

ANDREEA TRACHE, Ph.D.

CURRICULUM VITAE

OFFICE ADDRESS

Department of Medical Physiology
Texas A&M University System - Health Science Center
342 Reynolds Medical Building
College Station, TX 77843-1114
Phone: 979-845 7990
Fax: 979-862 4638
E-mail: trache@tamu.edu

EDUCATION

1993-1996 - **Ph.D.** in Physics, Institute of Atomic Physics, Romania, on a thesis with the title "*Optical components with distributed properties obtained by vacuum deposition*", (in Romanian). A resume of the Ph.D. Thesis translated in English is available on request from the author.

1985-1989 – **B.S.** in Physics, University of Bucharest, Romania with a diploma thesis in the field of "*Optogalvanic Spectroscopy*" (in Romanian)

PROFESSIONAL EXPERIENCE

2005 (November) – present Research Assistant Professor, The Texas A&M University System Health Science Center, Department of Medical Physiology, College Station, TX.

2001-2005 Postdoctoral Research Associate, The Texas A&M University System Health Science Center, Department of Medical Physiology, College Station, TX.

2001 – present Co-Director of The Core Imaging Facility of Medical Physiology Department, The Texas A&M University System Health Science Center, College Station, TX

2000 Postdoctoral Research Associate, Texas A&M University, Chemistry Dept., College Station, TX.

1999-2000 Postdoctoral Research Associate, Rice University, Bioengineering Dept., Houston, TX.

1998-1999 Senior Thin Film Engineer, Denton Vacuum LLD, NJ.

1993-1998 Head of Thin Films Optics Group, Institute of Atomic Physics, Solid State Quantum Electronics Laboratory, Romania.

1996-1998 Senior Scientist III, Institute of Atomic Physics, Solid State Quantum Electronics Laboratory, Romania.

1990-1996 Scientific Researcher, Institute of Atomic Physics, Laboratory of Laser Active Media and Interaction of Radiation with Matter, Thin Film Optics Group, Romania.

PROFESSIONAL ASSOCIATIONS

2000-2002 Central Texas Society for Optics

1998-present Optical Society of America

1993 – 2001 SPIE The International Society for Optical Engineering

1991 – 1998 Romanian Physical Society

CERTIFICATIONS AND TRAINING

- 2005 Attended VPR/Faculty Research Seminar Series and Craft of Proposal Writing Workshop organized by TAMU, College Station, TX
- 2003-2005 To supplement my training in cardiovascular biology I audited a series of courses at Texas A&M University: MPHY 601-*Methods in Cell Physiology*, MSCI 601-*Principles in Medical Science*, VTPP689/601-*Special topics in fluorescence detection*, MSCI 689-*Cardiovascular Sciences* and the intensive course *Optical Microscopy in the Biological Sciences* at UT-HSC-San Antonio (June 2004)
- 2001 Laser Safety Certification, Environmental Health and Safety Department, Texas A&M University, College Station, TX

TEACHING EXPERIENCE

- 2002-present Team-teaching MPHY 601/689 Methods in Cell Physiology, TAMU HSC
- 1998 Short course “Optical Thin Films: Design, Fabrication and Characterization”, Institute of Atomic Physics, Bucharest, Romania

COMMITTEES & PROFESSIONAL ACTIVITIES

- 2003 The 2004 Interview Sessions and Tours of College of Medicine (Department of Medical Physiology) for prospective students
- 2001-2003 Judge (Physics Section) at the Regional Engineering and Science Fair, Memorial Student Center, Texas A&M University, College Station, TX

HONORS AND AWARDS

- 2004 Hamamatsu Photonics Scholarship Recognition Award for participation at the course “Optical Microscopy in the Biological Sciences”, UT-HSC, San Antonio, TX
- 1999 Nominated and listed in Marquis’s Who’s Who in the World
- 1998 Optical Society of America Travel Award for participation at “Optical Interference Coatings” Conference, Los Ventana Canyon Resort, Tucson, AZ

