

NICANOR I. MOLDOVAN

CURRICULUM VITAE

Personal Data:

Birth date and place: February 29, 1956, Fagaras, Romania

Nationality: Romanian.

Permanent Residence: USA

Marital status Married; two children (Emil and Victor).

Title and position: Assistant Professor of
Medicine, Biomedical Engineering
and Ophthalmology

Office Address Davis Heart and Lung Institute and
Biomedical Engineering Center
The Ohio State University
Room 305A, 473 West 12th Avenue
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Foreign languages: English, French, Romanian

Educational Background:

| <i>Degree</i> | <i>Year</i> | <i>Institution</i> |
|----------------------|-------------|---|
| Ph. D (Cell Biology) | 1995 | Univ. of Bucharest, Romania Institute of Cellular Biology and Pathology "N. Simionescu" |
| MS | 1981 | Dept. of Biophysics, Univ. of Bucharest, Romania |
| BS | 1980 | School of Physics, Univ. of Bucharest, Romania |

Baccalaureate 1975 High School, Sighisoara, Romania

Previous Employments:

- 2000-present Assistant Professor,
 Departments of Internal Medicine (Division of Cardiology) and
 Ophthalmology, Biomedical Engineering Center, Ohio State
 University
- 1997-2000 Research Scientist, Heart and Lung Institute, Ohio State U.
- 1996-1997 Postdoctoral Research Fellow, Dept. Medicine, Johns Hopkins U.
 School of Medicine
- 1995-1996: Postdoctoral Associate, Dept. Biochemistry, SUNYAB
- 1990-1993: Assistant Professor, Cell Biology Chair, School of
 Medicine, Constanta, Romania
- 1990-1991: Assistant Professor, Cell Biology and Histology
 Chair, School of Medicine, Ecological University,
 Bucharest, Romania
- 1988-1995: Scientific Investigator, Institute of Cellular Biology
 and Pathology Bucharest, Romania
- 1982-1988: Research Scientist, Institute of Cellular Biology
 and Pathology Bucharest, Romania

Member of Scientific Societies:

- 1982- 1995 National Society of Cell Biology (Romania)
- 1991- 1995 National Society of Biophysics (Romania)
- 1993- 1995 European Society of Cell Biology
- 1996- 1998 American Society for Cell Biology
- 1997- 1999 International Society for Heart and Lung Transplantation
- 2000 -2003 International Society for BioMEMS and Biomedical Nanotechnology
 (Board of Trustees, Treasurer)
- 2001- present Council on Basic Science, American Heart Association.
- 2001- present Association for Research in Vision and Ophthalmology (ARVO)
- 2002- present, The International Society for Optical Engineering (SPIE).

Faculty Status

Core Faculty in Biomedical Engineering Program, OSU, Sept. 2000-
 Category P in Biomedical Engineering, OSU, April 2001-
 Category P in Integrated Biomedical Sciences, OSU, July 2002-
 Graduate Faculty of the Interdisciplinary Program in Biophysics, OSU, August
 2002-

Classes Developed

- BME694H “*Survey of Cardiovascular Bioengineering*”, taught in 2000, 2001, 2002, 2003, 2004
- BME721 “*Biological Mass Transport*”, part II: “*Phenomenology of Biological Transport*”, taught in 2001, 2002, 2003, 2004.

Invited Lectures at OSU Medical Center

- Medical Biochemistry (Pal Vaghy, director), “*Lipoproteins and Atherosclerosis*” March 28, 2000.
- Physiology and Cell Biology 911, Current Topics in Vascular Cell Biology (Art Strauch director) “*What is a blood vessel?*” November, 14, 2000.
- BME 600 Introduction to BME (Steven Lee director): “*Microvascular Tissue Bioengineering*”, Bevis Hall 247, May 29, 2002.
- DENT 803 Wound Healing: Molecular, Cellular, & Clinical Aspects: (F. Dhabhar and N. Quan, directors): “*Angiogenesis*”, 3089B Postle Hall, Aug. 31, 2002.
- BME 600 Introduction to BME (Derek Hansford director): “*Cardiovascular Technologies*”, Bevis Hall 247, Nov. 23, 2002.
- BME 600 Introduction to BME (Derek Hansford director): “*Mechanisms of Biological Transport*”, Bevis Hall 247, Nov. 30, 2002
- BME 600 Introduction to BME (Steven Lee, director): “*Microvascular Tissue Bioengineering*”, Bevis Hall 247, May 28, 2003.

