

CURRICULUM VITAE

Tung-Tien Sun

A. Education:

- 1967 B.S., Agricultural Chemistry, National Taiwan University, Taipei, Taiwan.
- 1974 Ph.D., Biological Chemistry, University of California, Davis, CA.
- 1974 Embryology Course, Marine Biological Laboratory, Woods Hole, MA.
- 1977 Human Pathology Course, Harvard Medical School, Boston, MA.
- 1978 Postdoctoral Fellow, Department of Biology, Massachusetts Institute of Technology, Cambridge, MA.

B. Academic Appointments:

- 1974-1978 Research Associate, Department of Biology, Massachusetts Institute of Technology, Cambridge, MA.
- 1978-1981 Assistant Professor, Departments of Dermatology and Cell Biology & Anatomy, Johns Hopkins Univ. School of Medicine, Baltimore, MD.
- 1981-1982 Associate Professor, Departments of Cell Biology, Dermatology & Ophthalmology, Johns Hopkins Univ. School of Medicine.
- 1982-1986 Associate Professor, Departments of Dermatology & Pharmacology, New York Univ. School of Medicine, New York, NY.
- 1988-1993 Associate Director, NIH Skin Disease Research Center, New York Univ. School of Medicine, New York, NY.
- 1986- Professor, Departments of Dermatology and Pharmacology, New York University School of Medicine, New York, NY.
- 1990- Rudolf L. Baer Professor and Director, Epithelial Biology Unit, Department of Dermatology, New York Univ. School of Medicine.
- 1997- Professor, Department of Urology, New York University School of Medicine.
- 2006- Professor, Department of Cell Biology, New York Univ School of Medicine.

C. Awards & Honors:

- 1978-1982 Research Career Development Award, National Eye Institute.
- 1984-1989 Monique Weill-Caulier Career Scientist Award.
- 1986 Angus Lecturer, University of Toronto Medical School.
- 1986 Herman Pinkus Lecturer, American Academy of Dermatopathologists.
- 1987 Su-Chin Liu Memorial Lecturer, Stanford University Medical School.
- 1989 William Montagna Award, Society of Investigative Dermatology.
- 1989 Tsutsui Distinguished Graduate Research Award, New York Academy of Science (A. Schermer's Ph.D. Thesis; J. Cell Biol. 1986).
- 1991 Susan Swerling Lecturer, Dana-Farber Cancer Institute, Harvard Medical School.
- 1992 Elected Fellow, *American Association for the Advancement of Science*.
- 1993 Alcon Award in Vision Research.
- 1998 Kihei Tanioku Memorial Lecturer, Japanese Society for Investigative Dermatology.
- 1999 Wu Jieping Award in Urological Research, Chinese Medical Association.
- 2000 Keynote Speaker, 2nd Asia Conference on Cornea and Refractive Surgery, Tokyo, Japan.
- 2000 Dean's Lecturer, New York University School of Medicine.
- 2001 Keynote Speaker, International Ocular Surface Society, Ft. Lauderdale, Florida.

- 2001 Dynamic Achiever Award, Organization of Chinese Americans Westchester Chapter.
2001 Inaugural William W. Scott, Sr., Memorial Lecturer in Urology, Johns Hopkins Medical School.
2002 Elected Member, *Academia Sinica, Taiwan*.
2002 Keynote Speaker, Epithelial Biology Symposium, Univ. of Southern California.
2002 Keynote Speaker, Brisbane Tissue Engineering Conference, Australia.
2003 Academic Achievement Award, Chinese American Academic and Professional Society.
2003 Borden Lecturer, Joint Annual Meeting of the British Society of Cell Biology and Developmental Biology, Warwick, UK.
2003 Keynote Speaker, 17th Annual Meeting on Keratinocyte Biology, Akita, Japan.
2003 Keynote Speaker, Chinese Society of Cell Biology, Nanjing, China.
2003 Keynote Speaker, 5th Pan-Pacific Connective Tissue Symposium, Yamaguchi, Japan.
2005 Keynote Speaker, Symposium on “Urothelial Cell Physiology in Normal and Disease States”, an IUPS 2005 Satellite Symposium, San Diego, CA.
2005 Keynote Speaker, Society for Basic Urological Research-European Society of Urological Research 2005 Joint Annual Symposium, Miami Beach, Florida.
2006 Cornerstone Speaker, Gordon Conference on Intermediate Filaments, New Port, Rhode Island.
2006 Keynote Speaker, Symposium on Vesicoureteric Reflux and the Genetics of Renal Development, Institute of Child Care, University College London.
2007- Distinguished Chair Professor, College of Life Sciences, National Taiwan University.
2008 Keynote Speaker, Denk Symposium: From Disease to Molecules to Disease, Graz, Austria, 2008.
2010 Keynote Speaker, Annual Meeting of the Molecular Biology Society, Taiwan
2011 Keynote Speaker, Workshop for New Faculty Members, National Taiwan University
2012 Keynote Speaker, Austrian Academy of Sciences Fellowship Award Ceremony, Vienna, Austria
2016 Keynote Speaker, Gordon Research Conference on Cornea, Ventura, CA
2016 Keynote Speaker, Annual Retreat, Doctoral College of Metabolic and Cardiovascular Disease, Medical University of Graz, Austria