INVITED TALKS

- 2006, April 1-5 – “An Atomic Force-Multi-Optical Imaging Integrated Microscope for Monitoring Vascular Cell responses to Mechanical Forces and Focal Contact Remodelling” American Physiological Society, Experimental Biology Workshop: Atomic Force Microscopy for Physiological Studies at the Nano-Scale, San Francisco, CA
- 2005, August 31 – “Integrated nano-imaging techniques applied to live cell dynamics”, Department of Physics, University of Missouri, Columbia, MO
- 2004, November 4 - “Monitoring molecular dynamics in live cells using NanoFluor Integrated Microscope” Department of Medical Physiology, Texas A&M University HSC, College Station, TX

2004, October 6 - “Monitoring molecular dynamics in live cells using NanoFluor Integrated Microscope” Dept. of Biomedical Engineering, Texas A&M University HSC, College Station, TX

2003, November 26 - “Adhesion to Fibronectin after Histamine treatment in Endothelial cells: A study using Atomic Force Microscopy”, Department of Biomedical Engineering, Texas A&M University, College Station, TX

1997, August 22 - “Interference filters: homogeneous and inhomogeneous approaches”, Centro de Investigaciones en Optica, Leon de Guanajuato, Mexico

JOURNAL REFEREE

Biomechanics and Modelling in Mechanobiology

Optical Engineering

Journal of Modern Optics

Applied Optics (co-reviewer)

GRANT FUNDING

NIH-R21 (PAR-03-045) Nanoscience and Nanotechnology in Biology and Medicine “Atomic force-FRET microscopy using quantum dots for cell mechanobiology” (PI: GA Meininger, TAMU-HSC), Submitted Feb 18, 2005, Proposed award period 12/01/05 - 11/30/08, Status: Pending, Role: Consultant

Past Grants funded by The Romanian Ministry of Research

1995-1998 Optical thin films with gradient refractive index #7.A91

1993-1994 Optical properties of non-quarter wave thin films #35.A65, #7.A72

1992 Optical properties of dielectric thin films #152B.B14

SUMMARY OF RESEARCH ACTIVITY

At Texas A&M University (Dept. of Medical Physiology) I focused on the application of advances in optics to the study of biological phenomena at the cellular level. My main interest was the study of integrin-extracellular matrix interactions using the atomic force microscope (AFM). This research was focused on measuring the adhesion force between integrin and fibronectin, one of the main components of the extracellular matrix. The AFM “nano-sensor” allows force measurement in the range of pN between individual molecules. Also, I applied the AFM to the study of changes in local cell stiffness and loading rate. This valuable expertise opened new perspectives in my research at cellular level. To expand the capabilities of this instrument, for the past two years I have built a state-of-the-art microscope system that we call the NanoFluor Integrated Microscope. This system integrates the classical AFM with fluorescence techniques such as: Epi-fluorescence, Total Internal Reflection Fluorescence (TIRF), Interference Reflection Microscopy (IRM) and Forster Resonance Energy Transfer (FRET). The system is unique as configured, with most of the parts being custom made to allow the combination of the above techniques. I did all the design and assembly of this instrument including the alignment, calibration and preliminary data as proof of concept. This integrated microscope was featured in *Science* (2004) vol. 306 (5703) pp. 1864-1865 as an ad for our group using Olympus equipment, and a paper describing its characteristics and applications was accepted at *Journal of Biomedical Optics* (in press, 2005).

Most recently I set-up a multi-photon microscope system based on a Leica AOBs confocal microscope as part of the MPHY Core Imaging Facility. I designed the complete optical train necessary to feed the MaiTai femtosecond laser in an optimal way into the scanning head of the confocal microscope, including pulse compression for the optimization of the depth of penetration in thick tissues.

As Co-Director of the Core Imaging Facility I am responsible for training new users, assisting existing users with multi-photon and confocal microscopy, evaluation and maintenance of the instruments and Core Facility management.

Also, in the same department I worked with a Guth Muscle Research System equipped with UV light stimulation (detection on PMT) for ratio-metric calcium measurements and force-frequency measurements in intact cardiac muscle fibre.

At Texas A&M University (Chemistry Dept.) I took part in the construction of an electrode-less plasma jet source designed for use in molecular cluster studies. The RF-ICP generates a surface wave plasma (Argon at high pressure), which forms a supersonic jet when expanded freely through a nozzle into a region of much lower pressure.

