemical Synthesis, Academy of Sciences of the USSR
Massachusetts Institute of Technology
Northeastern University
University of Massachusetts
Harvard Medical School
Massachusetts General Hospital

Professional Societies:

1968-1992 USSR Mendeleev Chemical Society
1975-1992 USSR Biochemical Society
1991-1995 Society of Nuclear Medicine
1991- Controlled Release Society (1995-1998 – Board of Governors; member of the
following committees: Strategic Planning, Young Investigator
Award, Best Pharmaceutical Paper Award; 2003-2007 –
Board Member as Vice President, President-Elect, President
and Immediate Past President)
1992- American Chemical Society
2000- International Liposome Society
2001- American Association of Pharmaceutical Scientists

Co-founder:

Oncologic Biopharmaceuticals
MitoVec Inc.
Encapsion Inc.

SAB member and/or Consultant for:

Labopharm Inc.

Genzyme Corp.
Procyon Biopharma Inc.
Boston Life Sciences Inc.
Endorex Inc.
Oncologic
MitoVec Inc.
PureTech
Nanopharma
CellGate Inc.
LigoCyte Inc.
Eurand
Oral Vaccine Institute
Encapsion
Solubest

Organizing, Steering, Advisory, and Program Committees for:

International Symposium “Advances in Enzyme Engineering”, Tbilisi 1978.
Conference of CMEA countries, Warsaw, Poland 1980.
I All-Union Symposium “Liposomes in Biology and Medicine”, Moscow 1980.
VI All-Union Symposium on Sythetical Polymers of Medical Application, Alma-Ata 1983.
VIII All-Union Symposium “Synthetic Polymers of Medical Application”, Kiev 1989.
International Symposium “Liposomes in Biology and Medicine”, Tashkent 1990.
International Liposome Conference, St. Petersburg, Russia 1993.
1st International Conference on Polymer Therapeutics, London, UK 1996.
10th International Symposium on Radiopharmacology, Rapallo, Italy 1997.
Symposium on Targeting the Cardiovascular System, Boston 1997.
3rd Symposium on Polymer Therapeutics, London, UK, 1998.
26th International Symposium on Controlled Release of Bioactive Materials, Boston, 1999
(Co-Chairman, Program Committee).
3rd International Symposium on Frontiers in Biomedical Polymers, Shiga, Japan, 1999.
4th International Symposium on Polymer Therapeutics, London, UK, 2000.
4th International Symposium on Frontiers in Biomedical Polymers, Virginia Beach, 2001.
28th International Symposium on Controlled Release of Bioactive Materials, San Diego, 2001.
5th International Symposium on Polymer Therapeutics, Cardiff, UK, 2002.
Gordon Research Conference on Drug Carriers in Biology and Medicine, Ventura
(2000 – Co-Vice-Chairman; 2002 – Co-Chairman).
7th International Symposium on Pharmaceutical Sciences, Ankara, Turkey, 2003.
3rd Symposium on Nanomedicine and Drug Delivery, Baltimore, 2005.
Indo-Japanese Conference on Drug Delivery, Mumbai, India, 2005.
13th International Pharmaceutical Technology Symposium, Antalya, Turkey, 2006.

MAJOR RESEARCH INTERESTS:

1. Physiologically active polymers and their use as drug carriers. Polymeric drugs. Slow release systems. Pharmacokinetics and biodistribution of slow release drugs.
2. Various systems for controlled delivery of pharmaceuticals including macromolecular drugs, DNA, and imaging agents.
3. Targeted delivery of therapeutic and diagnostic agents. Tumor targeting and targeting within

the cardiovascular system.

4. Physico-chemical aspects of enzyme stabilization and immobilization on polymeric carriers. Therapeutic enzymes. Experimental thrombolytic therapy.
5. Artificial phospholipid membranes. Liposomes, their physico-chemical and biological properties. Long-circulating and polymer-modified liposomes as drug carriers. Immunoliposomes. Protein binding with liposomes. Liposome-cell interactions. Pharmacokinetics of liposomes.
6. Micellar solubilization of poorly soluble drugs. Polymeric micelles. Targeted micelles. Immunomicelles. Micellar tumor targeting.
7. Experimental diagnostic imaging. Contrast agents for gamma-imaging, magnetic resonance imaging and computed tomography. Labeling of polymers, proteins (antibodies and their fragments), and microparticulates (liposomes, nanoparticles, micelles) with diagnostic metal isotopes via chelating groups. Chelating polymers for heavy loading antibodies with metal isotopes. Amphiphilic chelating polymers as key components of liposomal and micellar imaging agents. Iodine-containing long-circulating micelles for computed tomography.
8. Experimental tumor immunology and therapy. Intratumor delivery of drugs and imaging agents. Tumoricidal antibodies. Accumulation of long-circulating drugs in tumors.

Funding History (as PI unless noted):

1988-1989, from the USSR Academy of Medical Sciences: "Immobilized thrombolytic enzymes"	60,000
rub.	
1988-1989 from the USSR Academy of Medical Sciences: "Liposomes for drug targeting"	50,000
rub.	
1989-1990 from the USSR Scientific Council on Biotechnology: "Chelating polymers for antibody modification"	75,000
rub.	
1989-1990 from the USSR Academy of Medical Sciences: "Targeted visualization of thrombi"	45,000
rub.	
1992-1993 from Sterling Winthrop: "Chelating polymer-modified antibodies for the delivery of imaging agents"	\$ 70,000
1992-1993 from Sterling Winthrop: "Micellar imaging agents for CT"	\$ 90,000
1995 from Biogen: "Biodistribution of antibodies"	\$ 10,000
1996-1997 from RSNA: "Iodine-containing micellar carriers for CT"	\$ 20,000
1996-1997 from Boston Life Sciences: "Targeted drug delivery into tumors"	\$ 72,500
1996-1997 from Boston Life Sciences: "Delivery of PEGylated drugs into tumors"	\$ 204,000
1997-2000 from NIH: "Long-circulating polymer-modified liposomes"	direct \$ 372,243
1998 from Boston Life Sciences: "Delivery of micellar drugs into tumors"	\$ 103,000
1998-1999 from Biostream "Polychelating polymers for imaging"	\$ 33,000
1999 from Procyon Biopharma "Experimental tumor therapy"	\$ 13,500
1999-2000 from Biogen "Antibody biodistribution"	\$ 22,000
1999-2003 from NIH: "Micellar carriers for sparingly soluble pharmaceuticals"	direct \$ 585,414
2000 from Procyon Biopharma "Experimental tumor therapy"	\$ 225,000
2000-2005 from NIH "Bioengineering of artificial blood"	direct \$ 742,143
2001 from Biogen "Antibody biodistribution"	\$ 19,000

2001-2005 from NIH: "Long-circulating polymer-modified liposomes"	direct \$600,000
2001-2002 from Procyon Biopharma "Imaging with anticancer antibodies"	\$ 94,000
2002-2003 from Center for Disease Control: "A liposome-based hepatitis-B vaccine" (sub-contract from Oral Vaccine Institute)	direct
\$126,182	
2003-2004 from The Medical Foundation: "Antibody-mediated drug delivery to astrocytic tumors"	direct
\$100,000	
2003-2007 from NIH "Antibody-targeted polymeric systems for tumor imaging"	direct \$765,000
2003-2008 from NIH "Micellar carriers for sparingly soluble drugs"	direct \$1,125,000
2005-2009 from NIH "Long-circulating polymer-modified liposomes"	direct \$700,000
2005 from Biogen "Protein biodistribution"	\$39,000
2006-2011 from NIH "Multifunctional pharmaceutical nanocarriers"	direct \$875,000

BIBLIOGRAPHY

Original Papers:

1. Kirsh YE, Bessmertnaya LY, **Torchilin VP**, Papisov MI, Kabanov VA. Structural transformations of poly-4-vinylisamylpyridinium-bromide macromolecules. *DAN USSR* (Russ.) 1970; 191:603-606.
2. **Torchilin VP**, Ilina EV, Streltsova ZA, Smirnov VN, Chazov EI. Enzyme immobilization on heparin. *J Biomed Mater Res.* 1973;12:685-690.
3. **Torchilin VP**, Litvak ZM, Esina GN, Makarova SB, Gryaznov GV. Immobilization of some enzymes on modified styrenedivinylbenzene matrixes. *Bioorganicheskaya Khimia* (Russ.) (Bioorganic Chemistry) 1975;1:1231-1235.
4. **Torchilin VP**, Bobkova AS, Smirnov VN, Chazov EI. Immobilization of enzymes on biocompatible carriers. I. Immobilization of α -chymotrypsin on modified Sephadexes. *Bioorganicheskaya Khimia* (Russ.) (Bioorganic Chemistry) 1976;2:116-124.
5. **Torchilin VP**, Tischenko EG, Smirnov VN, Chazov EI. Immobilization of enzymes on biocompatible carriers. II. Immobilization of α -chymotrypsin on polyvinylpyrrolidone. *Bioorganicheskaya Khimia* (Russ.) (Bioorganic Chemistry) 1976;2:399-405.
6. **Torchilin VP**, Reyzer IL, Tischenko EG, Smirnov VN, Chazov EI. Immobilization of enzymes on biocompatible carriers. III. Immobilization of α -chymotrypsin on soluble dextrans. *Bioorganicheskaya Khimia* (Russ.) (Bioorganic Chemistry) 1976;2:1252-1253.
7. **Torchilin VP**, Reyzer TL, Tischenko EG, Il'ina EV, Smirnov VN, Chazov EI. Immobilization of enzymes on biocompatible carriers. IV. Modification of α -chymotrypsin with water soluble vinylc copolymers. The evaluation of immobilized

- chymotrypsin accessibility for protein inhibitor. *Bioorganicheskaya Khimia* (Russ.) (Bioorganic Chemistry) 1976;2:1687-1694.
8. Martinek K, Goldmacher VS, Klibanov AM, **Torchilin VP**, Smirnov VN, Chazov EI, Berezin IV. Main principles of enzyme stabilization. Increased thermostabilization of α -chymotrypsin upon covalent coupling to complimentary surface of polymer carrier. *DAN USSR* (Russ.) 1976;228:1468-1471.
 9. **Torchilin VP**, Tischenko EG, Smirnov VN, Chazov, EI. Immobilization of enzymes on slowly soluble carriers. *J Biomed Mater Res.* 1977;11:223-235.
 10. **Torchilin VP**, Tischenko EG, Smirnov VN. Covalent immobilization of enzymes on ionogenic carriers. Effect of electrostatic complex formation prior to immobilization. *J Solid-Phase Biochem.* 1977;2:19-29.
 11. **Torchilin VP**, Galka M, Ostrowski W. Comparative studies on immobilization of human prostatic acid phosphatase. *Biochim Biophys Acta.* 1977;488:331-336.
 12. Chazov EI, Mazaev AV, **Torchilin VP**, Lebedev BS, Il'ina EV, Smirnov VN. Experimental study of biosoluble drugs. Thrombus lysis with biosoluble immobilized fibrinolysin in experiment. *Thrombosis Res.* 1978;12:809-816.
 13. **Torchilin VP**, Il'ina EV, Mazaev AV, Lebedev BS, Smirnov VN, Chazov EI. Study of modified Sephadex-bound insulin in dog experiments. *J Solid-Phase Biochem.* 1978;2:187-193.
 14. **Torchilin VP**, Maksimenko AV, Smirnov VN, Martinek K, Klibanov AM, Berezin IV. Principles of enzyme stabilization. III. The effect of the length of intramolecular linkage on thermostability of enzymes. *Biochim Biophys Acta* 1978;522:277-283.
 15. Martinek K, **Torchilin VP**. Main principles of enzyme stabilization. *Biologicheskaya Khimia* (Russ.) (Biological Chemistry) 1978;12:17-48.
 16. **Torchilin VP**. Enzyme immobilization on biocompatible carriers. *Bioorganicheskaya Khimia* (Russ.) (Bioorganic Chemistry) 1978;4:566-568.
 17. **Torchilin VP**, Goldmacher VS, Smirnov VN. Comparative study on covalent and noncovalent immobilization of enzymes on the surface of liposomes. *Biochem Biophys Res Commun.* 1978;85:983-990.
 18. **Torchilin VP**, Goldmacher VS, Smirnov VN. Binding of proteins with liposomes. *Bioorganicheskaya Khimia* (Russ.) (Bioorganic Chemistry) 1978;4:1560-1562.
 19. Martinek K, **Torchilin VP**, Maksimenko AV, Smirnov VN, Berezin IV. Chemical modification of "key" functional groups in tertiary protein structure. *DAN USSR* (Russ.) 1979;247:1505-1508.

20. **Torchilin VP**, Maksimenko AV, Smirnov VN, Klibanov AM, Berezin IV, Martinek K. Principles of enzyme stabilization. IV. The modification of "key" groups in the tertiary structure of proteins. *Biochim Biophys Acta*. 1979;567:1-11.
21. **Torchilin VP**, Maksimenko AV, Smirnov VN, Berezin IV, Martinek K. Principles of enzyme stabilization. V. The possibility of enzyme self-stabilization under the action of potentially-reversible intramolecular cross-linkages of different length. *Biochim Biophys Acta* 1979;568:1-10.
22. Varshavskaya MY, Klibanov AL, Goldmacher VS, **Torchilin VP**. Simple and accurate method for the determination of heparin content in Heparin-Sepharose. *Anal Biochem*. 1979;95:449-451.
23. **Torchilin VP**, Maksimenko AV, Martinek K. Self stabilization of enzymes under the action of intra-molecular linkages of different length. *Bioorganicheskaya Khimia* (Russ.) (Bioorganic Chemistry) 1979;5:1243-1247.
24. Khoshtariya DA, Topolev VV, Krishtalik LI, Reyzer IL, **Torchilin VP**. The study on proton transition under enzyme hydrolysis by the method of temperature dependence of kinetic isotope effect. III. Hydrolysis of Ac-Tyr-OEt and Bz-Tyr-OEt with α -chymotrypsin immobilized on soluble dextran. *Bioorganicheskaya Khimia* (Russ.) (Bioorganic Chemistry) 1979;5:1243-1247.
25. Berdichevsky VR, Markosyan RA, Pozin EY, Smirnov VN, Suvorov AV, **Torchilin VP**, Chazov EI. Effect of liposomes on functional state of platelets. *Bull Exper Biol Med*. (Russ) 1979;8:141-143.
26. **Torchilin VP**, Khaw BA, Locke E, Berdichevsky VR, Smirnov VN, Haber E, Chazov EI. Retention of specific binding activity by antibodies covalently bound to the surface of liposomes. *DAN USSR* (Russ.) 1979;246:746-749.
27. **Torchilin VP**, Khaw BA, Smirnov VN, Haber E. Preservation of antimyosin antibody activity after covalent coupling to liposomes. *Biochem Biophys Res Commun*. 1979;89:1114-1119.
28. Martinek K, **Torchilin VP**, Maksimenko AV, Smirnov VN, Berezin IV. Effect of intra-molecular cross-linkages of different length to preserve catalytical activity of enzyme conformation. *DAN USSR* (Russ.) 1979;248:244-246.
29. Bessolitsina LA, Mazaev AV, Markosyan RA, Suvorov AV, **Torchilin VP**, Chazov EI. Effect of biodegradable microspheres of immobilized fibrinolysin on fibrinolysis. *Bull Exper Biol Med*. (Russ) 1980;89:16-18.
30. Gorshkova IN, Reyzer IL, Perova NV, **Torchilin VP**, Ruuge EK. Interaction of lipid spine label with apoproteins of high density lipoproteids modified with polyaldehydedextrans. *Bioorganicheskaya Khimia* (Russ.) (Bioorganic Chemistry) 1980;6:1079-1086.