Students Advised

- 1) Residents:
 - Anna Park, MD, Intern at the Ohio State University Medical Center, Sept. 2001-present: “Circulating progenitor endothelial cells in diabetic retinopathy”
 - Heidi Becker, Dartmouth University School of Medicine, March-April 2002: “In vitro angiogenesis models”
 - Timothy Tweito, MD, Intern at the Ohio State University Medical Center, Jan. 2004-present: “Intercellular cooperation between pigmented epithelial cells and endothelial cells in the retina”
- 2) Post-Doctoral
 - Mirela Anghelina, MD, Oct. 2000-present, “Contribution of tunneling mechanism to adult angiogenesis”.
 - Mohamed Abdel-Rahman, PhD, April 2003-present, “Novel angiogenic mechanisms and methods in retinopathy”
- 3) Graduate:
 - Robert Carruth, BME, MS Program, “Microvascular Tissue Engineering” 2004-

- Simi Chako, PhD Biophysics Program, "Regulation of Cell Volume", 2004
- Sumant Kulkarni, BME, PhD Program, "LSC analysis of micropatterned endothelial cells" 2001-present
- Omar Butt, BME, PhD Program: "Analysis and quantification of chemotaxis by Laser Scanning Cytometry", 2001-
- Somil Gupta, BME, MS Program: "Role of pigment epithelial cells to capillary formation in an ex vivo model of retinal angiogenesis" (Masters), 2001-2003.
- Catalin Barbacioru, Mathematics, PhD Program: "Bioinformatics models in genomics and image analysis 2001-2002.
- Melissa Poulos, College of Public Health, MS Program: "Documentation and planning in angiogenesis research" (Masters) 2001-2002.

4) Undergraduate

- Kathleen Orosz; "In vitro model of retinal angiogenesis". 2001-2003 (currently at Johns Hopkins U. Graduate Program in Cellular and Molecular Medicine)
- Ileana Greavu: "Formation of free radicals in aortic endothelial cells" 2001-2002.
- Georgiana Sofletea "Formation of free radicals in aortic endothelial cells" 2002-2003
- Marla Hassink: "The Use of an In vitro Assay for Screening of angiogenic Effects of Drugs", 2002-2004 (Senior Honor Thesis, May 27, 2004).

Institutional, Departmental, and Divisional Administrative Responsibilities, Committee Memberships, and Other Activities

1999-2003 Graduate Studies Committee Member, Biomedical Engineering Center, OSU

2000-2001, Design and Planning Consultant, Ohio MicroMD Microfabrication Facility, OSU

2002-2003 Diabetes Center Task Force Committee, OSU Medical Center

Awards and Recognitions:

1981, *Magna Cum Laude*, Department of Biophysics, University of Bucharest.

1998, *Young Investigator Award* of North American Vascular Biology Organization, San Francisco, April 15-18

2000, Featured on "10TV", Columbus, OH

2001, *OSU Press Releases*: "Study shows way to grow new blood vessels in the heart" and "Researchers take steps to growing replacement blood vessels"

2002, Featured in "*OSU/Discovery*" Vol. 1, Issue 1 "The Yin and Yang of Angiogenesis Research at OSU".

2003 Ophthalmology Research Symposium, May 30th, the paper “Anopore Based Delivery System for Antiangiogenic and Antioxidant Drugs” by S. Gupta, K. Orosz, F. H. Davidorf, N. I. Moldovan, received the 1st Prize.

2003 Ophthalmology Research Symposium, May 30th, the paper “Endothelial Progenitor Cells in Diabetic Retinopathy” by A. Park, F. H. Davidorf, N. I. Moldovan, and R. Chalmers received the 2nd Prize.

Past Grant Support:

American Heart Association, Ohio Valley Affiliate (PI): "Role of monocytes in angiogenesis-A strategic therapeutic target in the management of intravascular thrombi", \$30,000/yr for 2 years (July 1999-June, 2001).