At Rice University I built, an optical trap system used in laser tweezers experiments for the evaluation of cell interactions with biomaterials and tissue surfaces: e.g. trapping polystyrene beads or cells and measuring adhesion forces at the cellular level using a piezoelectric driven microscope stage.

At the Institute of Atomic Physics, Bucharest, Romania, my group was part of a larger department designing and producing prototype lasers for use in research and for applications in medicine and industry. In this capacity I lead research projects regarding the design and fabrication of various types of thin film optical components: polarizers, graded reflectivity mirrors, dichroic mirrors, band-pass filters, edge filters, antireflection coatings, protective coatings, partial and high reflectance mirrors for wavelengths from VIS to NIR.

LIST OF PUBLICATIONS

PATENTS

1. **Andreea Dinca** and Voicu Lupei, “Dichroic mirror for lasers” (Dichroic mirror working at 2.94 μm with suppressed band at 0.97 μm) approved by Romanian State Patent Office (OSIM), Patent nr. 114516B1, published in BOPI April 30, 1999
2. **Andreea Dinca** and Voicu Lupei, “Plane interferential polarizer working at $\lambda=1.064 \mu\text{m}$ ”, Romanian State Patent Office (OSIM), Patent nr. 96-02304, December 9, 1996 (Pending)
3. **Andreea Dinca** and Voicu Lupei, “Graded reflectivity interferential mirror working at $\lambda=1.06 \mu\text{m}$ ” Romanian State Patent Office (OSIM), Patent nr. 96-02305, December 9, 1996 (Pending)

PEER REVIEWED JOURNALS

1. **Andreea Dinca**, Ionita-Manzatu M, Lupei V. Thin film polarizers for 1.064 μm . *Romanian Reports in Physics* 45, nr. 5-6 (1993) pp. 391-398
2. **Andreea Dinca**, Trifan ME, Lupei V, Dinca MP. Dichroic mirror design by complete admittance matching. *Optical Eng*, 35 nr. 5 (1996) pp. 1284-1287

3. **Andreea Dinca**, Trifan ME, Lupei V, Dinca MP. Variable reflectivity mirrors with all profiled layers. *Optics Comm* 127 (4-6) (1996) pp. 176-182
4. **Andreea Dinca**, Trifan ME, Lupei V, Dinca MP. Admittance-matched interference polarizers. *J Modern Optics* 43 (8) (1996) pp. 1615-1620
5. **Andreea Dinca**, Miclea PT, Lupei V, Skettrup T, Dinca MP. Multiple solutions provided by analytical synthesis in admittance matching: application to dichroic mirrors. *J Modern Optics* 45(3) (1998) pp. 605-618
6. Morton D, **Andreea Dinca**. Ion-assisted deposition of E-gun evaporated ITO films at low substrate temperatures. *Vacuum Tech Coating* January-February (2000) pp. 53-59
7. Tong CW, Kolomenskii A, Lioubimov VA, Schuessler HA, **Andreea Trache**, Granger HJ, Muthuchamy M. Measurements of the crossbridge attachment/detachment process within intact sarcomeres using the surface plasmon resonance. *Biochemistry* 40 (2001) pp. 13915-13924
8. Martinez-Lemus LA, Sun Z, **Andreea Trache**, Trzeciakowski JP, Meininger GA. Integrins and regulation of the microcirculation: from arterioles to molecular studies using Atomic Force Microscopy. *Microcirculation* 12 (2005) pp. 99-112
9. **Andreea Trache**, Trzeciakowski JP, Gardiner LA, Sun Z, Muthuchamy M, Guo M, Yuan S, Meininger GA. Histamine effect on endothelial cell fibronectin interaction studied by atomic force microscopy. *Biophys J* 89 (2005) pp. 2888-2898
10. **Andreea Trache** and Meininger GA. An atomic force – multi optical imaging integrated microscope for monitoring molecular dynamics in live cells. *J Biomed Optics* 10 (6) (2005) in press.
11. Sun Z, Martinez-Lemus LA, **Andreea Trache**, Trzeciakowski JP, Davis GE, Pohl U, Meininger GA. Mechanical properties of the interaction between fibronectin and $\alpha_5\beta_1$ integrin on vascular smooth muscle cells: studied using Atomic Force Microscopy. *Am J Physiol: Heart Circ Physiol* (2005) in press.
12. Chowdhury MH, Gant VA, **Andreea Trache**, Baldwin A, Meininger GA and Cote GL. The use of surface enhanced Raman spectroscopy (SERS) for the detection of human integrins. *J Biomed Optics* (submitted May 2005, currently under review)
13. **Andreea Trache**, Trzeciakowski JP and Meininger GA. Loading rate study on adhesion force in intact cells using atomic force microscopy. *Biophys J* (advanced preparation)