31. **Torchilin VP**, Klibanov AL. Preliminary "hydrophobization" of hydrophilic protein increases its binding with liposomes. *Bioorganicheskaya Khimia* (Russ.) (Bioorganic Chemistry) 1980;5:791-794.
32. **Torchilin VP**, Berdichevsky VR, Barsukov AA, Smirnov VN. Coating liposomes with protein decreases their capture by macrophages. *FEBS Lett.* 1980;111:184-188.
33. Kinstler OB, Zhagat RY, **Torchilin VP**. Immobilization of enzymes on biocompatible carriers. Modification of tyrosin with water soluble CM-cellulose derivatives. *Bioorganicheskaya Khimia* (Russ.) (Bioorganic Chemistry) 1980;6:1396-1403.
34. Martinek K, **Torchilin VP**, Shikshnis BA, Maksimenko AV, Smirnov VN, Berezin IV. Mechanism of salt stabilizing effect upon thermoinactivation of proteolytic enzymes. *DAN USSR* (Russ.) 1980;251:1169-1172.
35. **Torchilin VP**, Omel'yanenko VG, Klibanov AL, Mikhailov AI, Goldanskyi VI, Smirnov VN. Incorporation of hydrophilic protein modified with hydrophobic agent into liposome membrane. *Biochim Biophys Acta.* 1981;602:511-521.
36. Goldanskyi VI, Mikhailov AI, Omel'yanenko, Smirnov VN, **Torchilin VP**. Free-radical label: new approach to the study of super-slow molecular dynamics of lipid systems. *J Lip Res.* 1981;22:131-137.
37. Martinek K, Shikshnis VA, Mozhaev VV, Smirnov VN, Berezin IV, **Torchilin VP**. Control of catalytic activity of enzymes immobilized on polyelectrolyte carrier, *DAN USSR* (Russ.) 1981;259(3):746-749.
38. Koelsch R, Lasch J, Klibanov AL, **Torchilin VP**. Incorporation of chemically modified proteins into liposomes. *Acta Biol Med Germ* 1981;40(3):331-335.
39. Chazov EI, Alexeev AV, Antonov AS, Koteliansky VE, Leytin VL, Ljubimova EV, Repin VS, Sviridov DD, **Torchilin VP**, Smirnov VN. Endothelial cell culture on fibrillar collagen: a model to study platelet adhesion and liposome targeting to intercellular collagen matrix. *Proc Natl Acad Sci USA* 1981;78(N9):5603-5607.
40. Omel'ianenko VG, Mikhailov AI, **Torchilin VP**, Smirnov VN, Gol'danskii VI. Free-radical label – new approach to the study of dynamics of lipid systems. *Mol Biol (Molecular Biology, Russ)* 1981;15(1):54-59.
41. **Torchilin VP**, Klibanov AL, Smirnov VN. Phosphatidylinositol may serve as the hydrophobic anchor for immobilization of proteins on liposome surface. *FEBS Lett* 1982;138(N1):117-120.
42. Maksimenko AV, **Torchilin VP**, Smirnov VN. Kinetics of urokinase hydrolysis of low molecular weight substrate. *Biokhimiya (Biochemistry, Russ)* 1982;47(3):405-408.

43. **Torchilin VP**, Trubetskly VS, Omelyanenko VG, Martinek K. Stabilization of subunit enzymes by intersubunit bifunctional reagents (studies with glyceraldehyde-3-phosphate dehydrogenase). *J Mol Catal* 1983;19(N3):291-301.
44. Tchabanov SM, **Torchilin VP**, Berdichevsky VR, Loginov AS, Smirnov VN. Ultrastructure of myelin-like particles of mouse liver upon the administration of liposomes with different cholesterol and phosphatidyl choline contents. *Bull Exper Biol Med (Russ)* 1983;45(N4):110-113.
45. Lasch J, Berdichevsky VR, **Torchilin VP**, Koelsch R, Kretschmer K. A method to measure critical detergent parameters. Preparation of liposomes. *Anal Biochem* 1983;133:486-491.
46. Trubetskoy VS, **Torchilin VP**, Martinek K, Berezin IV, Smirnov VN. Stabilization of subunit enzymes by intersubunit cross-linking. *DAN USSR (Russ)* 1983;270 (N3):748-750.
47. Dziembor-Gryszkiew E, Maksimenko AV, **Torchilin VP**, Ostrowski WS. Stabilization of human prostatic acid phosphatase by cross-linking with diamines. *Biochem Internatl* 1983;6(N5):627-633.
48. Smirnov VN, **Torchilin VP**, Mazaev AV, Suvorova LA, Voronkov IuI. Clinico-experimental study of the possibility of the use of immobilized enzymes for local thrombolysis and thromboformation. *Ukr Biokhim Zh (Ukrainian Biochemical Journal, Russ)* 1983;55(3):311-317.
49. Mozhaev VV, Shikshnis VA, **Torchilin VP**, Martinek K. Operational stability of copolymerized enzymes at elevated temperatures. *Biotechnol Bioeng* 1984;25:1937-1945.
50. Korshak VV, **Torchilin VP**, Shtilman MI, Il'ina EV, Brudz SP. On the relative reactive activity of some water-soluble epoxy-containing polymers with alpha-chymotrypsin. *DAN USSR (Russ)* 1984;273(N3):626-628.
51. Papisov MI, Samokhin GP, Smirnov MD, **Torchilin VP**, Smirnov VN. Possible use of ferromagnetic materials for drug targeting. *Bull Exper Biol Med (Russ)* 1984;N48:372-374.
52. **Torchilin VP**, Klibanov AL, Ivanov NN, Papisov IM, Chebanov SM. On the mechanism of liposome internalization by macrophages. *J Cell Biol* 1984;99(N4):1404.
53. **Torchilin VP**, Maksimenko AV, Tischenko EG, Ignashenkova GV, Ermolin GA. Immobilized thrombolytic enzymes possessing increased affinity toward substrate. *Ann NY Acad Sci* 1984;434:289-291.

54. **Torchilin VP**, Trubetskoy VS. Stabilization of subunit enzymes by intramolecular crosslinking with bifunctional reagents. *Ann NY Acad Sci* 1984;434:27-30.
55. Bogdanov AA, Klibanov AL, **Torchilin VP**. Immobilization of chymotrypsin on sucrose stearate-palmitate containing liposomes. *FEBS Lett* 1984;175(N1):178-182.
56. Palubinskas VJ, Yankevich NB, Yanulaiteva KK, Vesa VS, Bendikene VG, Maksimenko AV, **Torchilin VP**, Il'ina EV, Smirnov VN, Kresyanova IN, Bortoshevich YE, Zabiroya RC. Trypsine-like enzyme from *Streptomyces* 771. Purification and properties of native and immobilized enzyme. *Appl Biochem Biotechnol* 1984;9(N3):231-241.
57. **Torchilin VP**, Papisov MI, Smirnov VN. Magnetic Sephadex as a carrier for enzyme immobilization and drug targeting. *J Biomed Mater Res* 1985;19(N4):461-466.
58. Ivanov NN, Rykov SV, Isakova OL, Ruuge EK, **Torchilin VP**. Estimation of liposome integrity by ^1H -NMR-spectroscopy. *Anal Bioch* 1985;147(N2):280-284.
59. Trubetskoy VS, **Torchilin VP**. Natural and artificial stabilization of subunit enzymes. Do they have similar mechanisms? *Int J Biochem* 1985;17(N5):661-663.
60. Papisov IM, Maksimenko AV, **Torchilin VP**. The optimization of reaction conditions during enzyme immobilization on soluble carboxyl-containing carriers. *Enz Microb Technol* 1985;7(N1):11-16.
61. **Torchilin VP**, Maksimenko AV, Ignashenkova GP, Tischenko EG, Ermolin GA, Smirnov VN. Fibrinolytic action of enzyme conjugated with specific antibodies. *Bull Exper Biol Med (Russ)* 1985;48(N11):556-559.
62. Printseva OY, Faerman AI, Maksimenko AV, Tonevitsky AG, Ilynsky OB, **Torchilin VP**. Selective killing of smooth muscle in culture by the ricin A-chain conjugated with monoclonal antibodies to cell surface via dextran bridge. *Experientia* 1985;41(N10), 13342-1344.
63. **Torchilin VP**, Klibanov AL, Ivanov NN, Glukhova MA, Koteliansky VE, Martin G, Kleinman H. Targeted liposome transport to the components of extracellular matrix. *J Cell Biochem* 1985;28:23-29.
64. Burkhanov SA, Dormeneva EV, Kosykh VA, Berdichevsky VR, **Torchilin VP**, Saatov TS, Repin VS. Interaction of liposomes of different lipid composition with hepatocytes cells *in vitro*. *Bull Exper Biol Med (Russ)* 1985;49(N6):679-681.
65. Maksimenko AV, **Torchilin VP**. Water-soluble urokinase derivatives of combined action. *Thromb Res* 1985;38:277-288.

66. Maksimenko AV, **Torchilin VP**. Water-soluble urokinase derivatives with increased affinity to the fibrin clot. *Thromb Res* 1985;38:289-295.
67. Arens AK, Berezin IV, Julis YY, Martinek K, Mozhaev VV, Poltorak OM, **Torchilin VP**, Tschukhrai ES. Stabilization of enzymes by suppressing primary reversible stages of dissociation and denaturation of native structures. *DAN USSR (Russ)* 1985;283(N5):1212-1216.
68. Klibanov AL, Muzykantov VR, Ivanov NN, **Torchilin VP**. Evaluation of quantitative parameters of the interaction of antibody-bearing liposomes with target antigens. *Anal Biochem* 1985;150:251-257.
69. Khaw BA, **Torchilin VP**, Strauss HW, Haber E. Rapid detection of acute myocardial necrosis with antimyosin antibody modified with DTPA-polylysine. *Circulation* 1985;72(Suppl III):1203.
70. Khaw BA, **Torchilin VP**, Klibanov AL, Gold MK, Yasuda T, Smirnov VN, Haber E. Modification of monoclonal antibody with DTPA-linked synthetic polymers; possible application in magnetic resonance imaging. *Circulation* 1985;72(Suppl III):1205.
71. Glushakova SE, Naroditskii BS, Tikhonenko TI, Klibanov AL, **Torchilin VP**. The use of the cationic detergent dodecyltrimethylammonium bromide for the isolation of influenza virus glycoproteins with subsequent integration of the protein into liposome membrane. *Mol Gen Microbiol Virusol (Molecular Genetics, Microbiology and Virusology, Russ.)* 1985;4:39-44.
72. Blinov VA, Mirzaiv BS, **Torchilin VP**, Smirnov VN. Streptokinase and streptodectase – new inhibitors of glucogenesis. *Kardiologia (Cardiology, Russ)* 1985;25(8):75-78.
73. Khaw BA, **Torchilin VP**, Strauss HW, Klibanov AL, Gold HK, Smirnov VN, Haber E. DTPA-Polylysine linked monoclonal antimyosine localization in acute experimental myocardial infarction. *J Nucl Med* 1986;27(N6), 909.
74. Weissig V, Lasch J, Klibanov AL, **Torchilin VP**. A new hydrophobic anchor for the attachment of proteins to liposomal membranes. *FEBS Lett* 1986;202(N1):86-90.
75. Maksimenko AV, Konovalova OY, Berdichevsky VR, Arkhipova OG, **Torchilin VP**. Study on the functions of native and dextran-modified hyaluronidase in *in vitro* and *in vivo* systems. *Bull Exper Biol Med (Russ)* 1986;11:567-569.
76. Lasch J, Niedermann G, Bogdanov AA, **Torchilin VP**. Thiolation of preformed liposomes with iminothiolane. *FEBS Lett* 1986;214(N1), 13-16.
77. Smirnov VN, Domogatsky SP, Dolgov VV, Hvatov VB, Klibanov AL, Koteliansky VE, Myzykantov VR, Repin VS, Samokhin GP, Shekhonin BV, Smirnov MD, Sviridov DD, **Torchilin VP**, Chazov EI. Carrier-directed targeting of liposomes and

- erythrocytes to denuded areas of vessel wall. *Proc Natl Acad Sci USA* 1986;83:6603-6607.
78. Trubetskoi VS, Berdichevskii VR, Efremov EE, Torchilin VP, Smirnov VN. Possibility of the unification of directed drug transport as illustrated by liposome transport to target antigens. *Bull Exper Biol Med* (Russ) 1986;102(9):305-307.
79. Maksimenko AV, Rusetsky AN, **Torchilin VP**. Fibrinolytic action of enzyme preparation covalently bound to modified thrombin. *Bull Exper Biol Med* (Russ) 1987;1:35-38.
80. Trubetskoy VS, Berdichevsky VR, Efremov EE, **Torchilin VP**. On the possibility of the unification of drug targeting systems. Studies with liposome transport to the mixtures of target antigens. *Biochem Pharm* 1987;36:839-842.
81. Tertov VV, Orekhov AN, Kudryashov SA, Klibanov AL, Ivanov NN, **Torchilin VP**, Smirnov VN. Cyclic nucleotides and atherosclerosis: studies in primary culture of human aortic cells. *Exper Molec Pathol* 1987;47(N3):337-390.
82. **Torchilin VP**, Klibanov AL, Nossiff ND, Slinkin MA, Strauss HW, Haber E, Smirnov VN, Khaw BA. Monoclonal antibody modification with chelate-linked high-molecular weight polymers: major increases in polyvalent cation binding without loss of antigen binding. *Hybridoma* 1987;6(N3):229-240.
83. **Torchilin VP**, Klibanov AL, Ivanov NN. Polymerization of liposome-encapsulated hydrophilic monomers. *Macrom Chem Rapid Commun* 1987;8:457-460.
84. Wasylewska E, Dulinska I, Trubetskoy VS, **Torchilin VP**, Ostrowski WS. Stabilization of human prostate acid phosphatase by cross-linking with diimidoesters. *Acta Biochimica Polonica* 1987;34(N2):145-156.
85. Papisov MI, Savelyev VY, Sergienko VB, **Torchilin VP**. Magnetic drug targeting. I. *In vivo* kinetic of radio-labelled magnetic drug carriers. *Int J Pharm* 1987;40:201-206.
86. Papisov MI, Savel'ev VIu, Sergienko VB, **Torchilin VP**. Biokinetics of magnetic carriers for directed transport of drugs. *Antibiot Khimioter* (Antibiotics and Chemotherapy, Russ) 1988;33:744-751.
87. Papisov MI, **Torchilin VP**. Prediction of the biological effect of magnetically regulated drugs. *Antibiot Khimioter* (Antibiotics and Chemotherapy, Russ) 1988;33:751-757.
88. Papisov MI, **Torchilin VP**. Magnetic drug targeting. II. Targeted drug transport by magnetic microparticles: factors influencing therapeutic effect. *Int J Pharm* 1987;40:207-214.