Active Grant Support:

1) NIH R01 HL65983 (PI): *Monocyte recruitment-A strategic target in angiogenesis*. \$200,000/yr (August 2000 -July 2005).

2) Patti Blow Foundation for Research in Ophthalmology (Co-I): *Use of nanotechnology in the treatment of diabetic retinopathy* \$100,000/yr (Feb. 2001-Feb. 2006).

Grants Pending:

1) NIH R01: *Biomechanics of endothelial cells in neovascularization* (PI); \$250,000/yr, for 5 years.

2) NIH R01: *Role of Endothelial Progenitors in Microvascular Asymmetry* (PI); \$250,000/yr, for 4 years.

3) P01: “*Advanced techniques for noninvasive atherosclerotic plaque characterization with computed tomography*”. (Co-I; PI: Subha V. Raman) \$5,239,091.00 for 3 years.

Peer Review Activities for Scientific Journals

Circulation, 2001-

Circulation Research, 2003-

Biosensors and Bioelectronics, 2003-

FASEB Journal, 2003-

Expert Opinion in Biological Therapy, 2003-
Clinical Experimental Allergy, 2004-
Trends in Cardiovascular Medicine, 2004-

Editorial Activities

Biomedical Microdevices, Section Editor for “Nanotechnology” 2001-
Advances in Experimental Biology and Medicine, vol. 522: “Novel Angiogenic Mechanisms: Role of Circulating Progenitor Endothelial Cells”, Kluwer/Plenum Academic Publishers, 2003 (<http://www.wkap.nl/prod/b/0-306-47697-5>). Editor.
Journal of Cellular and Molecular Medicine, Editorial Board, 2004-
Antioxidants and Redox Signaling, Guest Editor, Forum Issue on Stem/Progenitor Cells, 2005

Organizer of International Meetings:

2001, September 22-25: Second “*BioMEMS and Biomedical Nanotechnology World 2001*” Conference, Columbus, OH, Workshop on “*Nano-Manipulation*” (Organizer and Chairman).

2002, April 16-17, International Workshop “*Novel Angiogenic Mechanisms*”, Davis Heart and Lung Research Institute, Columbus, OH (Organizer, Chairman and Proceedings Editor).

2002, December 16-18: “*Biomedical Applications of Micro- and Nano-engineering*” Conference, The International Society for Optical Engineering (SPIE) Congress on “*Microelectronics and MEMS*”, Melbourne, Australia (Program Committee Board Member).

2003, August 25-26: Forth Annual “*BioMEMS and Nanotech World 2003*” Conference, Washington D.C. (Scientific Advisory Committee Member).

2004, December 12-15: “*Biomedical Applications of Micro- and Nano-engineering*” Conference, The International Society for Optical Engineering (SPIE) Congress on “*Microelectronics and MEMS*”, Sydney, Australia (Program Committee Board Member).

Invited Talks:

1. "Assisting the birth of new blood vessels: From cells to the silicon chip, and retour", Monday, Sept. 25, 2000, BioMEMS and Biomedical Nanotechnology World 2000 Conference, Columbus, OH.
2. "The Angiochip: A silicon-based angiogenesis assist device" Symposium on Current Advances in Biophotonics and Nanomedicine, October 19-21, 2000, SUNY at Buffalo, NY.
3. "What is a blood vessel?" Seminars in Cell Biology and Physiology, November 22, 2000, College of Medicine, Columbus, OH.
4. "Biomedical Microsystems and Nanotechnologies: Applications in Angiogenesis Research", 20th Annual Meeting of the Society for Physical Regulation in Biology and Medicine, January 10-14, 2001, Charleston, South Carolina.
5. "The Angiochip: A Silicon-Based Angiogenesis Assist Device", 10th Annual Seminar on Molecular Pathology "DNA in the Clinical Laboratory", March 8-10, 2001, William Beaumont Hospital, Detroit, MI.
6. "The design of bio-inorganic nanofilters: A nanomanipulation approach". Sept. 23, 2001, BioMEMS and Biomedical Nanotechnology World 2001 Conference, Columbus, OH.
7. "Tissular Insemination of Progenitor Endothelial Cells-the Problem, and a Suggested Solution" "Novel Angiogenic Mechanisms" International Workshop, April 16, 2002, Davis Heart and Lung Research Institute, Columbus, OH.
8. "Migration Of Monocytes/Macrophages In Vitro And In Vivo Is Accompanied By MMP12-Dependent Tunnel Formation, And By Neo-Vascularization", May 30-June 3, 2002, 67th Symposium (The Cardiovascular System), Cold Spring Harbor Laboratory, N.Y.
9. "Tunneling, a New Mechanism of Monocytes/Macrophages Contribution to Angiogenesis", June 26, 2002, European Oncology Institute, Milan, Italy.
10. "Tunneling, a Novel Mechanism of Intercellular Cooperation", July 12th, 2002, Institute of Biology and Pathology "N. Simionescu", Bucharest, Romania
11. "Microengineering of Artificial Capillaries", December 2-4, 2002, : "Biomedical Applications of Micro- and Nano-engineering" Conference, The International Society for Optical Engineering (SPIE) Congress on "Microelectronics and MEMS", Melbourne, Australia.

12. "Engineering of Artificial Capillaries on Micropatterned Silicon Surfaces", May 16th, 2003, CMR Faculty Seminar Series on "Tissue Engineering and Biological Mechanisms", Ohio State University, Columbus, OH.

13. "Facilitator role of monocytes/macrophages for tissue engraftment of endothelial progenitor cells", June 29th 2003, XXV Annual Meeting of The International Society For Heart Research (ISHR) (North American Section), Mystic CT.

14. "Intercellular Cooperation in Tissue Engraftment of Circulating Endothelial Progenitor Cells", Sept. 9, 2003, Indiana Center for Vascular Biology and Medicine, Indiana University School of Medicine, Indianapolis, IN

15. "Mechanisms of Tissue Engraftment of Circulating Endothelial Progenitor Cells". FASEB (AAA Symposia EB), April 17-21, 2004, Washington, DC.

16. "Design of a nanofilter-based drug delivery system with ophthalmic applications", The Glaucoma Foundation Think Tank 12th Annual Meeting, Sept. 9-10, 2004, New York, NY.

Publications

Papers

1. **N. I. Moldovan**, A. Radu, N. Simionescu: Endothelial cell plasma membrane obtained by chemically-induced vesiculation. *Exp. Cell Res.* 1987, **170**, 499-510.
2. A. Radu, **N. I. Moldovan**: 4-hydroxynonenal reduces junctional communication between endothelial cells. *Exp. Cell Res.* 1991, **196**, 121-126.
3. F. Lupu, **N. I. Moldovan**, J. Ryan, D. M. Stern, N. Simionescu: Intrinsic procoagulant surface induced by hypercholesterolemia on rabbit aortic endothelium. *Blood Coag. Fibrinol.* 1993, **4**, 743-752,.
4. **N. I. Moldovan**, F. Lupu, L. Moldovan, N. Simionescu: 4-Hydroxynonenal induces membrane perturbations, basal prostacyclin synthesis inhibition, and chemotaxis of monocytes. *Cell Biol. Int.*, 1994, **18**, 925-992.
5. **N. I. Moldovan**, L. Moldovan, N. Simionescu: Binding of vascular anticoagulant alpha (annexin V) to the hypercholesterolemic rabbit aortic intima. An autoradiographic study. *Blood. Coag. Fibrinol.*, 1994, **5**, 921-926