BOOK CHAPTERS

1. **Andreea Trache** and Meininger GA. Atomic Force Microscopy. In: *Current Protocols in Microbiology*, R Coico, T Kowalik, JM Quarles, B Stevenson and RK Taylor eds., Wiley & Sons Inc., (submitted November 2005, to be published Spring 2006)
2. **Andreea Trache** and Meininger GA. Total internal reflection fluorescence microscopy. In: *Current Protocols in Microbiology*, R Coico, T Kowalik, JM Quarles, B Stevenson and RK Taylor eds., Wiley & Sons Inc., (in preparation, to be published Spring 2006)

REFEREED CONFERENCE PAPERS & PROCEEDINGS

1. **Andreea Dinca**, Lupei V, Dinca MP. Thin films for variable reflectance laser mirrors. Modelling and Simulation of Laser Systems III, 24-25 January 1994, Los Angeles, CA, Proc. SPIE vol. 2117 (1994) pp. 196-204
2. **Andreea Dinca**, Lupei V, Dinca MP. Design of graded reflectivity mirrors for YAG:Nd lasers. High-Power Gas and Solid State Lasers, 5-8 April 1994, Vienna, Austria, Proc. SPIE vol. 2206 (1994) pp. 554-562
3. **Andreea Dinca**, Lupei V, Dinca MP. Design of broadband dichroic mirrors using admittance matching. Optical Interference Coatings Conference 6-10 July 1994, Grenoble, France, Proc. SPIE vol. 2253 (1994) pp. 120-129
4. **Andreea Dinca**, Lupei V, Dinca MP. Design of graded-reflectivity-mirrors using rotating masks. Optical Interference Coatings Conference 6-10 July 1994, Grenoble, France, Proc. SPIE vol. 2253 (1994) pp. 130-139
5. **Andreea Dinca**, Trifan ME, Lupei V, Dinca MP. Design and fabrication of graded reflectivity mirrors. Optical Interference Coatings, OSA Technical Digest Series vol.17 (1995) pp.118-120
6. **Andreea Dinca**, Trifan ME, Lupei V, Dinca MP. Design of double reflecting interferential mirror. Optical Interference Coatings, OSA Technical Digest Series vol.17 (1995) pp. 67-68
7. **Andreea Dinca**, Dinca MP, Lupei V. Dielectric mirrors coating of the active medium for the diode-pumped Erbium laser. Solid State Lasers VI, 10-11 February 1997, San Jose, California, Proc. SPIE vol. 2986 (1997) pp. 203-212
8. **Andreea Dinca**, Lupei V, Dinca MP. Interferential filter design with continuously variable refractive index. ROMOPTO'97: Fifth Conference on Optics, 9-12 September 1997, Bucharest, Romania, Proc. SPIE vol. 3405 (1998) pp. 1173-1177
9. **Andreea Dinca**, Miclea PT, Lupei V, Dinca MP. On the solutions of the symmetrical three layer synthesis problem. ROMOPTO'97: Fifth Conference on Optics, 9-12 September 1997, Bucharest, Romania, Proc. SPIE vol. 3405 (1998) pp. 1162-1166
10. **Andreea Dinca**, Lupei V, Dinca M. Symmetry properties of solutions in admittance matching method. Optical Interference Coatings Conference, June 7-12 1998, Tucson, Arizona, OSA Technical Digest Series vol. 9 (1998) pp.316-318
11. Morton D, **Andreea Dinca**. Ion-assisted deposition of E-gun evaporated ITO films at low substrate temperatures. 42nd Annual Technical Conference of the Society of Vacuum Coaters, 20-22 April 1999, Chicago, Proceedings of the Society of Vacuum Coaters, 42nd Annual Technical Conference (1999) pp.250-254
12. **Andreea Dinca**, Lupei V, Dinca MP. High reflectance mirror for 1.064 μm and 0.532 μm . Optics as a Key to High Technology: 16th Congress of the International Commission for Optics, 9-13 August 1993, Budapest, Hungary, Proc. SPIE vol. 1983 (1993) pp. 276-277
13. Pavel N, Dascalu T, Lupei V, Ionita-Manzatu M, **Andreea Dinca**. Thermal lensing effects in Q-switched Nd:YAG laser with superGaussian mirrors. Optics as a Key to High Technology: 16th Congress of the International Commission for Optics, 9-13 August 1993, Budapest, Hungary, Proc. SPIE vol. 1983 (1993) pp. 40-41
14. **Andreea Dinca**. Edge filters with thin dielectric layers. ROMOPTO'94: Forth Conference on Optics, 5-8 September 1994, Bucharest, Romania, Proc. SPIE vol.2461 (1995) 588-590