89. **Torchilin VP**, Papisov MI, Orekhova NM, Belyaev AA, Petrov AD, Ragimov SE. Magnetically driven thrombolytic preparation containing immobilized streptokinase: targeted transport and action. *Haemostasis* 1988;18(N2):113-116.
90. Trubetskaya OV, Trubetskoy VS, Domogatsky SP, Rudin AV, Popov NV, Danilov SM, Nikolayeva MN, Klibanov AL, **Torchilin VP**. Monoclonal antibody to human endothelial cell surface: internalization and liposome delivery in cell culture. *FEBS Lett* 1988;228(N1):131-134.
91. Maksimenko AV, Konovalova OY, Petrov AD, Arkhipova OG, **Torchilin VP**. Comparative study on the properties of native and modified collagenase. *Bull Exper Biol Med (Russ)* 1988;105(N3):294-297.
92. Bogdanov AA Jr, Klibanov AL, **Torchilin VP**. Protein immobilization on the surface of liposomes via carbodiimide activation in the presence of N-hydroxysulfosuccinimide. *FEBS Lett* 1988;231(N2):381-384.
93. Danilov S, Martynov A, Klibanov A, Slinkin M, Sakharov I, Muzykantov V, Malov A, Sergienko V, **Torchilin VP**. Imaging of lung vessels using ¹¹¹In-labelled monoclonal antibody to angiotensin-converting enzyme. *Eur J Nucl Med* 1988;14(N5/6), 230.
94. Trubetskoy VS, Dormeneva EV, Tsibulsky VP, Repin VS, **Torchilin VP**. Use of enzyme label for quantitative evaluation of liposome adhesion on cell surface: studies with J774 macrophage monolayers. *Anal Biochem* 1988;172:185-189.
95. Burkhanov SA, Kosykh VA, Repin VS, Saatov TS, **Torchilin VP**. Interaction of liposomes of different phospholipid and ganglioside composition with rat hepatocytes. *Int J Pharm* 1988;43:31-34.
96. Maksimenko AV, Tischenko EG, Petrov AD, Orekhova NM, Ragimov SE, Belyaev AA, **Torchilin VP**. Thrombolytic action of urokinase covalently bound to modified thrombin. *Bull Exper Biol Med (Russ)* 1988;9:322-324.
97. Ivanov AA, Kalinin NL, Gromakovskaya ET, Levin AD, Podrez EA, **Torchilin VP**. Immunochemical properties of immunoglobulin G conjugated with dextran. *Bull Exper Biol Med (Russ)* 1988;7:78-80.
98. Gordeeva LV, Bogdanov AA Jr, Baibakov BA, **Torchilin VP**, Margolis LB. Adhesion defect of ascites cells corrected with membrane-bound attachment molecules. *FEBS Lett* 1988;241(N1/2):185-187.
99. Klibanov AL, Martynov AV, Slinkin AL, Sakharov IY, Smirnov MD, Muzykantov VR, Danilov SM, **Torchilin VP**. Blood clearance of radiolabeled antibody: enhancement by lactosamination and treatment with biotin-avidin or anti-mouse IgG antibodies. *J Nucl Med* 1988;29:1956-1988.

100. Khaw BA, **Torchilin VP**, Klibanov AL, Nossiff ND, Powers JB, Strauss HW, Haber E. Modification of monoclonal antimyosin antibody: enhanced specificity of localization and scintigraphic visualization in acute experimental myocardial infarction. *J Mol Cell Cardiol* 1989;21(Suppl):31-35.
101. Maksimenko AV, Nadirashvili LA, Romaschenko AD, Erkomaishvili GS, Abramova VV, **Torchilin VP**. The modification of soluble complex of papaya proteinases with synthetic polymers. *J Contr Release* 1989;10(N1):131-145.
102. Klibanov AL, Bogdanov AA Jr, **Torchilin VP**, Huang L. Biotin-bearing pH-sensitive liposomes: high-affinity binding to avidin layer. *J Liposome Res* 1989;1(N2):233-244.
103. Bogdanov AA, Gordeeva LV, **Torchilin VP**, Margolis LB. Lectin-bearing liposomes: differential binding to normal and to transformed mouse fibroblasts. *Exper Cell Res* 1989;181:362-374.
104. Khaw BA, Klibanov AL, O'Donnell S, Saito T, Nossiff N, Strauss HW, **Torchilin VP**. Charge modification of monoclonal antibodies for enhanced target localization. *J Nucl Med* 1989;30(N5):762.
105. Danilov SM, Martynov AV, Klibanov AL, Slinkin MA, Sakharov IY, Malov AG, Sergienko VB, Vedernikov AY, Muzykantov VR, **Torchilin VP**. Radioimmunoaging of lung vessels: an approach using indium-111-labelled monoclonal antibody to angiotensin-converting enzyme. *J Nucl Med* 1989;30:1686-1692.
106. **Torchilin VP**, Klibanov AL, Slinkin MA, Danilov SM, Levitsky DO, Khaw BA. Antibody-linked chelating polymers for immunoimaging *in vivo*. *J Contr Release* 1989;11:297-303.
107. Trubetskoy VS, Trubetskaya OV, Domogatsky SP, **Torchilin VP**. Immunoliposome complexes: preparation, characterization and directed delivery to the human endothelial cell culture. *Bioorganicheskaya Khimia* (Russ) (Bioorg Chem) 1989;6(N2):143-148.
108. Mukhamedova NM, Obukhov SK, Slinkin MA, Klibanov AL, **Torchilin VP**. Chemical modification of immunoglobulins to accelerate their blood clearance during radioimmunodiagnostics. *Bull Exp Biol Med* (Russ) 1989;12:705-707.
109. Lasch J, Hoffman J, Omelyanenko WG, Klibanov AL, **Torchilin VP**, Binder H, Gawrisch K. Interaction of Triton X-100 and octyl glucoside with liposomal membranes at sublytic and lytic concentrations. Spectroscopic studies. *Biochim Biophys Acta* 1990;1022:171-180.
110. Holmberg E, Maruyama K, Kennel S, Klibanov AL, **Torchilin VP**, Ryan U, Huang L. Target-specific binding of immunoliposomes *in vivo*. *J Liposome Res* 1990;1(N4):393-406.

111. Greidziak M, Ehrke R, Baust G, **Torchilin V**, Lasch J. Interactions of liposomes with human erythrocyte ghosts. *Biomed Biochim Acta* 1990;49(N4):189-200.
112. Slinkin M, Klibanov A, Khaw B, **Torchilin VP**. Succinylated polylysine as a possible link between an antibody molecule and deferoxamine. *Bioconj Chem* 1990;1:291-295.
113. Klibanov AL, Maruyama K, **Torchilin VP**, Huang L. Amphipathic polyethyleneglycols effectively prolong the circulation time of liposomes. *FEBS Lett* 1990;268:235-237.
114. Trubetsky VS, Koshkina NV, Omelyanenko VG, L'vov VL, Dmitriev BA, Petrov AB, **Torchilin VP**. FITC-labeled lipopolysaccharide: use as a probe for liposomal membrane incorporation studies. *FEBS Lett* 1990;269:79-82.
115. Maruyama K, Holmberg E, Kennel S, Klibanov A, **Torchilin VP**, Huang L. Characterization of *in vivo* immunoliposome targeting to pulmonary endothelium. *J Pharm Sci* 1990;79(N11):978-984.
116. **Torchilin VP**, Omelyanenko VG, Slinkin MA, Lukyanov AN, Dulinska I, Ostrovsky W. Effect of the lipid bilayer on the enzymatic activity and conformation of acid phosphates from human prostate. *Biol Membr (Russ)* 1990;7:1125-1130.
117. Klibanov AL, Maruyama K, Beckerleg AM, **Torchilin VP**, Huang L. Activity of amphipathic poly(ethylene glycol) 5000 to prolong the circulation time of liposomes depends on the liposome size and is unfavorable for immunoliposome binding to target. *Biochim Biophys Acta* 1991;1062:142-148.
118. Mori A, Klibanov AL, **Torchilin VP**, Huang L. Influence of the steric barrier activity of amphipathic poly(ethylene glycol) and ganglioside GM1 on the circulation time of liposomes and on the target binding of immunoliposomes *in vivo*. *FEBS Lett* 1991;284(N2):263-266.
119. Khaw BA, Klibanov AL, O'Donnell SM, Saito T, Nossiff N, Slinkin MA, Newell JB, Strauss HW, **Torchilin VP**. Gamma-imaging with negatively charge-modified monoclonal antibody: modification with synthetic polymers. *J Nucl Med* 1991;32:1742-1751.
120. Glushakova SE, Omelyanenko VG, Lukashevich IS, Bogdanov AA Jr, Moshnicova AV, Kozhich AT, **Torchilin VP**. Fusion of artificial lipid membranes induced by a synthetic "fusion peptide" of arenaviruses. *Biokhimiya (Russ)* 1991;56:579-588.
121. Bogdanov AA Jr, Gordeeva LV, Baibakov BA, Margolis LB, **Torchilin VP**. Restoration of adhesive potentials of Ehrlich ascites carcinoma cells by modification of plasma membrane. *J Cell Physiol* 1991;147(N1):182-190.

122. Slinkin MA, Klibanov AL, **Torchilin VP**. Terminal-modified polylysine-based chelating polymers: highly efficient coupling to antibody with minimal loss in immunoreactivity. *Bioconj Chem* 1991;2(N5):342-348.
123. Klibanov AL, Khaw BA, Nossiff N, O'Donnell SM, Huang L, Slinkin MA, **Torchilin VP**. Targeting of macromolecular carriers and liposomes by antibodies to myosin heavy chain. *Am J Physiol* 1991;261(Suppl)(N4):60-65.
124. Gorlova AV, **Torchilin VP**. Use of liposomes to associate foreign genetic material with spermatazoa. *Bull Exper Biol Med (Engl Trans)* 1991;112(9):1309-1311.
125. Luchter-Wasilewska E, Dulinska J, Ostrowski WS, **Torchilin VP**, Trubetskoy VS. Stabilization of human prostatic acid phosphatase by coupling with chondroitin sulfate. *Biotechnol Appl Biochem* 1991;13(1):36-47.
126. Timofeev BA, Bolotin IM, Stepanova LP, Bogdanov AA Jr, Georgiu KH, Malyshev SN, Petrovsky VV, Klibanov AL, **Torchilin VP**. Liposomal form of diamidine: decrease of toxicity. *Antibiotiki i Khimioterapiya (Antibiotics and Chemotherapy, Russ.)* 1991;36:34-36.
127. Maksimenko AV, Grigor'eva EL, Morozkin AD, Tischenko EG, Minkovskii EB, **Torchilin VP**. Assessment of the composition and structure of covalent complexes of superoxide dismutase with aldehyde dextran by analytical ultracentrifugation. *Biokhimiya (Biochemistry, Russ)* 1991;56:1330-1336.
128. Maksimenko AV, Grigor'eva EL, Bezrukavnikova LM, Petrov AD, Tischenko EG, Arkhipova OG, **Torchilin VP**. Antifibrotic effects of aldehyde dextran modified superoxide dismutase in experimental silicosis. *Biull Eksp Biol Med (Bulletin of Experimental Biology and Medicine, Russ)* 1991;112:265-267.
129. Maksimenko AV, Bezrukavnikova LM, Grigor'eva EL, Tischenko EG, Arkhipova OG, Iaglov VV, **Torchilin VP**. Antifibrotic effect of modified forms of catalase and superoxide dismutase in experimental silicosis. *Vopr Med Khim (Problems of Medicinal Chemistry, Russ.)* 1992;38:4-8.
130. Maksimenko AV, Bezrukavnikova LM, Grigoreva EL, Iaglov VV, **Torchilin VP**. Effect of native and modified forms of superoxide dismutase and catalase on experimental silicosis in rats. *Ann NY Acad Sci* 1992;672:118-125.
131. **Torchilin VP**, Klibanov AL, Huang L, O'Donnell S, Nossif ND, Khaw BA. Targeted accumulation of polyethylene glycol-coated immunoliposomes in infarcted rabbit myocardium. *FASEB J* 1992;6:2716-2719.
132. Trubetskoy VS, **Torchilin VP**, Kennel SJ, Huang L. Use of N-terminal modified poly(L-lysine)-antibody conjugate as a carrier for targeted gene delivery in mouse lung endothelial cells. *Bioconj Chem* 1992;3(4):323-327.

133. Trubetskoy VS, **Torchilin VP**, Kennel SJ, Huang L. Cationic liposomes enhance targeted delivery and expression of exogenous DNA mediated by N-terminal modified poly(L-lysine)-antibody conjugate in mouse lung endothelial cells. *Biochim Biophys Acta* 1992;1131:311-313.
134. **Torchilin VP**, Lukyanov AN, Klivanov AL, Omelyanenko VG. Interaction between oleic acid-containing pH-sensitive and plain liposomes: fluorescent spectroscopy studies. *FEBS Lett* 1992;305(3):185-188.
135. Glushakova SE, Omelyanenko VG, Lukashevitch IS, Bogdanov AA Jr, Moshnikova AB, Kozytch AT, **Torchilin VP**. The fusion of artificial lipid membranes induced by the synthetic arenavirus "fusion peptide". *Biochim Biophys Acta* 1992;1110:202-208.
136. Petrov AB, Semenov BF, Vartanyan YP, Zakirov MM, **Torchilin VP**, Trubetskoy VS, Koshkina NV, Lvov VL, Verner IK, Lopyrev IL, Dmitriev BA. Toxicity and immunogenicity of *Neisseria meningitidis* lipopolysaccharide incorporated into liposomes. *Infection and Immunity* 1992;60(9):3897-3903.
137. Romanova EV, Gelashvili DB, Koshkina NV, **Torchilin VP**. Toxicity and immunogenic properties of liposomal form of *Vipera libetina* venom. *J Liposome Res* 1992;2(2):205-216.
138. **Torchilin VP**, Omelyanenko VG, Lukyanov AN. Temperature-dependent aggregation of pH-sensitive, phosphatidyl ethanolamine-oleic acid-cholesterol liposomes as measured by fluorescent spectroscopy. *Anal Biochem* 1992;207:109-113.
139. Greidziak M, Bogdanov AA, **Torchilin VP**, Lasch J. Destabilization of pH-sensitive liposomes in the presence of human erythrocyte ghosts. *J Contr Release* 1992;20:219-230.
140. Slinkin MA, Curtet C, Sai-Maurel C, Gestin JF, **Torchilin VP**, Chatal JF. Site-specific conjugation of chain-terminal chelating polymers to Fab_b fragments of anti-CEA mAb: effect of linkage type and polymer size on conjugate biodistribution in nude mice bearing human colorectal carcinoma. *Bioconj Chem* 1992;3(6):477-483.
141. **Torchilin VP**. Targeting of thrombolytic agents: current state of knowledge and perspectives. *Ann NY Acad Sci* 1992;667:404-416.
142. **Torchilin VP**, Mukhamedova NM, Ilyina AI, Iakoubov LZ, Tshitkov KG. Selective accumulation of monoclonal antibodies in the lung after cyclophosphamide administration into rats. *Bull Exper Biol Med* (Russ) 1992;10:400-401.
143. **Torchilin VP**, Trubetskoy VS, Narula J, Khaw BA. Monoclonal antibody-chelating polymer conjugates specifically labeled with heavy metal radioisotopes. Possible use for tumor imaging and therapy. *Antibody Immunoconj Radiopharm* 1993;6(1):83.

144. Slinkin MA, Curet C, Faivre-Chauvet A, Sai-Maurel C, Gestin JF, **Torchilin VP**, Chatal JF, Biodistribution of anti-CEA F(ab')₂ fragments conjugated with chelating polymers: influence of conjugated electron charge on tumor uptake and blood clearance, *Nucl Med Biol* 1993;20:443-452.
145. **Torchilin VP**. Interactions of immunoliposomes with targets *in vivo*. *J Liposome Res* 1993;3:138-139.
146. Trubetskoy VS, Cannillo JA, Milshcheyn A, **Torchilin VP**, Wolf GL. Controlled delivery of Gd-containing liposomes to lymph nodes: surface modification may enhance MRI contrast properties. *Proceed Intern Symp Control Rel Bioact Mater* 1993;20:123-124.
147. **Torchilin VP**, Trubetskoy VS, Narula J, Khaw BA, Klivanov AL, Slinkin MA. Chelating polymer modified monoclonal antibodies for radioimmunodiagnostics and radioimmunotherapy. *J Contr Release* 1993;24:111-118.
148. Trubetskoy VS, Narula J, Khaw BA, **Torchilin VP**. Chemically optimized antimyosin Fab conjugates with chelating polymers: importance of the nature of the protein-polymer single site covalent bond for biodistribution and infarct localization. *Bioconj Chem* 1993;4:251-255.
149. Hiemisch H, Gavriluk V, Atochina E, Slinkin M, **Torchilin V**, Muzykantov V, Danilov S. Purification of radiolabeled monoclonal antibodies to angiotensin-converting enzyme significantly improves specificity and efficacy of its targeting into the lung. *Nucl Med Biol* 1993;20:435-441.
150. Zolin VV, Luk'ianov AN, Nesterov AE, Kolokol'tsov AA, **Torchilin VP**, Popov VF, Vardanian NV, Antonov NA. Methodological approaches to creating a liposomal form of human recombinant alpha 2-interferon. *Vestn Ross Acad Med Nauk (Russ)* 1993;2:29-31.
151. **Torchilin VP**, Trubetskoy VS, Milshcheyn AM, Cannillo J, Wolf GL, Papisov MI, Bogdanov AA Jr, Narula J, Khaw BA, Omelyanenko VG. Targeted delivery of diagnostic agents by surface-modified liposomes. *J Contr Release* 1994;26:45-58.
152. Gref R, Minamitake Y, Peracchia MT, Trubetskoy V, **Torchilin VP**, Langer R. Biodegradable long-circulating polymeric nanospheres. *Science* 1994;263:1600-1603.
153. **Torchilin VP**, Papisov MI. Why do polyethylene glycol-coated liposomes circulate so long? *J Liposome Res* 1994;4:725-739.
154. **Torchilin VP**. Chelating polymer-based immunoconjugates: new agents for diagnostic imaging. *Polymer Sci (Russ)* 1994;36:228-243.