6. **N. I. Moldovan**, I. Heltianu, N. Simionescu, M. Simionescu: Ultrastructural evidence of differential solubility in Triton X-100 of endothelial vesicles and plasma membrane. *Exp. Cell. Res.*, 1995, **219**, 309-313.
7. **N. I. Moldovan**, E. E. Milliken, K. Irani, J. Chen, R.H. Sohn, T. Finkel, P.J. Goldschmidt-Clermont: Regulation of endothelial cell adhesion by profilin. *Curr. Biol.*, 1997, **7**, 24-30.
8. R. J. Alvarez Jr., S.J. Gips, **N. I. Moldovan**, C. C. Wilhide, E. E. Milliken, A. T. Hoang, R. H. Hruban, H. S. Silverman, C. V. Dang, P. J. Goldschmidt-Clermont: 17beta-Estradiol inhibits apoptosis of endothelial cells. *Biochem. Biophys. Res. Comm.* 1997, **237**, 372-381.
9. **N. I. Moldovan**, Z.-P. Qian, Y. Chen, C. M. Dong, A. K. Ying, R. H. Hruban, N. A. Flavahan, W. M. Baldwin III, F. Sanfilippo, P. J. Goldschmidt-Clermont: Fas-mediated apoptosis in accelerated graft arteriosclerosis. *Angiogenesis*, 1999, **2**, 245-254.
10. L. Moldovan, K. Irani, **N. I. Moldovan**, T. Finkel, P. J. Goldschmidt-Clermont: The actin cytoskeleton reorganization induced by Rac1 requires the production of superoxide. *Antiox. Redox Signal.*, 1999, **1**, 29-44.
11. C. B. Marsh, R. P. Pomeranz, J. M. Parker, A. V. Winnard, E. L. Mazzaferi, Jr., **N. I. Moldovan**, T. Kelley, E. Beck, M. D. Wewers: Regulation of monocyte survival in vitro by deposited IgG: Role of Macrophage Colony-Stimulating Factor. *J. Immunol*, 1999, **162**, 6217-25.
12. **N. I. Moldovan**: Tissue remodeling in transplant vasculopathy of the heart. *Graft: Organ. Cell. Transplant.*, **2**, 163-164, 1999.
13. L Moldovan, **N. I. Moldovan**, R. H. Sohn, S. A. Parikh, P. J. Goldschmidt-Clermont: Redox Changes of Cultured Endothelial Cells and Actin Dynamics. *Circ. Res.* **86**, 549-557, 2000.
14. J. H.-C. Wang, P. J. Goldschmidt-Clermont, **N. I. Moldovan**, F. C.-P. Yin: Leukotrienes and tyrosine phosphorylation mediate stretching-induced actin cytoskeletal remodeling in endothelial cells. *Cell Motility & Cytoskeleton*, **46**:137-145, 2000.
15. R.T. Eberhardt, M.A. Forgione, A. Cap, J.A. Leopold, M.A. Rudd, M. Trolliet, S. Heydrick, R. Stark, E.S. Klings, **N.I. Moldovan**, M. Yaghoubi, P.J. Goldschmidt-Clermont, H.W. Farber, R. Cohen, J. Loscalzo, Endothelial dysfunction in a murine model of mild hyperhomocyst(e)inemia. *J. Clin. Invest.* **106**: 483-491, 2000.