D. Outside Committees, Editorial Boards & Adjunct Appointments:

- 1984-1988 Cell Biology Study Section, National Institutes of Health.
1984-present Editorial Board, Differentiation.
1985 National Eye Institute Corneal Disease Panel.
1985-1988 Board of Directors, International Society of Differentiation.
1988-1991 Councilor, Society of Chinese Bioscientists in America.
1990-2006 Associate Editor, J. Investigative Dermatology.
1990-1993 Editorial Board, Epithelial Cell Biology.
1991 National Research Plan Task Force, National Institute of Arthritis and Musculoskeletal and Skin.
1991-1993 Medical and Scientific Committee, Dermatology Foundation.
1990-1993 Planning Advisory Panel, MGH-Harvard Cutaneous Biology Research Center.
1992-2003 Editorial Board, J. Dermatological Science.
1992 Scientific Review Committee on Medical Sciences, Biotechnology, and Neurosciences, National Health Research Institutes, Taiwan.
1992- present Adjunct Professor, Department of Dermatology, University of Pennsylvania School of Medicine, Philadelphia, PA.

- 1992-1994 Board of Directors, Hair Research Society.
- 1993-1996 Biotechnology Research Institute Program Advisory Committee, Hong Kong University of Science and Technology.
- 1993-1998 Board of Directors, Society of Investigative Dermatology.
- 1994- present Editorial Board, Molecular Biology Reports.
- 1994-1996 US Managing Editor, Molecular Biology Reports.
- 1994 Ad Hoc Group for Development of NIH-wide Skin Diseases Report.
- 1995 Chair, Gordon Research Conference on Epithelial Differentiation and Keratinization, Tilton, NH.
- 1995 Program Chair, 6th International Symposium of the Society of Chinese Bioscientists in America, Vancouver, British Columbia, Canada.
- 1996-1999 Board of Scientific Counselors, National Institute of Arthritis and Musculoskeletal and Skin Diseases.
- 1997-2002 Program Committee, Society of Investigative Dermatology.
- 1998- present Guest Professor, Department of Biology, Peking University.
- 1998-2008 Editorial Board, Cell Research.
- 1998 Honorary Professor, Third Military Medical Univ., Chungking, China.
- 1998-present Guest Professor, Institute of Urology, Beijing Medical University.
- 1998-2000 Advisory Board, Graduate Institute of Molecular Medicine, National Cheng Kung University Med School, Tainan, Taiwan.
- 1999 External Treatment Advisory Committee for the Interstitial Cystitis Clinical Trials Group, NIDDK (1999).
- 2000- present Honorary Senior Advisor, Peking University Urological Training Center.
- 2000- present Honorary Professor, Harbin Medical University, China.
- 2001 Chair, Urothelial section, Bladder Research Progress Report Group: A Strategic Plan for the 21st Century, NIDDK, NIH.
- 2002 Co-chair, Program Committee, Society of Investigative Dermatology Annual Meeting, Los Angeles, CA.
- 2002 Member, Review Committee, College of Life Sciences, National Yang Ming University, Taipei, Taiwan.
- 2003-present Member, Scientific Advisory Board, Institute of Genomics, Academia Sinica, Taipei, Taiwan
- 2003-present Member, Scientific Advisory Board, Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan
- 2003-present Visiting Professor and Consultant, Chang Gang University Medical School, Taiwan.
- 2006 Co-chair, FASEB Summer Conference on Tetraspanins, Tucson, Arizona.
- 2007-present Adjunct Professor, Cornell University Department of Biomedical Sciences.
- 2007-present Adjunct Professor, Institute of Clinical Medicine, National Taiwan University College of Medicine.
- 2007-present Honorary Professor, University of Queensland, Australia.
- 2008-present Editorial Board, International J Cell Biology.
- 2009-present Adjunct Professor, Chongqing University, China.