155. Trubetskoy VS, **Torchilin VP**. New approaches in the chemical design of Gd-containing liposomes for use in magnetic resonance imaging of lymph nodes. *J Liposome Res* 1994;4(2):961-980.
156. **Torchilin VP**, Omelyanenko VG, Papisov MI, Bogdanov AA Jr, Trubetskoy VS, Herron JN, Gentry CA. Poly(ethylene glycol) on the liposome surface: on the mechanism of polymer-coated liposome longevity. *Biochim Biophys Acta* 1994;1195(1):11-20.
157. **Torchilin VP**, Shtilman MI, Trubetskoy VS, Whiteman K, Milstein AM. Amphiphilic vinyl polymers effectively prolong liposome circulation time in vivo. *Biochim Biophys Acta* 1994;1195(1):181-184.
158. Timofeev BA, Bolotin IM, Stepanova LP, Bogdanov AA Jr, Georgiu KH, Malyshev SN, Petrovsky VV, Klibanov AL, **Torchilin VP**. Liposomal diamidine (imidocarb): preparation and animal studies. *J Microencapsulation* 1994;11(6):627-632.
159. Lukyanov AN, **Torchilin VP**. Autoclaving of liposomes. *J Microencapsulation* 1994;11(6):669-672.
160. Trubetskoy VS, Cannillo JA, Milshcheyn A, Wolf GL, **Torchilin VP**. Controlled delivery of Gd-containing liposomes to lymph nodes: surface modification may enhance MRI contrast properties. *Magn Res Imaging* 1995;13(1):31-37.
161. Narula J, **Torchilin VP**, Petrov A, Khaw S, Trubetskoy VS, O'Donnell SM, Nossiff ND, Khaw BA. In vivo targeting of acute myocardial infarction with negative-charge, polymer-modified antimyosin antibody: use of different cross-linkers. *J Nucl Cardiol* 1995;2:26-34.
162. Narula J, Petrov A, Bianchi C, Ditlow CC, Lister BC, Dilley J, Pieslak I, Chen FW, **Torchilin VP**, Khaw BA. Noninvasive localization of experimental atherosclerotic lesions with mouse/human chimeric Z2D3 F(ab')₂ specific for the proliferating smooth muscle cells of human atheroma. Imaging with conventional and negative charge-modified antibody fragments. *Circulation* 1995;92:474-484.
163. Zakirov MM, Petrov AB, Burkhanov SA, Vartanian IuP, **Torchilin VP**, Trubetskoy VS, Koshkina NV, Dmitriev BA, L'vov VL. The immunological activity of Neisseria meningitidis lipo-oligosaccharide incorporated into liposomes. *Zh Mikrobiol Epidemiol Immunobiol (J Microbiology, Epidemiology and Immunobiology, Russ)* 1995;1:49-53.
164. Trubetskoy VS, **Torchilin VP**. Fast and specific labeling of antibody fragments with multiple atoms of heavy metal radioisotopes. *Anal Biochem* 1995;229:345-347.
165. Iakoubov L, Rokhlin O, **Torchilin V**. Anti-nuclear autoantibodies of the aged reactive against the surface of tumor but not normal cells. *Immunol Lett* 1995;47:147-149.

166. Yuan F, Dellian M, Fukumura D, Leunig M, Berk DA, **Torchilin VP**, Jain RK. Vascular permeability in a human tumor xenograft: molecular size dependence and cutoff size. *Cancer Res* 1995;55:3752-3756.
167. **Torchilin VP**, Trubetskoy VS, Whiteman KR, Caliceti P, Ferruti P, Veronese FM. New synthetic amphiphilic polymers for steric protection of liposomes in vivo. *J Pharm Sci* 1995;84:1049-1053.
168. Khaw BA, **Torchilin VP**, Vural I, Narula J. Plug and seal: prevention of hypoxic cardiocyte death by sealing membrane lesions with antimyosin-liposomes. *Nature Medicine* 1995;1:1195-1198.
169. Iakoubov L, Mongait D, **Torchilin V**. Monoclonal anti-nuclear autoantibody from the aged effectively suppresses tumor development in vivo. *Cancer Biother Radiopharm (formerly Antibody, Immunoconj Radiopharm)* 1995;8:299-310.
170. **Torchilin VP**, Narula J, Halpern E, Khaw BA. Poly(ethylene glycol)-coated anti-cardiac myosin immunoliposomes: Factors influencing targeted accumulation in the infarcted myocardium. *Biochim Biophys Acta* 1996;1279:75-83.
171. Trubetskoy VS, Frank-Kamenetsky MD, Whiteman KR, Wolf GL, **Torchilin VP**. Stable polymeric micelles: Lymphangiographic contrast media for gamma-scintigraphy and magnetic resonance imaging. *Acad Radiol* 1996;3:232-238.
172. Trubetskoy VS, **Torchilin VP**. Polyethylene glycol based micelles as carriers of therapeutic and diagnostic agents. *STP Pharma Sci* 1996;6:79-86.
173. Chen H, **Torchilin VP**, Langer R. Lectin-bearing polymerized liposomes as potential oral vaccine carriers, *Pharm Res* 1996;13:1378-1383.
174. Chen H, **Torchilin VP**, Langer R. Polymerized liposomes as potential oral vaccine carriers: stability and bioavailability, *J Contr Release* 1996;42:263-272.
175. Trubetskoy VS, Gazelle GS, Wolf GL, **Torchilin VP**. Block-copolymers of polyethylene glycol and polylysine as a carrier of organic iodine: Design of long-circulating particulate contrast medium for X-ray computed tomography, *J Drug Targ* 1997;6:381-388.
176. Gref R, Minamitake Y, Peracchia MT, Domb A, Trubetskoy V, **Torchilin V**, Langer R. Poly(ethylene glycol)-coated nanospheres: potential carriers for intravenous drug administration. *Pharm Biotechnol* 1997;10:167-198.
177. Iakoubov LZ, **Torchilin VP**. A novel class of antitumor antibodies: nucleosome-restricted antinuclear autoantibodies (ANA) from healthy aged nonautoimmune

- mice, *Oncol Res* 1997;9:439-446.
178. Trubetskoy VS, Whiteman KR, **Torchilin VP**, Wolf GL. Massage-induced release of subcutaneously injected liposome-encapsulated drugs in the blood, *J Contr Release* 1998;50:13-19.
 179. Hobbs SK, Monsky WL, Fan Yuan, Roberts WG, Griffith L, **Torchilin VP**, Jain RK. Regulation of transport pathways in tumor vessels: Role of tumor type and microenvironment, *Proc Natl Acad Sci USA* 1998;95:4607-4612.
 180. Khaw BA, Narula J, Vural I, **Torchilin VP**. Cytoskeleton-specific immunoliposomes: sealing of hypoxic cells and intracellular delivery of DNA, *Intl J Pharm* 1998;162:71-76.
 181. Iakoubov LZ, **Torchilin VP**. Nucleosome-releasing treatment makes surviving tumor cells better targets for nucleosome-specific anticancer antibodies, *Cancer Detect Prevent* 1998;22:470-475.
 182. Weissig V, Lizano C, **Torchilin VP**. Micellar delivery system for dequalinium – a lipophilic cationic drug with anticarcinoma activity, *J Liposome Res* 1998;8:391-400.
 183. Weissig V, Whiteman KR, **Torchilin VP**. Accumulation of protein-loaded long-circulating micelles and liposomes in subcutaneous Lewis lung carcinoma in mice, *Pharm Res* 1998;15:1552-1556.
 184. Dalkara S, Petrov A, Trubetskoy VS, Khaw BA, **Torchilin VP**. Disulfide cross-linked Fab-aggregates: preparation and biodistribution, *J Drug Targ* 1998;6:45-52.
 185. **Torchilin VP**. Biotin-conjugated polychelating agent, *Bioconj Chem* 1999;10:146-149.
 186. **Torchilin VP**, Frank-Kamenetsky MD, Wolf GL. CT visualization of blood pool in rats by using long-circulating, iodine-containing micelles, *Acad Radiol* 1999;6:61-65.
 187. **Torchilin VP**, Weissig V. Polymeric micelles for delivery of poorly soluble drugs, *Polym Prepr* 1999;40:320-321.
 188. Monsky WL, Fukumura D, Gohongi T, Ancukiewicz M, Weich HA, **Torchilin VP**, Yuan F, Jain RK. Augmentation of transvascular transport of macromolecules and nanoparticles in tumors using vascular endothelial growth factor. *Cancer Res* 1999;59: 429-4135.
 189. Savva M, **Torchilin VP**, Huang L. Effect of polyvinyl pyrrolidone on the thermal phase transition of 1,2-dipalmitoyl-sn-glycero-3-phosphocholine bilayer. *J Coll Interf Sci* 1999;217:160-165.

190. Savva M, **Torchilin VP**, Huang L. Effect of grafted amphiphilic PVP-palmityl polymers on the thermotropic phase behavior of 1,2-dipalmitoyl-sn-glycero-3-phosphocholine bilayer. *J Coll Interf Sci* 1999;217:166-171.
191. **Torchilin VP**. Novel polymers in microparticulate diagnostic agents, *CHEMTECH* 1999;29(11):27-34.
192. Weissig V, Lizano C, **Torchilin VP**. Selective DNA release from DQAsome/DNA complexes at mitochondria-like membranes, *Drug Deliv* 2000;7:1-5.
193. Dellian M, Yuan F, Trubetsky VS, **Torchilin VP**, Jain RK, Vascular permeability in a human tumor xenograft: molecular charge dependence, *Br J Cancer* 2000;82:1513-1518.
194. Weissig V, Babich J, **Torchilin VP**. Long-circulating gadolinium-loaded liposomes: potential use for magnetic resonance imaging of the blood pool, *Colloids Surf B: Biointerfaces*, 2000;18:293-299.
195. Khaw BA, Vural I, DaSilva J, **Torchilin VP**. Use of cytoskeleton-specific immunoliposomes for preservation of cell viability and gene delivery, *STP Pharma Sci* 2000;10:279-283.
196. **Torchilin VP**, Levchenko TS, Lukyanov AN, Khaw BA, Klivanov AL, Rammohan R, Samokhin GP, Whiteman KR. p-Nitrophenylcarbonyl-PEG-PE-liposomes: fast and simple attachment of specific ligands, including monoclonal antibodies, to distal ends of PEG chains via p-nitrophenylcarbonyl groups, *Biochim Biophys Acta – Biomembranes* 2001;1511:397-411.
197. Weissig V, Lizano C, Ganellin CR, **Torchilin VP**. DNA binding cationic bolosomes with delocalized charge center: A structure-activity relationship study, *STP Pharma Sci* 2001;11:91-96.
198. Samokhin GP, Mongayt DA, Iakoubov LZ, Levchenko TS, **Torchilin VP**. Negatively charged polymers protect antinuclear antibody against inactivation by acylating agents, *Anal Biochem* 2001;292:245-249.
199. Weissig V, D'Souza GGM, **Torchilin VP**. DQAsome/DNA complexes release DNA upon contact with isolated mouse liver mitochondria, *J Contr Release* 2001;75: 401-408.
200. **Torchilin VP**, Levchenko TS, Whiteman KR, Yaroslavov AA, Tsatsakis AM, Rizos AK, Michailova EV, Shilman MI. Amphiphilic poly-N-vinylpyrrolidones: synthesis, Properties and liposome surface modification, *Biomaterials* 2001;22: 3035-3044.
201. Khaw BA, daSilva J, Vural I, Narula J, **Torchilin VP**. Intracytoplasmic gene

- delivery for in vitro transfection with cytoskeleton-specific immunoliposomes, *J Contr Release* 2001;75:199-210.
202. **Torchilin VP**, Rammohan R, Weissig V, Levchenko TS. TAT peptide on the surface of liposomes affords their efficient intracellular delivery even at low temperature and in the presence of metabolic inhibitors, *Proc Natl Acad Sci USA* 2001;98:8786-8791.
203. Whiteman KR, Subr V, Ulbrich K, **Torchilin VP**. Poly(HPMA)-coated liposomes demonstrate prolonged circulation in mice, *J Liposome Res* 2001;11:153-164.
204. Goldberg SN, Girnan GD, Lukyanov AN, Ahmed M, Monsky WL, Gazelle GS, Huertas JC, Stuart KE, Jacobs T, **Torchilin VP**, Halpern EF, Kruskal LB, Percutaneous tumor ablation: increased necrosis with combined radio-frequency ablation and intravenous liposomal doxorubicin in a rat breast tumor model, *Radiology* 2002;222:797-804.
205. Levchenko TS, Rammohan R, Lukyanov AN, Whiteman KR, **Torchilin VP**. Liposome clearance in mice: the effect of a separate and combined presence of Surface charge and polymer coating, *Int J Pharm* 2002;240:95-102.
206. **Torchilin VP**, Lukyanov AN, Gao Z, Mazzola L. Polymer-lipid micelles as non-targeted and targeted pharmaceutical carriers, *Polym Prepr* 2002;43(2):677-678.
207. Monsky WL, Kruskal LB, Lukyanov AN, Girnum GD, Ahmed M, Gazelle GS, Huertas JC, Stuart KE, **Torchilin VP**, Goldberg SN. Radio-frequency ablation increases intratumoral liposomal doxorubicin accumulation in a rat breast tumor model, *Radiology* 2002;224:823-829.
208. Gao Z, Lukyanov AN, Singhal A, **Torchilin VP**, Diacyllipid-polymer micelles as nanocarriers for poorly soluble anticancer drugs, *Nano Lett* 2002;2:979-982.
209. Lukyanov AN, Gao Z, Mazzola L, **Torchilin VP**, Polyethylene glycol-diacyllipid micelles demonstrate increased accumulation in subcutaneous tumors in mice, *Pharm Res* 2002;19:1424-1429.
210. Campbell RB, Fukumura D, Brown EB, Mazzola LM, Izumi Y, Jain RK, **Torchilin VP**, Munn LL, Cationic charge determines the distribution of liposomes between the vascular and extravascular compartments of tumors, *Cancer Res* 2002;62:6831-6836.
211. **Torchilin VP**, Levchenko TS, Rammohan R, Volodina N, Papahadjopoulos-Sternberg B, D'Souza GGM, Cell transfection in vitro and in vivo with non-toxic TAT peptide-liposome-DNA complexes, *Proc Natl Acad Sci USA* 2003;100:1972-1977.
212. **Torchilin VP**, Levchenko TS, TAT-liposomes: A novel intracellular drug carrier,

Curr Protein Pept Sci 2003;4:133-140.