16. **N. I. Moldovan**, P. Goldschmidt-Clermont, J. Parker-Thornburg , P. E. Kolattukudy, Contribution of Monocytes/Macrophages to Compensatory Neo-Vascularization: Drilling of Metalloelastase-Positive Channels. *Circ. Res.* **87**:378-384, 2000 (*Editorial: Mining the Myocardium With Macrophage Drills : A Novel Mechanism for Revascularization*, by M. P. Bendeck, *Circ. Res.* **87**:341–343, 2000).
17. **N. I. Moldovan**, M. Ferrari. Prospects for Microtechnology and Nanotechnology in Bioengineering of Replacement Microvessels. *Arch. Pathol. Lab. Med.* **126**: 320-324, 2002.
18. L. Moldovan, **N. I. Moldovan**. Genomic Analysis of the Cardiovascular System. *Arch. Pathol. Lab. Med.* **126**: 310-316, 2002.
19. **N. I. Moldovan**. Role of Monocytes in Angiogenesis: A Light at Tunnel's End. *J. Hematother. Stem Cell Res.* **11**: 179-194, 2002 (*One of the best cited papers of the Journal*, Editor-in-Chief's evaluation).
20. **N. I. Moldovan**, S. Kulkarni, M. Ferrari. Use of Laser Scanning Cytometry for Analysis of Endothelial Cells Attached to Micropatterned Silicon Surfaces. *Sensors and Materials* **14**:179-187, 2002.
21. **N. I. Moldovan**, K. Havemann. Trans-differentiation, a Potential Mechanism for Covering the Vascular Grafts Grown Within Recipient's Peritoneal Cavity with Endothelial-like Cells, *Circ. Res.* **91**, e1, 2002.
22. M. A. Forgione, A. Cap, R. Liao, **N. I. Moldovan**, R. T. Eberhardt, C. C. Lim, J. Jones, P. J. Goldschmidt- Clermont, J. Loscalzo. Heterozygous cellular glutathione peroxidase deficiency in the mouse: abnormalities in vascular and cardiac function and structure. *Circulation* **106**:1154-1158, 2002.
23. T. Wang, C. Dong, S. C. Stevenson, E. E. Herderick, J. Marshall-Neff, S. S. Vasudevan, **N. I. Moldovan**, R. E. Michler, N.R. Movva, P. J. Goldschmidt-Clermont. Overexpression of Soluble Fas Attenuates Transplant Arteriosclerosis in Rat Aortic Allografts, *Circulation* **106**: 1536-1542, 2002.
24. **N. I. Moldovan**. Microengineering of artificial capillaries. *SPIE Proc.*, **4937**: 194-201, 2002.
25. M. Anghelina, A. Schmeisser, P. Krishnan, L. Moldovan, R. H. Strasser, **N. I. Moldovan**. Migration of monocytes/macrophages in vitro and in vivo is accompanied by MMP12-dependent tunnels formation, and by neo-vascularization, *Cold Spring Harbor Symp. in Quant. Biol.*, LXVII, 209-215, 2002.

26. **N. I. Moldovan**, T. Asahara. Role of blood mononuclear cells in recanalization and vascularization of thrombi: Past, present and future, *Trends Cardiovasc. Med.*, 2003, **13**: 265-269 (invited opinion paper).
27. S. Kulkarni, R. Orth, **N. I. Moldovan**. Micropatterning of endothelial cells by guided stimulation with angiogenic factors. *Biosensors and Bioelectronics*, 2004, **19**: 1401-7.
28. K. E. Orosz, S. Gupta, M. Hassink, M. Abdel-Rahman, L. Moldovan, F. Davidorf, **N. I. Moldovan**. Delivery of Antiangiogenic and Antioxidant Drugs of Ophthalmic Interest Through a Nanoporous Inorganic Filter. *Mol. Vis.*, 2004, **10**: 555-565.
29. L. Moldovan, **N. I. Moldovan**: Oxygen free radicals and redox status in organelle biology. *Histochem. Cell Biol.*, 2004, **122**:395-412.
30. Anghelina M., Krishnan, P., Moldovan, L., **Moldovan, N.I.** Monocytes/Macrophages Form Branched Cell Columns in Matrigel in Vitro and in Vivo: Implications for Their Role in Neovascularization, *Stem Cells Dev.* 2004, **13**: 665-676.
31. Ganesan LP, Wei G, Pengal RA, Moldovan L, **Moldovan N.I.**, Ostrowski MC, Tridandapani S. The serine/threonine kinase Akt promotes Fc gamma receptor-mediated phagocytosis in murine macrophages through the activation of p70S6 kinase. *J Biol Chem.* 2004, **279**:54416-25.
32. O. Butt, S. Kulkarni, P. Krishnan, M. Ferrari, **N. I. Moldovan**: Quantification and functional analysis of chemotaxis by Laser Scanning Cytometry, *Cytometry* 2005, **64A**:10-15.
33. Heger M, Beek JF, **Moldovan N.I.**, van der Horst CM, van Gemert MJ: Towards optimization of selective photothermolysis: prothrombotic pharmaceutical agents as potential adjuvants in laser treatment of port wine stains. A theoretical study. *Thromb Haemost.* 2005 **93**:242-56.
34. **Moldovan, N. I.** Functional adaptation: Key for cardiovascular 'stem' cells plasticity. *Stem. Cells. Dev.* (in press).
35. Anghelina, M., Moldovan, L. **Moldovan, N. I.**, Preferential Activity of Tie2 Promoter in Arteriolar Endothelium, *J. Cell. Mol. Med.* (in press).