15. **Andreea Dinca**, Lupei V. Admittance matching design for thin film polarizers. 2nd General Conference of the Balkan Physical Union (BPU-2), 12-14 September 1994, Izmir, Turkey, Proc. Suppl. Balkan Physics Letters, vol.2 (1994) pp. 1377-1381.
16. **Andreea Dinca**, Skettrup T, Lupei V, Trifan ME, Dinca MP. Dichroic mirror for diode pumped Yag:Nd laser. Developments in Optical Component Coatings, 15-16 May 1996, Glasgow, UK, Proc. SPIE vol. 2776 (1996) pp. 262-269
17. **Andreea Dinca**, Lupei V, Miclea PT, Dinca MP. Dichroic mirror for high power Nd:YAG laser. High Power Lasers: Solid state, Gas, Excimer and Other Advanced Lasers, 4-5 November 1996, Beijing, China, Proc. SPIE vol. 2889 (1996) pp. 418-427
18. **Andreea Dinca**, Lupei V, Dinca MP. Design of inhomogeneous layers with finite optical thickness. 3rd General Conference of the Balkan Physical Union (BPU-3), 2-5 September 1997, Cluj-Napoca, Romania, Proc. Suppl. Balkan Physics Letters vol.5 (1997) pp. 1407-1410
19. **Andreea Dinca**, Miclea PT, Lupei V, Dinca MP. Regularities observed among the solutions obtained for optical admittance matching. 3rd General Conference of the Balkan Physical Union (BPU-3), 2-5 September 1997, Cluj-Napoca, Romania, Proc. Suppl. Balkan Physics Letters vol.5 (1997) pp. 1403-1406
20. Chowdhury MH, Gant VA, **Andreea Trache**, Baldwin A, Meininger GA and Cote GL. The use of surface enhanced Raman spectroscopy (SERS) for the detection of human integrins. Biomedical Engineering Society Annual Fall Meeting (2005)