213. **Torchilin VP**, Lukyanov AN, Gao Z, Papahadjopoulos-Sternberg B, Immunomicelles: Targeted pharmaceutical carriers for poorly soluble drugs, *Proc Natl Acad Sci USA* 2003;100:6039-6044.
214. Gao Z, Lukyanov AN, Chakilam AR, **Torchilin VP**, PEG-PE/phosphatidylcholine mixed immunomicelles specifically deliver encapsulated taxol to tumor cells of different origin and promote their efficient killing, *J Drug Targ* 2003;11:87-92.
215. Asahi M, Rammohan R, Sumii T, Wang X, Pauw RJ, Weissig V, **Torchilin VP**, Lo EH, Antiactin-targeted immunoliposomes ameliorate tissue plasminogen activator-induced hemorrhage after focal embolic stroke, *J Cerebral Blood Flow Metab* 2003;23:895-899.
216. Lukyanov AN, Gao Z, **Torchilin VP**, Micelles from polyethylene glycol/phosphatidylethanolamine conjugates for tumor drug delivery, *J Contr Release* 2003;91:97-102.
217. Lizano C, Weissig V, **Torchilin VP**, Sancho P, Isabel Garcia-Perez A, Pinilla M, In vivo biodistribution of erythrocytes and polyethyleneglycol-phosphatidyl ethanolamine micelles carrying the antitumor agent dequalinium, *Eur J Pharm Biopharm* 2003;56:153-157.
218. D'Souza GGM, Rammohan R, Cheng S-M, **Torchilin VP**, Weissig V, DQAsome-mediated delivery of plasmid DNA toward mitochondria of living cells, *J Contr Release* 2003;92:189-197.
219. Ahmed M, Monsky WE, Girnun G, Lukyanov A, D'Ippolito G, Kruskal JB, Stuart KE, **Torchilin VP**, Goldberg SN, Radiofrequency thermal ablation sharply increases intratumoral liposomal Doxorubicin accumulation and tumor coagulation, *Cancer Res* 2003;63:6327-6333.
220. Levchenko TS, Rammohan R, Volodina N, **Torchilin VP**, Tat peptide-mediated intracellular delivery of liposomes, *Meth Enzymol* 2003;372:339-349.
221. Lukyanov AN, Hartner WC, **Torchilin VP**, Increased accumulation of PEG-PE micelles in the area of experimental myocardial infarction in rabbits, *J Contr Release* 2004;94:187-193.
222. Liang W, Levchenko T, Khaw B-A, **Torchilin VP**, ATP-containing immunoliposomes specific for cardiac myosin, *Curr Drug Delivery* 2004;1:1-7.
223. Wettstein R, Tsai AG, Erni D, Lukyanov AN, **Torchilin VP**, M.Intaglietta, Improved microcirculation is more effective than substitution of red blood cells to correct metabolic disorder in experimental hemorrhagic shock, *Shock* 2004;21:235-240.

224. Wang J, Mongayt DA, Lukyanov AN, Levchenko TS, **Torchilin VP**, Preparation and in vitro synergistic anticancer effect of Vitamin K₂ and 1,8-diazabicyclo[5,4,0]undec-7-ene in poly(ethylene glycol)-diacyllipid micelles, *Int J Pharm* 2004;272:129-135.
225. Liang W, Levchenko TS, **Torchilin VP**, Encapsulation of ATP into liposomes by different methods: optimization of the procedure, *J Microencapsul* 2004;21:251-261.
226. Lukyanov AN, Sawant RM, Hartner WC, **Torchilin VP**, PEGylated dextran as long-circulating pharmaceutical carrier, *J Biomater Sci Polymer Edn* 2004;15:621-630.
227. Lukyanov AN, Elbayoumi TA, Chakilam AR, **Torchilin VP**, Tumor-targeted liposomes: doxorubicin-loaded long-circulating liposomes modified with anti-cancer antibody, *J Control Release* 2004;100:135-144.
228. Chakilam AR, Pabba S, Mongayt D, Iakoubov LZ, **Torchilin VP**, A single monoclonal antinuclear autoantibody with nucleosome-restricted specificity inhibits growth of diverse human tumors in nude mice, *Cancer Ther* 2004;2:353-364.
229. Cheng SM, Pabba S, **Torchilin VP**, Fowle W, Kimpfler A, Schubert R, Weissig V, Towards mitochondria-specific delivery of apoptosis-inducing agents: DQAsomal incorporated paclitaxel, *J Drug Del Sci Tech* 2005;15:81-86.
230. Wang J, Mongayt D, **Torchilin VP**, Polymeric micelles for delivery of poorly soluble drugs: Preparation and anticancer activity in vitro of paclitaxel incorporated into mixed micelles based on poly(ethylene glycol)-lipid conjugate and positively charged lipids, *J Drug Target* 2005;13:73-80.
231. Ahmed M, Liu Z, Lukyanov AN, Signoretti S, Horkan C, Monsky WL, **Torchilin VP**, Goldberg SN, Combination radiofrequency ablation with intratumoral liposomal Doxorubicin: effect on drug accumulation and coagulation in multiple tissues and tumor types in animals, *Radiology* 2005;235:469-477.
232. Boddapati SV, Tongcharoensirikul P, Hanson RN, D'Souza GGM, **Torchilin VP**, Weissig V, Mitochondriotropic liposomes, *J Liposome Res* 2005;15:49-58.
233. **Torchilin VP**, Verma DD, Levchenko NS, Hartner WC, Bernstein EA, ATP-loaded liposomes and immunoliposomes protect ischemic myocardium in isolated rat hearts and in rabbits with experimental myocardial infarction, *Cell Molec Biol Lett* 2005;10:53-54.
234. Stroh M, Zimmer JP, Duda DG, Levchenko TS, Cohen KS, Brown EB, Scadden DT, **Torchilin VP**, Bawendi MG, Fukumura D, Jain RK, Quantum dots spectrally

- distinguish multiple species within the tumor milieu in vivo, *Nat Med* 2005;11:678-682.
235. Leevy WM, Gammon ST, Levchenko T, Darancioglu DD, Murillo O, **Torchilin V**, Piwnicka-Worms D, Huettner JE, Gokel GW, Structure-activity relationships, kinetics, selectivity, and mechanistic studies of synthetic hydrophilic channels in bacterial and mammalian cells, *Org Biomol Chem* 2005;3:3544-3550.
236. Mu L, Chrastina A, Levchenko T, **Torchilin VP**, Micelles from poly(ethylene glycol)-phosphatidyl ethanolamine conjugate (PEG-PE) as pharmaceutical nanocarriers for poorly soluble drug camptothecin, *J Biomed Nanotechnol* 2005;1:190-196.
237. Ahmed M, Lukyanov AN, **Torchilin V**, Tournier H, Schneider AN, Goldberg SN, Combined radiofrequency ablation and adjuvant liposomal chemotherapy: effect of chemotherapeutic agent, nanoparticle size, and circulation time, *J Vasc Interv Radiol* 2005;16:1365-1371.
238. Verma DD, Levchenko TS, Bernstein EA, **Torchilin VP**, ATP-loaded liposomes effectively protect mechanical functions of the myocardium from global ischemia in an isolated rat heart model, *J Control Release* 2005;108:460-471.
239. Gupta B, Levchenko TS, Mongayt DA, **Torchilin VP**, Monoclonal antibody 2C5-mediated binding of liposomes to brain tumor cells in vitro and in subcutaneous tumor model in vivo, *J Drug Target* 2005;13:337-343.
240. Verma DD, Hartner WC, Levchenko TS, Bernstein EA, **Torchilin VP**, ATP-loaded liposomes effectively protect the myocardium in rabbits with an acute experimental myocardial infarction, *Pharm Res* 2005.
241. Mu L, Elbayoumi TA, **Torchilin VP**, Mixed micelles made of poly(ethylene glycol)-phosphatidylethanolamine conjugate and D- α -tocopheryl polyethylene glycol 1000 succinate as pharmaceutical nanocarriers for camptothecin, *Int J Pharm* 2005;306:142-149.
242. Tolcheva EV, Barishnikov AY, Oborotova NA, Kortava MA, Barishnikov KA, Mongayt D, Levchenko TS, **Torchilin VP**, Anti-CD5-immunoliposomes as a transport system for targeted drug delivery to CD5+ cells, *Russ Biotherapeutic J (Russ)* 2005;4;#4:38-43.
243. Erdogan S, Roby A, Sawant S, Hurley J, **Torchilin VP**, Gadolinium-loaded polychelating polymer-containing cancer cell-specific immunoliposomes, *J Liposome Res* 2006;16:45-55.
244. Roby A, Erdogan S, **Torchilin VP**, Solubilization of poorly soluble PDT agent, meso-tetraphenylporphyrin, in plain or immunotargeted PEG-PE micelles results in

dramatically improved cancer cell killing in vitro, *Eur J Pharm Biopharm* 2006;62:235-240.

245. Polyethylene Dabholkar RD, Sawant RM, Mongayt DA, Devarajan PV, **Torchilin VP**, Polyethyleneglycol-phosphatidylethanolamine conjugate (PEG-PE)-based mixed micelles: some properties, loading with paclitaxel, and modulation of P-glycoprotein-mediated efflux, *Int J Pharm* 2006;315:148-157.
246. Zhang C, Tang N, Liu X, Liang W, Xu W, **Torchilin VP**, siRNA-containing liposomes modified with polyarginine effectively silence the targeted gene, *J Control Release* 2006;112:229-239.
247. Erdogan S, Roby A, **Torchilin VP**, Enhanced tumor visualization by gamma-scintigraphy with (111)In-labeled polychelating polymer-containing immunoliposomes, *Mol Pharm* 2006;3:525-530.

Reviews, Chapters and Editorials:

1. **Torchilin VP**, Smirnov VN, Chazov EI. Immobilization and stabilization of enzymes for use in therapy. In: Bungay HR, ed. *Advances in Enzyme Engineering*. National Science Foundation, 1978:130-151.
2. **Torchilin VP**, Martinek K. Enzyme stabilization without carriers. *Enz Microb Technol* 1979;1:74-82.
3. **Torchilin VP**, Mazaev AV, Il'ina EV, Goldmacher VS, Smirnov VN, Chazov EI. Chemical aspects of enzyme modification and stabilization for the use in therapy. In: Wingard LB, Berezin IV, Klyosov AA, eds. *Future Directions for Enzyme Engineering*. New York: Plenum Press, 1980:219-240.
4. **Torchilin VP**, Berdichevsky VR, Klivanov AL, Smirnov VN, Chazov EI. Principles of immobilization and directed transport of drugs in the organism. In: Weetall HH, Bungay HR, eds. *Microbial Enzymes*. National Science Foundation, 1980:317-334.
5. **Torchilin VP**, Berdichevsky VR, Khaw BA, Zemskov VM, Haber E, Smirnov VN, Chazov EI. Possibility of using liposomes for targeting of drugs in the treatment of cardiovascular diseases. In: *Energy Transport, Protein Synthesis and Hormonal Control of Heart Metabolism*. NIH Publication, 1980: 80:2017.
6. Chazov EI, Smirnov VN, **Torchilin VP**, Tereshin IM, Moskvichev BV. Immobilized enzymes for medical application. In: Weetall HH, Royer GP, eds. *Enzyme Engineering*. New York: Plenum Publishing Corporation, 1980:209-211.

7. Larionova NI, **Torchilin VP**. Recent advances and prospects of medical application of immobilized proteins as physiologically active agents. *Khimico-Pharmatsevtichesky J* (Russ.) (Chemical Pharmaceutical J) 1980;4:21-36.
8. **Torchilin VP**, Klibanov AL, Smirnov VN. Problems and perspectives of liposome application for drug targeting. In: *Liposomes and their Interaction with Tissues and Cells*. Moscow: Nauka Publishers, 1981:10-17.
9. **Torchilin VP**, Klibanov AL. Immobilization of proteins on liposome surface. *Enz Microb Technol*. 1981;3:297-304.
10. Smirnov VN, Berdichevsky VR, Alexeev AV, Sviridov DD, **Torchilin VP**. Targeted liposome transport to the reconstituted vessel wall. In: Chazov EI and Smirnov VN, eds. *Vessel Walls in Thrombosis and Atherosclerosis*. Berlin-Heidelberg-New York: Springer Verlag, 1982:195-201.
11. **Torchilin VP**, Klibanov AL, Berdichevsky VR, Omel'yanenko VG, Smirnov VN. The use of immobilization principles for the construction of drug targeting systems. In: Chibata I, Fukui S, Wingard LB, eds. *Enzyme Engineering*, vol. 6. New York: Plenum Publishing Corporation, 1982:461-463.
12. **Torchilin VP**, Smirnov VN, Chazov EI. Problems and perspectives of liposome application in drug targeting. *Voprosy Meditsynskoy Khimii* (Russ.) (Problems of Medical Chemistry) 1982;1:3-14.
13. **Torchilin VP**. Immobilized enzymes and the use of immobilization principles for drug targeting. In: Goldberg EP, ed. *Targeted Drugs*. New York: John Wiley & Sons, 1983:127-152.
14. **Torchilin VP**, Smirnov VN. Liposomes for drug targeting. *Ukrainsky Biokhimichesky J* (Russ.) (Ukrainian Biochemical J) 1984;56:339-345.
15. **Torchilin VP**. Immobilization of specific proteins on liposome surface: systems for drug targeting. In: Gregoriadis G, ed. *Liposome Technology*, Vol. 3. CRC Press, 1984:Chapter 6.
16. **Torchilin VP**. Liposomes as targetable drug carriers. *CRC Critical Reviews in Therapeutic Drug Carrier Systems*, 1985;1:65-115.
17. Chazov EI, Smirnov VN, Mazaev AV, **Torchilin VP**. Macromolecular drug preparations in cardiology. *D.I. Mendeleev USSR Chemical Society J* (Russ.). 1985;30:365-372.
18. Smirnov VN, Voronkov YN, **Torchilin VP**, Mazaev AV. Development of biocompatible preparations of immobilized enzymes and clinical results with immobilized streptokinase (Streptodekaze). In: Chazov EI, Smirnov VN, eds.

Thrombosis and Thrombolysis. New York: Plenum Publishing Corporation, 1986:113-162.