Book Chapters

1. **N. I. Moldovan**: "Magnifying instruments and their biomedical utilizations" in "Handbook of Histology", All Publishing House, Bucharest, 1993, pp. 5-15.
2. **N. I. Moldovan**. "Current priorities in the research of circulating pre-endothelial cells", in *Novel Angiogenic Mechanisms: Role of Circulating Progenitor Endothelial Cells*, N. I. Moldovan Ed., Kluwer/Academic Publishers, 2003, pp. 1-8.
3. **N. I. Moldovan**. "Tissular insemination of progenitor endothelial cells: the problem, and a suggested solution", in *Novel Angiogenic Mechanisms: Role of Circulating Progenitor Endothelial Cells*, N. I. Moldovan Ed., Kluwer/Academic Publishers, 2003, pp. 99-113.
4. L. Moldovan, **N. I. Moldovan**. Role of monocytes and macrophages in angiogenesis, in *Mechanisms of Angiogenesis*, M. Clauss and G. Breier Eds. Birkhauser Publishing House, Switzerland, 2004, 127-146.

Papers In Preparation

L. Moldovan, P. Krishnan, M. Anghelina, C. Barbacioru, S. Kulkarni, **N. I. Moldovan**: Compartmental genomic analysis of the dependence of endothelial differentiation on confluency status: Relevance for restenosis and angiogenesis 2004 (for *Functional Genomics*).

P. Krishnan, M. Anghelina, L. Moldovan, **N. I. Moldovan**: Factors affecting ability of monocytes/macrophages to drill tunnels in the extracellular matrix. (for *Circ. Res*, 2004).

Gupta, F. Davidorf **N. I. Moldovan**: Role of pigment epithelial cells in capillary outgrowth, in an ex vivo retinal explant model of ocular angiogenesis (for *Br. J. Ophthalm.*).

L. Moldovan, P. Krishnan, M. Anghelina, C. Barbacioru, S. Kulkarni, **N. I. Moldovan**: Genomic analysis of flavoenzyme inhibition (for *Functional Genomics*).

L. Moldovan, P. Krishnan, S. Kulkarni, **N. I. Moldovan**: In vitro assembly of endothelial cell networks: role of surface micropography. (for *Exp. Cell. Res.*).

Attendance to Scientific Meetings

1. **N. I. Moldovan**: Osmotic properties of liposomes. Student Symposium in Physical Sciences, 1980, Bucharest (Abstracts book, page 46a).
2. **N. I. Moldovan**: Biophysical investigations on liposomes, in order to obtain photoinduced effects in the model system lipid-chlorophyll-water. XVth National Symposium in Biophysics, 1981, Craiova, Romania (Abstracts book, page 121a).
3. **N. I. Moldovan**, A. Radu, N. Simionescu: Chemically induced plasma membrane vesiculation as method for isolating endothelial cell plasmalemma. 24th Annual Meeting of the American Society for Cell Biology, 1984, San Antonio, U.S.A. (*J. Cell Biol.* 1984, **99**, 287a).
4. A. Radu, **N. I. Moldovan**, N. Simionescu: Endothelial cell plasmalemma obtained by plasma membrane vesiculation. 3rd International Congress on Cell Biology, 1984, Tokyo, Japan (*Int. Cell Biol.* 1984, S. Seno, Y. Okada eds., 302a)
5. **N. I. Moldovan**: Ultrastructural and biochemical characterization of endothelial plasma membrane vesicles, obtained by chemical stimulation. Kurt Alverdes Symposium, 1984, Leipzig, Germany.
6. **N. I. Moldovan**, L. Georgescu, N. Simionescu: In vitro study of monocyte diapedesis and transformation into foam cells in the presence of lipid dispersions. XIth European Congress of Pathology, Prague, CSR, 1987 (*Pathol. Res. Pract.* 1987, **182**, 528a).
7. L. Georgescu, **N. I. Moldovan**: A model system for studying monocyte adherence to rabbit aortic endothelium during early stages of atherogenesis. XIth European Congress of Pathology, Prague, CSR, 1987 (*Pathol. Res. Pract.* 1987, **182**, 493a).
8. F. Lupu, **N. I. Moldovan**, N. Simionescu: Modulation of the haemostatic functions of the endothelial cells during experimental hypercholesterolemia and in vitro incubation with beta-VLDL. 5th US-Romanian Workshop on Biomedical Research 1989, Bucharest, Romania (Abstracts book, 22a).
9. **N. I. Moldovan**, F. Lupu, N. Simionescu: Expression of procoagulant, anionic phospholipid rich endothelial surface in experimental hypercholesterolemia. 11th International Congress on Thrombosis, 1990, Ljubljana Yugoslavia [*Fibrinolysis*, 1990, **4**, (suppl.1) 96a].
10. L. Moldovan, **N. I. Moldovan**, D.M. Stern, N. Simionescu, M. Simionescu: Enhanced binding and internalization of antithrombin III by cultured endothelial cells maintained in high glucose medium 5th Int. Congr. Cell Biol. Madrid Spain 1993 (Abstracts book, 256a).