CONFERENCE CONTRIBUTIONS & ABSTRACTS

1. **Andreea Dinca**, Ionita-Manzatu M, Florea V, Lupei V. On the performing of thin films polarizers for high power lasers working at $\lambda=1.064\mu\text{m}$. National Conference of Physics, Brasov, October 1991, Paper Abstracts p.79.
2. Hodgkinson I, Shaikh A, Wu QH, **Andreea Dinca**, Dinca M. Thin films for emulating the retro-reflection of the living eye. OSA Annual Meeting, Symp. Interference Filters for Medical Diagnostics Instrumentation, Supplement to Optics & Photonics News vol. 8 (8) (1997) pp. 147
3. Meininger GA, Davis MJ, Wu X, Sun Z, **Andreea Trache**, Martinez-Lemus LA. Are integrins important for the myogenic mechanism? Myogenic Centennial 2002, Stowe, Vermont, June 12-15, 2002
4. Meininger GA, Martinez-Lemus LA, Sun Z, **Andreea Trache**, Wilson E, Davis MJ, Pohl U. Role of extracellular matrix-integrin interactions in short and long-term responses to pressure? European Society for Microcirculation Meeting in Exeter, England, August 2002, *J Vasc Res* 39 (Suppl 1): 90 (5.3), 2002
5. Trzeciakowski JP, **Andreea Trache**, Sun Z and Meininger GA. Visualization of multivariate influences on integrin adhesion to fibronectin in endothelial cells. International Conference "Seeing at the Nanoscale", August 24-27, 2003, Santa Barbara, CA
6. Meininger GA, Sun Z, **Andreea Trache**, Trzeciakowski JP. Biological applications of Atomic Force Microscopy. Proceedings of Microscopy Frontiers at the Annual Meeting of the Microscopical Society of Canada, Vancouver, Canada, June 4-6, 2003
7. Meininger GA, Martinez-Lemus LA, Sun Z, **Andreea Trache**. Integrins, extracellular matrix and mechanical factors related to arteriolar remodelling", Experimental Biology, San Diego, CA April 2-6, 2005

8. Meininger GA, Sun Z, Trzeciakowski JP, **Andreea Trache**, Martinez-Lemus LA, Davis GE. Properties of integrin-extracellular matrix interactions studied with atomic force microscopy. Scanning Probe Microscopy, Cancun, Mexico, June 5-7, 2005, Abstract p. 26

POSTER PRESENTATIONS & ABSTRACTS

1. **Andreea Dinca**, Ionita-Manzatu M, Florea V, Lupei V. Passive polarizing optical devices for high power lasers at $\lambda=1.064\mu\text{m}$. Proc. 3rd National Conference on Lasers & Applications, Timisoara, Romania, September 1991, pp. 48-50.
2. **Andreea Dinca**, Ionita-Manzatu M, Lupei V, Dinca MP. Computer calculation of the reflectance for a general thin film stack. National Conference of Physics, Brasov, Romania, October 1991, Paper Abstracts p.65.
3. Lupei V, **Andreea Dinca**, Ionita-Manzatu M. Plane polarizers design using thin dielectric layers. Proc. "Phisique en Herbe 92" Congress, Marseille July 1992, France
4. **Andreea Dinca**, Lupei V, Dinca MP. On the modelling of the deposition process for a BAK 600 plant. National Physics Conference, Iasi, Romania, September 1992, Paper Abstracts p.32
5. **Andreea Dinca**, Lupei V. Determination of the constants in the dispersion formula for ZrO₂ and TiO₂ thin layers. National Physics Conf., Constanta, Romania, October 1993, Paper Abstracts p.88.
6. **Andreea Dinca**, Lupei V. Dichroic mirrors for a frequency doubling Nd:YAG lasers. National Conference of Physics, Sibiu, Romania, September 1994, Paper Abstracts p. 94.
7. **Andreea Dinca**, Torres JH, Li Z, Anvari B. Optical tweezers for evaluation of cell interactions with biomaterials and tissue surfaces. Advances in Tissue Engineering Symposium, Rice University, August 1999, Houston, TX
8. Sun Z, **Andreea Trache**, Pohl U, Meininger GA. Use of Atomic Force Microscopy (AFM) to measure integrin - fibronectin (FN) adhesion force in vascular smooth muscle cells (VSM)", 46th Annual meeting of the Biophysical Society, February 23-27, 2002, San Francisco, CA, *Biophys J* Supplement vol. 82 (2002) pp.54a
9. Sun Z, **Andreea Trache**, Pohl U, Meininger GA. Use of atomic force microscopy (AFM) to probe for mechano-transducing pathways: integrin-fibronectin (FN) interaction in vascular smooth muscle cells (VSMC). Myogenic Centennial 2002, Stowe, Vermont, June 12-15, 2002
10. Sun Z, **Andreea Trache**, Pohl U, Meininger GA. Regulation of fibronectin adhesion to vascular smooth muscle $\alpha_5\beta_1$ integrin: a study using Atomic Force Microscope. 47th Annual Meeting of Biophysical Society, March 1-5, 2003, San Antonio, TX, *Biophys J* Supplement vol. 84 (2) (2003) pp. 470a
11. **Andreea Trache**, Reeves L, Sun Z, Guo M, Wilson E, Yuan S, Meininger GA. Demonstration of differences in adhesion to fibronectin after histamine treatment in endothelial cells using the Atomic Force Microscope. 47th Annual Meeting of Biophysical Society, March 1-5, 2003, San Antonio, TX, *Biophys J* Supplement vol. 84 (2) (2003) pp. 470a
12. Sarin V, Gaffin R, **Andreea Trache**, Muthuchamy M, Meininger GA. Inhibition of cardiac contractility by RGD-dependent integrins. Experimental Biology 2003, April 11-15, 2003, San Diego, CA, *FASEB J* Supplement vol. 17 (5) (2003) pp. A848