E. School-wide & Departmental Committees:

Program Project Incentive Grant Committee:

- 2008-2014 Co-chair (reviewed ~34 applications and awarded ~16, with an NIH award/investment ratio of over 20).

Ethics Committees:

- 2010 Chair, Investigation Committee: The Committee report formed the basis for a Nature Correspondence by Steven Abramson (senior vice president and vice dean for education, faculty and academic affairs) entitled “[Differing Opinion, Not Misconduct](#)”, Nature 470, 465 (24 Feb, 2011). It was also the basis for a Nature News blog entitled “[Nina Bhardwaj cleared by NYU](#)”. This blog article commented, “The Inquiry Committee Report is freely available here and is short and readable. NYU seems to want to shine daylight on this case, since they believe that greater transparency will only lead to greater rehabilitation for Dr. Bhardwaj’s reputation. And to that end, they’ve taken the additional step of sending the report out to news outlets, like *Nature*, that reported on the case. It makes a striking contrast to the results of the investigation of Homme Hellinga at Duke, which was kept secret—up to and including their conclusion.”
- 2011 Chair, Investigation Committee.
- 2014 Chair, Standing Inquiry Committee.
- 2015 Chair, Investigation Committee.

Award Selection Committees:

- 2010-2014 Member, Early Career Awards and Prizes Committee; selecting 4 times a year junior faculty candidates for awards from Burroughs Wellcome, Hirschl/Monique Weill-Caulier and other Funds).
- 2013-2014 Member, Prestigious Research Prize Advisory Board (nominating senior faculty candidates for prestigious research prizes).

Recruitment efforts:

- 2010 VP Science Strategy.
- 2010 Associate Dean Faculty Development.
- 2010 Associate Dean Basic Science.
- 2011 Proteomics Core (Beatrix Ueberheide).
- 2013 VP of Supply Chain Management (John Willi).
- 2014 Search Committee for the Microbiology Chair.

Other School-wide Committees or Responsibilities:

- 2002-2005 Leader, Stem Cell Biology Program, NYU Cancer Institute (scored Excellent/outstanding for the Cancer Center grant renewal).
- 2004-2005 Member, Library Committee.
- 2008-2010 Member, Core Facility Committee.
- 2008 Member, Strategic Fitness Process Task Force.
- 2008 Member, Design Team, NYULMC Science Collaboration Initiative.
- 2010-present Member, Embryonic Stem Cell Research Oversight (ESCRO) Committee.
- 2012-2013 Member, Sandy Advisors and Recovery Assistance Committee.
- 2012-present Instructor, the LEADS course.
- 2013 Member, Purchasing Oversight Committee.
- 2013-present Member, Microscopy Core Advisory Committee.
- 2013-present Member, NIDDK Honor’s Program Internal Advisory Board.

Departmental Committees:

- 2003-present Pharmacology departmental Promotion Committee.
- 2004-present Dermatology departmental Promotion Committee.
- 2008-2011 Co-Director, Center of Excellence in Urological Research.
- 2008-2011 Member, Advisory Board, Center of Excellence in Dermatological Research.
- 2009-present Member, Cell Biology departmental Promotion Committee.
- 2013-present Member, Cutaneous Biology T32 Executive Committee.
- 2013-present Member, Pharmacology T32 Executive Committee.
- 2014-present Member, SKI-CB Internal Advisory Committee.

Faculty Mentoring Committees:

- 2008-1012 Chair, Erika Bach, Department of Pharmacology.
- 2008-1012 Chair, Gregg David, Department of Pharmacology.
- 2010- Chair, Mayumi Ito, Department of dermatology.
- 2010- Chair, Markus Schober, Department of Dermatology.
- 2015- Chair, mentoring committee for Fengxia Liang, Research Assistant Professor, Department of Cell Biology
- 2015- Member, mentoring committee for Branka Dabovnik, Research Assistant Professor, Department of Cell Biology
- 2015 Member, mentoring committee for Philipp Leucht, Assistant Professor, Department of Orthopaedic Surgery

PhD Thesis and Postdoc Committees

- 2013- Qi Sun (Mayumi Ito lab)
- 2014- Chae Ho Lim (Mayumi Ito lab)

F. Research Interests:

Cell and molecular biology of stratified epithelial differentiation; Science education.