11. **N. I. Moldovan**, L. Moldovan, N. Simionescu, M. Simionescu: Phosphatidylserine expression on the rabbit atherosclerotic aortic intima detected by use of radioiodinated annexin V. 22nd FEBS Congress, Stockholm, Sweden, 1994 (Abstracts book, 216a).
12. **N. I. Moldovan**, L. Moldovan, E. Milliken, K. Irani, T. Finkel, J. Chen, P. J. Goldschmidt-Clermont: Increased adhesion of human aortic endothelial cells to fibronectin, induced by adenovirus-mediated overexpression of profilin 1. *Mol. Biol. Cell*, 1996, **7**, 246a.
13. L. Moldovan, **N. I. Moldovan**, K. Irani, E. Milliken, T. Finkel, P. J. Goldschmidt-Clermont: Role of superoxide in the Rac1-mediated modulation of the actin cytoskeleton in endothelial cells. *Mol. Biol. Cell*, 1996, **7**, 231a.
14. **N. I. Moldovan**, Z-P. Qian, C. L. Chen, S. Parikh, C. C. Wilhide, A. Rosen, N. A. Flavahan, W. M. Baldwin, R. H. Hruban, A. D. Hess, P. Mouton, , P. J. Goldschmidt-Clermont: Cyclosporin A modulates Fas-induced apoptosis in endothelial cells. *J. Heart Lung Transplant.*, 1997, **16**, 63a.
15. **N. I. Moldovan**, Z.-P. Qian, P. R. Mouton, S. Parikh, R. Alvarez, A. Rosen, N. A. Flavahan, W. M. Baldwin III, R. H. Hruban, F. P. J. Goldschmidt-Clermont: Endothelial cells: Failing gatekeepers in accelerated graft arteriosclerosis (AGA), Keystone Symposium, 1997.
16. **N. I. Moldovan**, K. Conkle, L. Moldovan, P. J. Goldschmidt-Clermont: Opposite effects of Cyclosporin A and Rapamycin on Fas-mediated apoptosis in aortic endothelial cells, The International Congress on Immunosuppression, Orlando FL, December 11-13, 1997.
17. **N. I. Moldovan**, P. E. Kolattukudy, P. F. Binkley, A. Ying, T. P. Archer, N. A. Flavahan, P. J. Goldschmidt-Clermont: Coronary vasculopathy in the MCP-1 transgenic mouse heart, Keystone Symposium, Steamboat Springs, Colorado, March 28-April 3, 1998.
18. **N. I. Moldovan**, P. E. Kolattukudy, P. F. Binkley, A. Kuo, T. P. Archer, N. A. Flavahan, P. J. Goldschmidt-Clermont: The coronary vasculopathy of the MCP-1 transgenic mouse, North American Vascular Biology Organization Meeting, San Francisco, April 15-18, 1998.
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Provisional Patent Applications:

18525/04107: *Novel device to engineer vascularized tissue* (Filed March 19, 2004)

18525/04109: *Method to Seed Cells for Tissue Engineering and Improvement of Implant Biocompatibility* (Filed March 19, 2004).

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Bio-inorganic nano-pores for cellular and molecular manipulations.
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