13. Reeves L, **Andreea Trache**, Sun Z, Guo M, Yuan S, Meininger GA. Demonstration of differences in adhesion to fibronectin after histamine treatment in endothelial cells using the Atomic Force Microscope. *Experimental Biology* 2003, April 11-15, 2003, San Diego, CA, *FASEB J* Supplement vol. 17 (5) (2003) pp. A1246
14. Sarin V, Gaffin R, **Andreea Trache**, Muthuchamy M, Meininger GA. Effect of RGD-dependent integrins on contractile function of cardiac muscle. Graduate Research Symposium, February 18, 2003, TAMUS-HSC, Symposium Abstracts pp.7-8
15. Sun Z, Trzeciakowski JP, Martinez LA, **Andreea Trache**, Meininger GA. Application of force with an Atomic Force Microscope to a fibronectin- $\alpha_5\beta_1$ integrin focal contact in vascular smooth muscle cells (VSMC) induces a force generating response. 48th Annual Meeting of Biophysical Society, February 14-18, 2004, Baltimore, MD, *Biophys J* Supplement vol. 86 (1) (2004) pp. 389a
16. **Andreea Trache**, Trzeciakowski JP, Gant A, Cote G, Sun Z, Wilson E, Meininger GA. Influence of cell stiffness on adhesion force between $\alpha_5\beta_1$ integrin and fibronectin in intact cells using Atomic Force Microscopy. 48th Annual Meeting of Biophysical Society, February 14-18, 2004, Baltimore, MD, *Biophys J* Supplement vol. 86 (1) (2004) pp. 477a
17. Sun Z, Martinez LA, **Andreea Trache**, Trzeciakowski JP, Meininger GA. Vascular smooth muscle cells (VSMC) mechanically respond to applications of force to the fibronectin- $\alpha_5\beta_1$ integrin bond". *Experimental Biology* 2004, April 17-21, 2004, Washington, DC, *FASEB J* vol. 18 (4) (2004) pp. A655
18. **Andreea Trache**, Trzeciakowski JP, Reeves L, Guo M, Yuan S, Meininger GA. Differences between $\alpha_5\beta_1$ integrin-fibronectin interaction on endothelial cells treated with histamine using atomic force microscope. FRET, FLIM and Spectral Imaging: Advanced fluorescence techniques for biological imaging Symposium, June 5-6, 2004, San Antonio, TX
19. Bridenbaugh EA, Chowdhury U, Jamroz RC, **Andreea Trache**, Gashev AA, Zawieja DC. Upregulated expression of immune function genes in rat lymphatic vessels. *Experimental Biology*, San Diego, CA April 2-6, 2005
20. **Andreea Trache** and Meininger GA. NanoFluor-an Atomic Force Microscope integrated with an advanced fluorescence microscope. International Conference: Seeing at Nanoscale III, Santa Barbara, August 13-16, 2005
21. Cote GL, Chowdhury MH. Gant VA, **Andreea Trache**, Baldwin A, Henry J, Campbell CJ, Theofanidou E, Lee SJ, Sing G, Crain J, Ghazal P, O'Neal DP, Jackson J, Meininger G, Good T. The use of metal nanoparticles as Surface Enhanced Raman Spectroscopy (SERS) substrates for biosensing. Nano Summit 2005: Linking the Research Community, July 28, 2005, Houston, TX.