19. **Torchilin VP**, Maksimenko AV, Mazaev AV. Immobilized enzymes for thrombolytic therapy. In: Mosbach K, ed. *Methods in Enzymology*, Vol. 137, *Immobilized Enzymes and Cells*, Part D. New York: Academic Press, Inc., 1988:552-566.
20. Maksimenko AV, Arkhipova OG, Yaglov VV, **Torchilin VP**. Aldehyde dextran modified enzymes for medical application. In: Blazej A, Zemek J, eds. *Progress in Biotechnology*, Vol. 4, Interbiotech '87, Enzyme Technologies. Amsterdam: Elsevier Science Publishers, 1988:509-522.
21. **Torchilin VP**, Ivanov NN, Klibanov AL, Papisov MI, Chebanov SM. On the mechanism of electron-dense liposome internalization by macrophages *in vitro*. In: Gregoriadis G, ed. *Liposomes as Drug Carriers: Recent Trends and Progress*. London: John Wiley & Sons, 1988:63-74.
22. **Torchilin VP**, Burkhanov SA, Mazhul LA, Ageeva ON. Liposomal vaccine against influenza virus. In: Gregoriadis G, ed. *Liposomes as Drug Carriers: Recent Trends and Progress*. London: John Wiley & Sons, 1988:229-234.
23. Margolis LB, Bodgdanov AA,Jr, Gordeeva LV, **Torchilin VP**. Interaction of Con A-liposomes with cells: binding to normal and transformed mouse fibroblasts. In: Gregoriadis G, ed. *Liposomes as Drug Carriers: Recent Trends and Progress*. London: John Wiley & Sons, 1988:727-736.
24. Burkhanov SA, **Torchilin VP**. Liposome-hepatocyte interaction: targeted liposome transport to liver cells by varying phospholipid and ganglioside composition of the liposomal membrane. In: Gregoriadis G, ed. *Liposomes as Drug Carriers: Recent Trends and Progress*. London: John Wiley & Sons, 1988:737-748.
25. Martinek K, **Torchilin VP**. Stabilization of enzymes by intramolecular crosslinking using bifunctional reagents. In: Mosbach K, ed. *Methods in Enzymology*, Vol. 137, *Immobilized Enzymes and Cells*, Part D. New York: Academic Press, Inc.,1988:615-626.
26. **Torchilin VP**. Interaction of modified liposomes with cells and intercellular fate of liposomes. In: Archakov AI, Gundermann KJ, eds. *Phosphatidylcholine (Polyenephosphatidylcholine/PPC): Effects on Cell Membranes and Transport of Cholesterol*. Bingen-Rhein: WBU-Verlag, 1989:111-127.
27. **Torchilin VP**, Klibanov AL. The antibody-linked chelating polymers for nuclear therapy and diagnostics. *CRC Critical Reviews in Therapeutical Drug Carrier Systems* 1991;7:275-308.
28. Semenov BF, Petrov AB, Chulok TA, **Torchilin VP**, Trubetskoy VS, Koshkina NV, Ivanov VT, Andronova TM, Ivanov BB. Immunomodulating complex of oligopeptide

- antigen and liposomal form of Neisseria meningitis lipooligosaccharide. In: Achtman M et al, eds. Neisseriae 1990. Berlin-New York: Walter de Gruyter, 1991:277-281.
29. Petrov AB, Semenov BF, Vartanyan YuP, **Torchilin VP**, Trubetskoy VS, Koshkina NV, Dmitriev BA, Lvov VL, Lopyrev IV. Development of liposomal vaccine on the basis of Neisseria meningitis lipooligosaccharide. In: Achtman M et al, eds. Neisseriae 1990. Berlin-New York: Walter de Gruyter, 1991;259-263.
 30. **Torchilin VP**. Targeting of thrombolytic agents: current state of the knowledge and perspectives. In: Brakman P, Kluft C, eds. Plasminogen Activation in Fibrinolysis, in Tissue Remodeling, and in Development. New York: NY Acad Sci, 1992;667:404-416.
 31. **Torchilin VP**, Klibanov AL. Coupling of ligands with liposome membrane. In: Gregoriadis G et al, eds. Liposomes in Drug Delivery. Switzerland: Harwood Academic Publishers, 1993:227-238. .
 32. **Torchilin VP**, Fan Zhou, Leaf Huang. pH-sensitive liposomes. *J Liposome Res* 1993;3:201-255.
 33. **Torchilin VP**, Klibanov AL. Coupling and labeling of phospholipids. In: Cevc G, ed. Phospholipid Handbook. New York: Marcel Dekker, 1993:293-321.
 34. **Torchilin VP**. Immunoliposomes as targeted carriers of pharmaceuticals in the cardiovascular system. In: Strauss HW and Khaw BA, eds. Monoclonal Antibodies in Cardiovascular Diseases. Malvern, PA:Lea & Febiger, 1994:257-267.
 35. **Torchilin VP**. Immunoliposomes and PEGylated immunoliposomes: possible use for targeted delivery of imaging agents. *Immunomethods* 1994;4:244-258.
 36. **Torchilin VP**, Trubetskoy VS. Polymers on the surface of nanocarriers: modulation of carrier properties and biodistribution. *Polymer Sci (Russ.)* 1994;36:1585-1598.
 37. **Torchilin VP**, Papisov MI, Bogdanov AA, Trubetskoy VS, Omelyanenko VG. Molecular mechanism of liposome and immunoliposome steric protection with poly(ethylene glycol): theoretical and experimental proofs of the role of polymer chain flexibility. In: Martin F and Lasic D, eds. Stealth® Liposomes. Boca Raton, FL: CRC Press, 1995:57-68.
 38. **Torchilin VP**, Trubetskoy VS, Narula J, Khaw BA. PEG-modified liposomes for gamma- and magnetic resonance imaging. In: Martin F and Lasic D, eds. Stealth® Liposomes. Boca Raton, FL: CRC Press, 1995:225-237.
 39. **Torchilin VP**. Chelating polymer-based immunoconjugates for targeted diagnostic imaging. In: Torchilin VP, ed. Handbook of Targeted Delivery of Imaging Agents. Boca Raton, FL: CRC Press, 1995:117-130.

40. **Torchilin VP**, Trubetskoy VS, Wolf GL. Magnetic Resonance Imaging of lymph nodes with Gd-containing liposomes. In: Torchilin VP, ed. *Handbook of Targeted Delivery of Imaging Agents*. Boca Raton, FL: CRC Press, 1995: 401-411.
41. **Torchilin VP**, Trubetskoy VS. Which polymers can make nanoparticulate drug carriers long-circulating? *Adv Drug Delivery Rev* 1995;16:141-155.
42. Trubetskoy VS, **Torchilin VP**. Use of polyoxyethylene-lipid conjugates as long-circulating carriers for delivery of therapeutic and diagnostic agents. *Adv Drug Delivery Rev* 1995;16:311-320.
43. **Torchilin VP**, Trubetskoy VS. In vivo visualizing of organs and tissues with liposomes. *J Liposome Res* 1995;5:795-812.
44. **Torchilin VP**. Targeting of drugs and drug carriers within the cardiovascular system. *Adv Drug Delivery Rev* 1995;17:75-101.
45. **Torchilin VP**. Effect of polymers attached to lipid headgroups on properties of liposomes, In: Lasic DD, and Barenholz Y, eds., *Handbook of Nonmedical Applications of Liposomes*. Boca Raton, FL : CRC Press, 1995: Volume 1, Chapter 13, 263-284.
46. **Torchilin VP**. How do polymers prolong circulation time of liposomes? *J Liposome Res* 1996;6:99-116.
47. **Torchilin VP**. Liposomes as delivery agents for medical imaging. *Molec Med Today* 1996; June:242-249.
49. **Torchilin VP**, Trubetskoy VS. Biodistribution of surface-modified liposomes and particles, In: Cohen S, and Bernstein H, eds. *Microparticulate Systems for the Delivery of Proteins and Vaccines*. New York, NY : Marcel Dekker, Inc., 1996: Chapter 8, 243-277.
50. **Torchilin VP**. Affinity liposomes in vivo: factors influencing target accumulation. *J Molec Recogn* 1996; 9: 335-346.
51. **Torchilin VP**. Drug targeting by functional polymers: Targeting of polymer-coated liposomes, In: Arshady R, ed. *Desk Reference of Functional Polymers*. Washington, DC: American Chemical Society, 1997: Chapter 5.7, 769-788.
52. **Torchilin VP**. Surface-modified liposomes in gamma and MR-imaging. *Adv Drug Delivery Rev* 1997; 24:301-313.
53. **Torchilin VP**. Pharmacokinetic considerations in the development of labeled liposomes and micelles for diagnostic imaging. *Quat J Nucl Med* 1997; 41:

141-153.

54. **Torchilin VP**, Modification of molecules and particles with polyethylene glycol (PEG): long-circulating pharmaceuticals, In: Winslow RM, Vandegriff KD, and Intaglietta M, eds. Advances in Blood Substitutes. Boston, MA: Birkhauser, 1997:Chapter 13, 251-293.
55. **Torchilin VP**. Targeting of liposomes within cardiovascular system. *J Liposome Res* 1997;7: 433-454.
56. **Torchilin VP**. Polymer-coated long-circulating microparticulate pharmaceuticals. *J Microencapsulation* 1998;15:1-19.
57. Trubetskoy VS, **Torchilin VP**. Long circulating liposomes for diagnostic imaging, In: Woodle MC, and Storm G, eds. Long Circulating Liposomes. Berlin, Germany: Springer, 1998: Chapter 17, 241-255.
58. **Torchilin VP**. *In vivo* and *in vitro* availability of liposomes, In: Kabanov AV, Felgner PL, and Seymour LW, eds. Self-Assembling Complexes for Gene Delivery. Chichester, England: Wiley, 1998: Chapter 14, 277-293.
59. **Torchilin VP**. Liposomes as carriers of contrast agents for *in vivo* diagnostics, In: Lasic DD, and Papahajopoulos D, eds. Medical Application of Liposomes, Amsterdam, The Netherlands: Elsevier, 1998: Chapter 6.6, 515-543.
60. **Torchilin VP**, Trubetskoy VS. Optimization of lymphatic delivery of polylysine-based imaging agents, In: Hincal AA, and Oner F, eds. Recent Advances in Peptide and Protein Delivery, Paris, France: Editions de Sante, 1998, 58-75.
61. **Torchilin VP**. Polymeric micelles in diagnostic imaging, *Colloids and Surfaces. B: Biointerfaces* 1999;16:305-319.
62. Ban An Khaw, **Torchilin VP**. Targeting in myocardial infarction, In: Methods in Molecular Medicine, Vol. 25; Francis GE, and Delgado C, eds. Drug Targeting: Strategies, Principles and Applications, Totowa, NJ, Humana Press, 2000: Chapter 10, 159-191.
63. **Torchilin VP**, Weissig V. Polymeric Micelles for the delivery of poorly soluble drugs, In: ACS Symposium Series, Vol. 752; Park K, and Mrsny RJ, eds. Controlled Drug Delivery. Designing Technologies for the Future, Washington, DC, American Chemical Society, 2000: Chapter 29, 297-313.
64. Weissig V, Lizano C, **Torchilin VP**. DQAsomes: A strategy for mitochondrial gene therapy, In: Gregoriadis G, and McCormack B, eds. Targeting of Drugs. Strategies for Gene Constructs and Delivery, Amsterdam, The Netherlands: IOS Press, 2000:

200-209.

65. **Torchilin VP**, Polymers as carriers of imaging agents, In: Park KD, Kwon IC, Yui N, Jeong SY, and Park K, eds. *Biomaterials and Drug Delivery toward New Millennium*, Seoul, Korea: Han Rim Won Publishing Co., 2000: 593-612.
66. Weissig V, **Torchilin VP**, Mitochondriale Gentherapie. In: Kayser O, and Muller RH, eds. *Pharmazeutische Biotechnologie*, Stuttgart, Germany: Wissenschaftliche Verlagsgesellschaft mbH, 2000: 341-356.
67. **Torchilin VP**. Polymeric contrast agents for medical imaging. *Current Pharm Biotech* 2000;1:183-215.
68. **Torchilin VP**. Drug targeting. *Eur J Pharm Sci* 2000;11, Suppl 2:S81-S91.
69. **Torchilin VP**, Babich J, Weissig V. Liposomes and micelles to target the blood pool for imaging purposes. *J Liposome Res* 2000;10:329-345.
70. Weissig V, **Torchilin VP**. Mitochondriotropic cationic vesicles: a strategy towards mitochondrial gene therapy. *Current Pharm Biotech* 2000;1:325-346.
71. Weissig V, **Torchilin VP**. Towards mitochondrial gene therapy: DQAsomes as a strategy, *J Drug Targ* 2001;9:1-13.
72. Weissig V, **Torchilin VP**. Cationic liposomes with delocalized charge centers as mitochondria-specific DNA delivery systems, *Adv Drug Deliv Rev* 2001;49:127-149.
73. **Torchilin VP**, Structure and design of polymeric surfactant-based drug delivery systems, *J Contr Release* 2001;73:137-172.
74. **Torchilin VP**, Iakoubov LZ, Estrov Z. Antinuclear autoantibodies as potential antineoplastic agents, *Trends Immunol* 2001;22:424-427.
75. **Torchilin VP**, The use of polychelating and amphiphilic polymers in gamma, MR and CT imaging, In: Chiellini E, Sunamoto J, Migliaresi C, Ottenbrite R, and Cohn D, eds. *Biomedical Polymers and Polymer Therapeutics*, New York, Kluwer Academic/Plenum Publishers, 2001, 269-284.
76. Lo EH, Singhal AB, **Torchilin VP**, Abbott NJ, Drug delivery to damaged brain, *Brain Res Rev* 2001;38:140-148.
77. **Torchilin VP**, PEG-based micelles as carriers of contrast agents for different imaging modalities, *Adv Drug Deliv Rev* 2002;54:235-251.
78. **Torchilin VP**, Strategies and means for drug targeting: An overview, In Muzykantov VR, Torchilin VP, eds. *Biomedical Aspects of Drug Targeting*, Boston/Dordrecht/London, Kluwer Academic Publishers, 2002, 3-26.

79. Weissig V, D'Souza G, **Torchilin VP**, Targeting mitochondria, In Muzykantov VR, Torchilin VP, eds. *Biomedical Aspects of Drug Targeting*, Boston/Dordrecht/London, Kluwer Academic Publishers, 2002, 473-495.
80. **Torchilin VP**, Khaw B-A, Weissig V, Intracellular targets for DNA delivery: nuclei and mitochondria, *Somat Cell Mol Genet* 2002;27:49-64.
81. **Torchilin VP**, Lukyanov AN, Peptide and protein drug delivery to and into tumors: challenges and solutions, *Drug Discov Today* 2003;8:259-266.
82. **Torchilin VP**, Weissig V, Martin FJ, Heath TD, New RRC, Surface modification of liposomes, In Torchilin VP, V.Weissig, eds. *Liposomes: Practical Approach*, Oxford, UK, Oxford University Press, 2003, 193-229.
83. Klivanov AL, **Torchilin VP**, Zalipsky S, Long-circulating sterically protected liposomes, In Torchilin VP, V.Weissig, eds. *Liposomes: Practical Approach*, Oxford, UK, Oxford University Press, 2003, 231-265.
84. **Torchilin VP**, Targeted drug delivery: current status and future challenges, *Ann Eur Acad Sci*, EAS Publishing House 2003;5-21.
85. **Torchilin VP**, Khaw B-A, Weissig V, Intracellular targets for DNA delivery: nuclei and mitochondria, In Luo D, Saltzman WM, eds. *Synthetic DNA Delivery Systems*, Kluwer Academic/Plenum Publishers, 2003, 45-60.
86. **Torchilin VP**, Iakoubov LZ, Estrov Z, Therapeutic potential of antinuclear autoantibodies in cancer, *Cancer Therapy* 2003;1:179-190.
87. **Torchilin VP**, Intracellular drug delivery: Current status and challenges for the future, In *Challenge in Drug Delivery for the New Millenium*, Bulletin Technique Gattefosse, N96, vol.1, 2003, 61-75.
88. **Torchilin VP**, Polymeric immunomicelles: Carriers of choice for targeted delivery of water-insoluble pharmaceuticals, *Drug Deliv Technol* 2004;4,N2:63-68.
89. Lukyanov AN, **Torchilin VP**, Tumor delivery of peptide and protein drugs, *Amer Pharm Rev* 2004;7,N1:77-81.
90. Lukyanov AN, **Torchilin VP**, Micelles from lipid derivatives of water-soluble polymers as delivery systems for poorly soluble drugs, *Adv Drug Deliv Rev* 2004;56:1273-1289.
91. **Torchilin VP**, Lukyanov AN, Gao Z, Wang J, Levchenko TS, Polymeric micelles as targetable pharmaceutical carriers, In Svenson S, ed. *Carrier-Based Drug*

Delivery, ACS Symposium Series 879, Washington, DC, American Chemical Society, 2004, Chapter 9, 120-129.

92. **Torchilin VP**, Targeted polymeric micelles for delivery of poorly soluble drugs, *Cell Molec Life Sci* 2004;61:2549-2559.
93. **Torchilin VP**, Fluorescence microscopy to follow the targeting of liposomes and micelles to cells and their intracellular fate, *Adv Drug Deliv Rev* 2005;57:95-109.
95. **Torchilin VP**, Liposomal delivery of protein and peptide drugs, In Mahato RI, ed. *Biomaterials for Delivery and Targeting of Proteins and Nucleic Acids*, Boca Raton, FL, CRC Press, 2005, Chapter 14, 433-459.
96. **Torchilin VP**, Block copolymer micelles as a solution for drug delivery problems, *Expert Opin Ther Patents* 2005;15:63-75.
97. **Torchilin VP**, Recent advances with liposomes as pharmaceutical carriers, *Nature Rev Drug Discov* 2005;4:145-160.
98. Gupta B, Levchenko T, **Torchilin VP**, Intracellular delivery of large molecules and small particles by cell-penetrating proteins and peptides, *Adv Drug Deliv Rev* 2005;57:637-651.
99. **Torchilin VP**, Lipid-core micelles for targeted drug delivery, *Curr Drug Deliv* 2005;2:319-327.
100. Gupta B, **Torchilin VP**, Transactivating transcriptional activator-mediated drug delivery, *Expert Opin Drug Deliv* 2006;3:177-190.
101. **Torchilin VP**, Recent approaches to intracellular delivery of drugs and DNA and organelle targeting, *Ann Rev Biomed Eng* 2006;8:343-375.
102. **Torchilin VP**, Lipid-based parenteral drug delivery systems: Biological implications, In Wasan KM, ed. *Role of Lipid Excipients in Modifying Oral and Parenteral Drug Delivery*, Hoboken, NJ, Wiley, 2006, Chapter 3, 48-87.
103. **Torchilin VP**, Multifunctional nanocarriers, *Adv Drug Deliv Rev* 2006;58:1532-1555.

Books and Special Journal Issues:

1. **Torchilin VP**. *Immobilizovannyye Fermenty v Medicin*. Moscow: Znanie, 1986.

2. **Torchilin VP**, ed. *Chemical Modification and Design of the New Formulations of Biologically Active Substances*. Moscow: VINITI Publishers, 1988.
3. **Torchilin VP**. *Immobilized Enzymes in Medicine*. Berlin-Heidelberg: Springer Verlag, 1991.
4. **Torchilin VP**, Trubetskoy VS, eds. *Liposomes in Diagnostic Imaging*, Special Issue, J Liposome Res. 1994:4.
5. **Torchilin VP**, ed. *Handbook of Targeted Delivery of Imaging Agents*. Boca Raton: CRC Press, 1995.
6. **Torchilin VP**, ed. *Long-Circulating Drugs and Drug Carriers*, Special Issue, Advanced Drug Delivery Reviews, 1995:16 (2/3).
7. **Torchilin VP**, N.Oku, eds. *Carriers for Delivery of Imaging Agents*, Special Issue, Advanced Drug Delivery Reviews, 1999:37 (1-3).
8. Weissig V, **Torchilin VP**, eds. *Drug Delivery to Mitochondria*, Special Issue, Advanced Drug Delivery Reviews, 2001:49 (1/2).
9. Muzykantov VR, **Torchilin VP**, eds. *Biomedical Aspects of Drug Targeting*. Kluwer Academic Publishers, Boston/Dordrecht/London, 2002.
10. **Torchilin VP**, Weissig F, eds. *Liposomes: A Practical Approach*. UK: Oxford University Press, 2003.
11. **Torchilin VP**, ed. *Protein- and peptide-mediated transduction: Mechanisms and implications for drug delivery*, Special Issue, Advanced Drug Delivery Reviews, 2005:57 (4).
12. **Torchilin VP**, ed. *Delivery of protein and peptide drugs in cancer*, Imperial College Press, London, 2006.
13. **Torchilin VP**, ed. *Nanoparticulates as Pharmaceutical Carriers*, Imperial College Press, London, 2006.

Visiting Professor to:

1. Institute of Medical Biochemistry, Copernik Academy, Krakov, Poland, 1977.
2. Assoreni Co., Rome, Italy, 1979, 1981.
3. Institute of Physiological Chemistry, Martin Luter University, Halle, Germany, 1980, 1982.
4. Department of Organic Chemistry, University of Mainz, Germany, 1986.
5. Cardiac Unit and Departments of Nuclear Medicine, Massachusetts General Hospital, Boston, Massachusetts, 1978, 1982, 1985, 1987, 1989, 1990.
6. Department of Biochemistry, University of Tennessee, Knoxville, Tennessee, 1991.

Invited Lectures at Conferences:

1. II Soviet-American Symposium "Myocardial Metabolism", Sochi, May 1975.
2. VII European Cardiology Congress, Amsterdam, June, 1976.
3. Soviet-American Symposium on Protein Chemistry and Physics, Riga, August, 1976.
4. III Soviet-American Symposium "Myocardial Metabolism" USA, May 1977.
5. IV All-Union Symposium on Protein Physics and Chemistry, Minsk, September 1977.
6. II All-Union Symposium on Preparation and Application of Immobilized Enzymes, Erevan, October 1977.
7. Soviet-American Conference "Methods for Production and Application of Enzymes in Industry and Analytical Studies", Tallin, November, 1977.

8. International Symposium on Biomedical Engineering, Delhi, India, February, 1978.
9. XII FEBS Congress, Drezden, July, 1978.
10. 18 Symposium on macromolecules, Prague, July 1978.
11. International Symposium "Advances in Enzyme Engineering", Tbilisi, June 1978.
12. IV Soviet-American Symposium "Myocardial Metabolism", Tashkent, September 1979.
13. IV All-Union Biochemical Congress, Leningrad, September 1979.
14. V Soviet-American Conference on Enzyme Engineering, Yurmaia, September 1979.
15. Conference of CMEA countries, Warsaw, Poland, May 1980.
16. IV All-Union Symposium on Immobilized Enzymes, Leningrad, October 1980.
17. I All-Union Symposium "Liposomes in Biology and Medicine", Moscow, November 1980.
18. All-Union Symposium "Magnetic Resonance in Biology and Medicine", Chernogolovka, March 1981.
19. II Soviet-French Symposium "Mechanisms of Pathogenesis of Artherosclerosis and Thrombosis", Nalchik, September 1981.
20. III Soviet-Swedish Symposium on Physico-Chemical Biology, Tbillisi, September 1981.
21. VI International Conference on Enzyme Engineering, Japan, September 1981.
22. I All-Union Biophysical Congress, Moscow, August 1982.
23. IV All-Union Symposium on Immobilized Enzymes, Kiev, May 1983.
24. IV All-Union Symposium on Biochemistry of Lipids, Kiev, July 1983.
25. IV All-Union Symposium on Medical Enzymology, Alma-Ata, October 1983.
26. VI All-Union Symposium on Sythetical Polymers of Medical Application, Alma-Ata, October 1983.
27. International Symposium on Polymers in Biology and Medicine, Prague, June 1984.
28. VI Soviet-American Symposium "Myocardial Metabolism", Baku, September 1984.
29. II International Symposium on Recent Advances in Drug Delivery Systems, Salt Lake City, Utah, February 1985.
30. V All-Union Conference on Enzyme Engineering, Kobuleti, May 1985.
31. Course on Drug Targeting at Volgograd Medical Institute, 1985.
32. V All-Union Biochemical Congress, Kiev, 1986.
33. V All-Union Symposium on Medical Enzymology, Makhachkala, 1986.
34. Course on Liposomes at the Institute of Biochemistry, Tashkent, 1986.
35. FEBS Congress, Ljubljana, Yugoslavia, 1987.
36. Liposome Symposium, Halle, Germany 1987.
37. Symposium on Biomedical Engineering, Alma-Ata 1987.
38. Natterman Symposium on Lipids, Cologne, West Germany, May 1988.
39. Interbiotech'88, Bratislava, Czechoslovakia, June 1988.
40. IUB Congress, Prague, Chechoslovakia 1988.
41. VIII All-Union Symposium "Synthetic Polymers of Medical Application", Kiev 1989.
42. All-Union Symposium "Reconstruction, Stabilization and Reparation of Biomembrane, Blagoveschensk 1989.
43. Vth International Pharmaceutical Technology Symposium, Ankara, September 1990.
44. International Symposium on Innovations in Pharmaceutical Sciences Technology, India, October 1990.
45. International Symposium "Liposomes in Biology and Medicine", Tashkent, November 1990.
46. International Conference on Thrombosis, The Netherlands, October 1991.
47. European Conference on Controlled Drug Release, The Netherlands, April 1992.
48. Gordon Research Conference on Polymers in Biosystems, Oxnard, February 1992.
49. 2nd Liposome Research Days, Leiden, The Netherlands, June 1992.

50. IUPAC Conference on Macromolecules, Prague, Czechoslovakia, July 1992.
51. American Chemical Society Meeting, San Francisco, March 1992.
52. AAAS Meeting, Boston, February 1993.
53. 6th International Symposium on Recent Advances in Drug Delivery Systems, Salt Lake City, Utah, February 1993.
54. International Liposome Conference, St. Petersburg, Russia, June 1993.
55. Second International Symposium on Polymers for Advanced Technologies, Oxford, United Kingdom, September 1993.
56. International Conference, "Liposomes in Drug Delivery," London, United Kingdom, December 1993.
57. 3rd Liposome Research Days Conference, Vancouver, Canada, June 1994.
58. Sapporo Symposium on Intelligent Polymer Gels, Sapporo, Japan, October, 1994.
59. 11th International Symposium on Affinity Chromatography and Biological Recognition, San Antonio, May 1995.
60. 22st International Symposium on Controlled Release of Bioactive Materials, Seattle, Washington, July-August 1995.
61. Fourth Liposome Research Days Conference, Freiburg, Germany, August-September 1995.
62. Current Concepts in Cardiovascular Diseases, New Dehli, India, December 1995.
63. 1st International Conference on Polymer Therapeutics, London, UK, January 1996.
64. New Drug Delivery Systems, Ahmedabad, India, March 1996.
65. 5th Liposome Research Days Conference, Shizuoka, Japan, July 1996.
66. 23rd International Symposium on Controlled Release of Bioactive Materials, Kyoto, Japan, July 1996.
67. 8th International Pharmaceutical Technology Symposium, Ankara, Turkey, September 1996.
68. Conference on Liposome Advances: Progress in Drug and Vaccine Delivery, London, UK, December 1996.
69. Blood Substitute Conference, San Diego, March 1997.
70. Chemistry and Biology of Polyethylene Glycol, ACS Meeting, San Francisco, April 1997.
71. 10th International Symposium on Radiopharmacology, Rapallo, Italy, May 1997.
72. 6th International Symposium on the Synthesis and Application of Isotopes and Isotopically Labeled Compounds, Philadelphia, September 1997.
73. International Symposium on Targeting the Cardiovascular System, Boston, September 1997.
74. 2nd Central European Symposium on Pharmaceutical Technology, Portoroz, Slovenia, September 1997.
75. 3rd International Symposium on Polymer Therapeutics, London, UK, January 1998.
76. Gordon Research Conference on Drug Carriers in Biology and Medicine, Ventura, February 1998.
77. Conference on Medical Imaging, Barcelona, Spain, May 1998.
78. 1998 Meeting of Brazilian Society of Biochemistry and Molecular Biology, Caxambu, Brazil, May 1998.
79. 216th American Chemical Society National Meeting, Boston, August 1998.
80. European Meeting on Frontiers in Pharmaceutical Sciences, Zermatt, Switzerland, October 1998.
81. American Chemical Society Meeting, Polymer Therapeutics, Anaheim, March 1999.
82. 3rd International Symposium on Frontiers in Biomedical Polymers, Shiga, Japan, May 1999.
83. 3rd International Conference on Advanced Polymers via Macromolecular Engineering, Williamsburg, August 1999.

84. 2nd International Symposium on Pharmaceutical Chemistry, Ankara, Turkey, September 1999.
85. International Symposium on Lipid and Dispersed Systems, Moscow, Russia, September 1999.
86. 1999 Meeting of American College of Clinical Pharmacy, Kansas City, October 1999.
87. International Symposium on Biomedical Polymers in 21st Century, Sapporo, Japan, November 1999.
88. Fourth International Conference on Liposome Advances, London, UK, December 1999.
89. 34th Gattefosse Conference on Frontiers in Biopharmacy, Saint-Remy, France, June 2000.
90. Gene Delivery Conference, Brooklyn Politechnic University, Brooklyn NY, June 2000.
91. 27th International Symposium on Controlled Release of Bioactive Materials, Paris, France, July 2000.
92. International Symposium on Biomaterials and Drug Delivery Systems, Cheju, Korea, August 2000.
93. Annual AAPS Meeting, Indianapolis, November 2000.
94. 28th International Symposium on Controlled Release of Bioactive Materials, San Diego, June 2001.
95. European Symposium on Peptides, Krakow, Poland, September 2001.
96. 5th International Conference on Liposome Advances, London, UK, December 2001.
97. 1st NIH Meeting on TAT-mediated cancer treatment, Rockville, MD, February 2002.
98. American Chemical Society Meeting, Orlando, FL, April 2002.
99. International Symposium Particles 2002, Orlando, FL, April 2002.
100. International Conference Liposomes. From Models to Applications, Wroclaw, Poland, May 2002.
101. American Chemical Society Meeting, Boston, MA, August 2002.
102. 11th International Pharmaceutical Technology Symposium, Istanbul, Turkey, September 2002.
103. 2nd IBC's International Conference on Protein and Peptide Drug Delivery, Boston, MA, September 2002.
104. Transitioning Biomaterials in the 21st Century, Maui, December 2002.
105. Challenge in Drug Delivery for the New Millenium, Saint-Remy de Provence, France, June 2003.
106. 7th International Symposium on Pharmaceutical Sciences, Ankara, Turkey, June 2003.
107. Liposomes Revisited, Groningen, The Netherlands, June 2003.
108. 5th International Symposium on Frontiers in Biomedical Polymers, Ischia, Italy, September 2003.
109. Annual AAPS Meeting, Salt Lake City, November 2003.
110. International Conference on Advanced Materials, Singapore, December 2003.
111. 6th International Conference on Liposome Advances, London, UK, December 2003.
112. International Conference in Nanomaterials, Dallas, January 2004.
113. International Symposium on Nano-Biotechnology, Okayama, Japan, February 2004.
114. AAPS – Northeast Regional Meeting, Rocky Hill, Conn, April 2004.
115. 9th Liposome Research Days Conference, Hsinchu, Taiwan, May 2004.
116. International Conference on Pharmaceutics, Huanzhou, China, May 2004.
117. Israeli Chapter of Controlled Release Society Meeting, Haifa, Israel, September 2004.
118. AAPS Annual Meeting, Baltimore, November 2004.
119. Nanotechnology Conference. Nanotechnology for Cancer, Anaheim, May 2005.

120. Amphiphiles and Their Aggregates in Basic and Applied Science, Wroclaw, Poland, May 2005.
121. Cell-Penetrating Peptides and Applications, Stockholm, Sweden, May 2005.
122. Advances in Drug Discovery and Delivery, Moscow, Russia, July 2005.
123. 2005 AAPS Meeting, Nashville, November 2005.
124. Indo-Japanese Conference on Drug Delivery, Mumbai, India, November 2005.
125. Course on Nanomedicine, Helsinki, Finland, February 2006.
126. International Conference on Biotechnology and Nanomedicine, Moscow, Russia, March 2006.
127. Material Research Society Meeting, San Francisco, April 2006.
128. G.O.T.Summit, Boston, April 2006.
129. Particles 2006 Conference, Orlando, May 2006.
130. Nanomedicine for Cancer Conference, Boston, May 2006.
131. Annual Controlled Release Society Meeting, Vienna, Austria, July 2006.
132. Gordon Research Conference in Drug Carriers in Medicine and Biology, Big Sky, Montana, August 2006.
133. 13th International Pharmaceutical Technology Symposium, Antalya, Turkey, September 2006.
134. 4th International Symposium on Nanomedicine and Drug Delivery, Omaha, Nebraska, October 2006.

Invited Lectures and Seminars at:

1. University of California, San Francisco - 1977
2. University of Florida, Gainesville - 1978
3. Medical Institute, Vladimir (Russia) - 1979
4. Assoreni, Rome (Italy) - 1979
5. Martin Luther University, Halle (Germany) - 1980
6. University of Rome (Italy) - 1981
7. Assoreni, Rome (Italy) - 1981
8. Institute of Biochemistry, Tashkent (Uzbekistan) - 1981
9. Institute of Biochemistry, Kiev (Ukraine) - 1981
10. Institute of Biochemistry, Minsk (Belorussia) - 1981
11. Martin Luther University, Halle (Germany) - 1982
12. Iozef Stefan Institute, Ljubljana (Slovenia) - 1983
13. Belgrade University (Yugoslavia) - 1983
14. University of Bombay (India) - 1984
15. Volgograd Medical Institute (Russia) - 1985
16. Institute of Biochemistry, Kiev (Ukraine) - 1986
17. Institute of Organic Chemistry, Mainz (Germany) - 1986
18. Institute of Chemistry, Alma-Ata (Kazakhstan) - 1987
19. ORIS, Paris (France) - 1988
20. Far East Center of USSR Academy of Sciences, Vladivostok - 1988
21. University of Frunze (Kirgizia) - 1988
22. Institute of Macromolecular Chemistry, Prague (Czech Republic) - 1988
23. University of Groningen (Netherlands) - 1988
24. Institute of Physics, Havana (Cuba) - 1989
25. Academy of Medical Sciences, Havana (Cuba) - 1989
26. Royal Free Hospital, London (UK) - 1990

27. University of Voronez (Russia) - 1990
28. University of Illinois, Chicago - 1991
29. University of Texas M.D.Anderson Cancer Center - 1991
30. University of Utah - 1991
31. CEADEN, Havana (Cuba) - 1991
32. University of Washington, Seattle - 1992
33. University of California, San Francisco - 1992
34. Amgen - 1992
35. University of Alberta, Edmonton (Canada) - 1993
36. Northeastern University, Boston - 1993
37. University of Pittsburgh - 1994
38. University of Shizuoka (Japan) - 1994
39. Daiichi Corporation, Tokyo (Japan) – 1994
40. Suffolk University, Boston - 1994
41. Nextar - 1995
42. Technical University of Munich (Germany) - 1995
43. Mallinkrodt - 1995
44. Amgen - 1995
45. Center of Pharmaceutical Education, Akhmedabad (India) - 1996
46. Northeastern University, Boston - 1996
47. Centocor - 1997
48. MIT, Department of Chemical Engineering - 1997
49. Procyon (Canada) - 1997
50. MGH, Department of Radiation Oncology - 1997
51. University of Rio de Janeiro (Brazil) - 1997
52. Institute of Macromolecules, Rio de Janeiro (Brazil) - 1997
53. University of Padova (Italy) - 1997
54. Northeastern University, Boston - 1997
55. Aronex - 1998
56. University of Texas M.D.Anderson Cancer Center - 1998
57. University of Campinas, Department of Chemistry (Brazil) - 1998
58. University of Campinas, Department of Pharmacology (Brazil) - 1998
59. University of San Paulo in San Carlos, Institute of Chemistry (Brazil) - 1998
60. University of Utah - 1998
61. IDEXX - 1998
62. MIT, Department of Chemical Engineering - 1998
63. Martin Luther University, Halle (Germany) - 1998
64. University of Marburg (Germany) - 1998
65. Baxter – 1999
66. University of Nebraska Medical Center – 1999
67. University of Pennsylvania Medical Center – 1999
68. BASF – 2000
69. M.D.Anderson Cancer Center – 2001
70. Roxbury Community College – 2001
71. Department of Biology, Northeastern University – 2002
72. University of Minnesota Medical Center – 2002
73. Department of Pharmaceutics, Rutgers, University of New Jersey – 2002
74. Tufts University – 2003

75. Department of Physics, Northeastern University – 2004
76. Washington University – 2004
77. Institute of Biophysics, Academia Sinica – 2004
78. University of Utah – 2004.
79. University of Massachusetts, Lowell – 2004.
80. M.D.Anderson Cancer Center, Houston – 2005.
81. Auburn University, Auburn – 2005.
82. University of Wisconsin, Madison – 2006.
83. University of North Carolina, Chapel Hill – 2006.
84. University of Nebraska, Omaha – 2006.
85. University of Pennsylvania, Philadelphia – 2006.
86. University of Iowa, Iowa City – 2006.

Patents:

1. USSR Patent #568662 (1977)
Method for the preparation of encapsulated ionites.
Inventors: **V.P. Torchilin**, A.V. Smirnov, O.N. Mertvyzhina,
G.V. Gryaznov, A.M. Klibanov, K. Martinek, I.V. Berezin
2. USSR Patent #586182 (1977)
Method for the preparation of immobilized amilase.
Inventors: **V.P. Torchilin**, S.B. Makarova
3. USSR Patent #677415 (1977)
Method for the preparation of polysaccharide derivatives of heparin.
Inventors: **V.P. Torchilin**, E.G. Tischenko, R.A. Markosyan, V.N. Smirnov
4. UK Patent #2003603 (1978)
Method and apparatus for producing by ultrasonics a visible image of an object.
Inventors: I.V. Berezin, V.S. Goldmacher, K. Martinek, A.A. Mishin,
G.P. Samokhin, V.N. Smirnov, **V.P. Torchilin**, E.I. Chazov
A.M. Klibanov
5. France Patent #7821419 (1979)
Procede d'obteniton de l'image visible d'un objet et dispositif pour sa mise en oeuvre.
Inventors: I.V. Berezin, V.S. Goldmakher, A.M. Klibanov, K. Martinek,
A. A. Mishin, G.P. Samokhin, V.N. Smirnov, **V.P. Torchilin**,
E.I. Chazov
6. USSR Patent #671285 (1979)
Method for the preparation of water soluble compounds of proteolytic enzymes.
Inventors: **V.P.Torchilin**, E.V. Il'ina, V.N. Smirnov, E.I. Chazov
7. USSR Patent #722124 (1979)
Method for the preparation of polymeric derivatives of insulin.
Inventors: **V.P. Torchilin**, E.G. Tischenko, E.V. Il'ina, V.N. Smirnov
8. USSR Patent #824053 (1980)
Method for determining the rate of fibrin clot lysis.
Inventors: E.V. Il'ina, E.G. Tischenko, **V.P. Torchilin**
9. USSR Patent #759947 (1980)
Method and device for obtaining the visible imaging of an object.
Inventors: I.V. Berezin, V.S. Goldmakher, K. Martinek, A.M. Klibanov,

- A.A. Mishin, G.P. Samokhin, **V.P. Torchilin**, V.N. Smirnov,
E.I.Chazov
10. USSR Patent #798660 (1980)
Radiation detector.
Inventors: I.V. Berezin, V.S. Goldmakher, K. Martinek, A.M. Klibanov,
A.A. Mishin, G.P. Samokhin, **V.P. Torchilin**, V.N. Smirnov,
E.I.Chazov
 11. USSR Patent #770495 (1980)
Method for the treatment of thromboses.
Inventors: A.V. Mazaev, **V.P. Torchilin**, B.S. Lebedev, V.N. Smirnov
E.I. Chazov
 12. USSR Patent #946038 (1980)
Thrombin derivatives possessing coagulative activity, and method for their
preparation.
Inventors: **V.P. Torchilin**, E.V. Il'ina, A.V. Mazaev, V.N. Smirnov
 13. USSR Patent #790785 (1980)
Method for the preparation of immobilized streptokinase.
Inventors: E.I. Chazov, V.N. Smirnov, **V.P. Torchilin**, B.V. Moskvichev,
G.M. Grinberg, A.Sh. Skuya, G.I. Kleiner
 14. USSR Patent #892971 (1981)
Stabilized cholesteroloxidase - thermostable biocatalyst of cholesterol transmutation.
Inventors: A.V. Maksimenko, E.G. Tischenko, **V.P. Torchilin**,
V.N. Smirnov
 15. USSR Patent #822551 (1981)
Immobilized streptokinase possessing thrombolytic activity.
Inventors: E.I. Chazov, V.N. Smirnov, **V.P. Torchilin**, B.V. Moskvichev,
I.M. Tereshin, B.V. Moskvichev
 16. US Patent #4257269 (1981)
Method and apparatus for producing by ultrasonics a visible image of an object.
Inventors: I.V. Berezin, V.S. Goldmacher, K. Martinek, A.A. Mishin,
G.P. Samokhin, V.N. Smirnov, **V.P. Torchilin**, E.I. Chazov,
A.M. Klibanov
 17. FRG Patent #3032606 (1981)
Polysaccharidderivat der streptokinase, verfahren zu dessen hersiellung
und anwendung.
Inventors: E.I. Chazov, V.N. Smirnov, **V.P. Torchilin**, I.M. Tereshin
B.V. Moskvichev
 18. FRG Patent #3033030 (1981)
Termostabiles derivat der urokinase und verfahren zu dessen herstellung.
Inventors: A.V. Maksimenko, **V.P. Torchilin**, E.I. Chazov
 19. Sverige Patent #78079688 (1982)
Forfarande och anording for astadkommande av en synlig bild av ett foremal.
Inventors: I.V. Berezin, V.S. Goldmakher, A.M. Klibanov, K. Martinek,
A.A. Mishin, G.P. Samokhin, V.N. Smirnov, **V.P. Torchilin**,
E.I. Chazov
 20. FRG Patent #2831782 (1982)
Verfahren zur erzeugung eines sichtbaren bildes von einem objekt und anlage zu

- desse realisierung.
- Inventors: I.V. Berezin, V.S. Goldmacher, K. Martinek, A.A. Mishin,
G.P. Samokhin, V.N. Smirnov, **V.P. Torchilin**, E.I. Chazov,
A.M. Klibanov
21. FRG Patent #3150318 (1982)
Verfahren zur herstellung eines polysaccharaidderivats des fibrinolysins.
Inventors: E.I. Chazov, V.N. Smirnov, **V.P. Torchilin**, I.M. Tereshin,
B.V. Moskvichev, G.M. Grinberg, A.Z. Skuya, G.I. Kleiner
22. US Patent #4349630 (1982)
Heat-resistant water soluble urokinase derivative.
Inventors: A.V. Maximenko, **V.P. Torchilin**, V.N. Smirnov, E.I. Chazov
23. USSR Patent #938617 (1982)
Stabilized urokinase possessing thrombolytic activity.
Inventors: A.V. Maksimenko, **V.P. Torchilin**, V.N. Smirnov, E.I. Chazov
24. USSR Patent 1002356 (1982)
Method for the preparation of immobilized fibrinolysin possessing prolonged
thrombolytic activity.
Inventors: E.I. Chazov, V. N. Smirnov, **V.P. Torchilin**, I.M. Tereshin,
B.V. Moskvichev, G.M. Grinberg, A.Sh. Skuya, G.I. Kleiner
25. USSR Patent #1022988 (1983)
Urokinase stabilized derivatives possessing thrombolytic activity and method for
their preparation.
Inventors: A.V. Maksimenko, **V.P. Torchilin**, V.N. Smirnov, E.I. Chazov
26. USSR Patent # 1018634 (1983)
Method for the treatment of eye haemorrhage.
Inventors: R.A. Gundorova, A.D. Romaschenko, V.P. Makarova,
V.P. Torchilin, A.V. Mazaev, V.N. Smirnov, E.I. Chazov
27. USSR Patent #1037633 (1983)
Method for the preparation of modified urokinase.
Inventors: A.V. Maksimenko, **V.P. Torchilin**, V.V. Kukhartchuk,
O.S. Medvedev, P.M. Leschinsky, G.G. Arabidze, V.N. Smirnov
28. USSR Patent #1137760 (1983)
Urokinase immobilized on heparin.
Inventors: A.V. Maksimenko, **V.P. Torchilin**, E.G. Tischenko,
V.N. Smirnov
29. USSR Patent #1141336 (1984)
Method for the determination of antibodies to glicolipids.
Inventors: G.P. Vlasov, **V.P. Torchilin**, T.A. Gremyakhkova, V.G. Likhoded,
M.D. Korosteleva, N.N. Ivanov
30. USSR Patent #1128601 (1984)
Urokinase immobilized on fibrinogen.
Inventors: A.V. Maksimenko, E.G. Tischenko, **V.P. Torchilin**,
V.N. Smirnov, E.I. Chazov
31. US Patent #4446316 (1984)
Dextran derivative of fibrinolysin.
Inventors: E.I. Chazov, V.N. Smirnov, **V.P. Torchilin**, I.M. Tereshin,
B.V. Moskvichev, G.M. Grinberg, A.Z. Skyua, G.I. Kleiner

32. USSR Patent #1309980 (1985)
Method for the treatment of eye haemorrhage.
Inventors: R.A. Gundorova, A.D. Romaschenko, N.S. Khodzhaev
A.V. Mazaev, **V.P. Torchilin**, V.P. Bykov
33. USSR Patent #1301406 (1986)
Liposomal vesicle for drug targeting of biologically active compounds.
Inventors: S.A. Burkhanov, **V.P. Torchilin**, G.A. Ermolin,
V.E. Kotelyansky, E.E. Efremov, I.N. Trakht, A.L. Klibanov,
A.N. Lukyanov
34. US Patent #4564596 (1986)
Urokinase derivatives covalently bound to fibrogen.
Inventors: **V.P. Torchilin**, A.V. Maksimenko, E.G. Tischenko,
V.N.Smirnov, E.I. Chazov
35. Sverige Patent #85000933 (1986)
Urokinas derivat bestaende av urokonas bundet till fibrinogen.
Inventors: A.V. Maximenko, E.G. Tischenko, **V.P. Torchilin**, V.N. Smirnov,
E.I. Chazov
36. USSR Patent #1371004 (1987)
Method for the preparation of immobilized urokinase.
Inventors: B.V. Moskvichev, T.M. Taratina, G.P. Ivanova, E.D. Kostin,
V.P. Torchilin
37. US Patent #5223242 (1993)
Negatively charged specific affinity reagents.
Inventors: B.A. Khaw, **V.P. Torchilin**, A.L.Klibanov
38. US Patent #5534241 (1996)
Amphipathic polychelating compounds and method of use.
Inventors: **V.P.Torchilin**, V.S.Trubetskoy, G.L.Wolf
39. US Patent #5567410 (1996)
Compositions and methods for radiographic imaging.
Inventors: **V.P.Torchilin**, V.S.Trubetskoy, S.Gazell, G.L.Wolf
40. US Patent #5780033 (1998)
Use of autoantibodies for tumor therapy and prophylaxis.
Inventors: **V.P.Torchilin**, L.Z.Iakoubov
41. US Patent #5746998 (1998)
Targeted co-polymers for radiographic imaging.
Inventors: **V.P.Torchilin**, V.S.Trubetskoy, S.Gazell, G.L.Wolf
42. US Patent #5756069 (1998)
Amphipathic polychelating compounds and method of use.
Inventors: **V.P.Torchilin**, V.S.Trubetskoy, G.L.Wolf
43. US Patent #5780052 (1998)
Compositions and methods useful for inhibiting cell death and for delivering an agent into cell.
Inventors: B.A.Khaw, **V.P.Torchilin**, J.Narula, I.Vural
44. US Patent #5993818 (1999)
Use of antibodies for tumor therapy and prophylaxis
Inventors: **V.P.Torchilin**, L.Z.Iakoubov
45. Provisional application 60/368,913 (2002)

- Micelles from polymer-lipid conjugates with incorporated anti-cancer drugs
Inventors: **V.P.Torchilin**, A.N.Lukyanov, Z.Gao
46. Provisional application 60/368,546 (2002)
Targeted micelles for delivery of pharmaceuticals
Inventors: **V.P.Torchilin**, A.N.Lukyanov, Z.Gao
47. Provisional application 60/356,526 (2002)
Intracellular delivery of drugs and DNA
Inventors: **V.P.Torchilin**, R.Rammohan, T.Levchenko, N.Volodina
48. Provisional application 60/309,000 (2002)
Mitochondrial genome replacement
Inventors: V.Weissig, **V.P.Torchilin**
49. Provisional application (2002)
Cell organelle transplantation
Inventors: **V.P.Torchilin**, V.Weissig
50. US Patent #6875423 (2005)
Methods for increasing peripheral blood circulation
Inventors: M.Intaglietta, V.P.Torchilin, V.S.Trubetskoy, A.G.Tsai

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