G. Professional Societies:

- Academia Sinica (Elected *Academician* 2002).
- American Association for the Advancement of Science (Elected *Fellow* 1992).
- American Society of Biological Chemists.
- American Society for Cell Biology (Symposium organizer).
- Association for Research in Vision and Ophthalmology.
- Dermatology Foundation (Medical and Scientific Committee).
- Hair Research Society (Board of Directors).
- International Society of Differentiation (Board of Directors; Editorial board).
- New York Academy of Sciences (Symposium organizer).
- Society of Chinese Bioscientists in America (Councilor, 1988-91; 2006-2009).
- Society for Investigative Dermatology (Montagna Award 1989; Board of Directors; Associate Editor; Annual meeting program co-chair).

H. Teaching Activities:

- 1979-1982 Lectures, Cell Biology, Histology and Dermatology Courses, Johns Hopkins University Medical School.
- 1982- Lectures, Cell Biology, Histology and Dermatology Courses, New York University Medical School.
- 1984 Course Director, Mechanisms of Epithelial Growth and Differentiation, Department of Pharmacology, New York University Medical School.
- 1985 Head of a section of a Core Course for graduate students in the Molecular and Cellular Biology Program, NYU Medical School.
- 1990- Lectures for graduate and medical students on stem cells, epithelial differentiation, scientific methods and integrity.
- 2001- One-day workshop on “Scientific Methods: Survival Skills for Young Biomedical Investigators”. Topics covered include experimental design, literature analysis, scientific writing, oral presentation and scientific integrity.
- 2003 Organizer and main lecturer of a course on Stem Cell Biology: Concepts and Promises (an advanced science elective for NYU medical students).
- 2004- The annual NYU Workshop on Scientific Method was made available to students from all the universities in the Great New York City area including Rockefeller, Cornell Med Col, Mt Sinai, Einstein, Columbia and SUNY Down State. Attendants 250-300. Also invited to give this workshop or lectures in other universities including Albany Med Col, MD Anderson Cancer Center, Univ of Arizona, Baylor Med Col, Univ of California Davis and Riverside, Children’s Hospital in Boston, Cornell Med Sch and Ithaca campus, Johns Hopkins Med Sch, Peking Univ, Penn State Med College, Universitat Pompeu Fabra, Barcelona, Spain, Mt Sinai Med Sch, Northwestern, University of Pennsylvania, Univ of Rochester, Rutgers, Singapore Institute for Molecular Medicine, Univ Southern California, National Taiwan Univ, Univ Texas at San Antonio and Galveston, and Tufts Med Sch (see below).

I. Invited Platform Presentations:

- 1982 EMBO Workshop on Intermediate Filaments in Differentiation and Pathology, Gunzberg, Germany.
- 1982 Workshop on Keratin and Fibrous Proteins, 16th International Congress of Dermatology, Tokyo, Japan.
- 1982 Third International Symposium of Normal and Abnormal Epidermal Keratinization, Tokyo, Japan.
- 1982 The 32nd Annual Symposium on the Biology of Skin, Oregon.
- 1983 Co-organizer, Workshop on In Vitro Differentiation of Keratinocytes, Society of Investigative Dermatology, Washington, D.C.
- 1983 Organizer, Session-In-Depth on Intermediate Filaments as Molecular Markers for Cell Identification: 34th Annual Meeting of the Tissue Culture Association, Orlando, Florida.
- 1983 Cold Spring Harbor Conference on Cell Proliferation and Cancer: The Transformed Cell.

- 1984 Co-organizer, International Symposium on Intermediate Filaments, New York Academy of Sciences, New York, New York.
- 1984 American Academy of Dermatology, Washington, D.C.
- 1985 UCLA Symposium on Papilloma Virus, Aspen, Colorado.
- 1985 EMBO Workshop on Intermediate Filaments, Germany.
- 1985 Annual Meeting of the International Society of Differentiation, Heidelberg, Germany.
- 1985 The Fourth International Symposium of Normal and Abnormal Epidermal Keratinization, Ann Arbor, Michigan.
- 1985 Gordon conference on Keratinization and Epithelial Differentiation, New Hampshire.
- 1986 Angus Lecture, University of Toronto Medical School, Toronto, Canada.
- 1986 Herman Pinkus Memorial Lecture, Annual Meeting of the American Academy of Dermatopathologists, New Orleans, Louisiana.
- 1986 Forgarty International Symposium on Intermediate Filaments, NIH, Bethesda, Maryland.
- 1986 Session-In-Depth on Intermediate Filaments: The 37th Annual Meeting of the Tissue Culture Association, Chicago, Illinois.
- 1986 Fourth International Symposium on Psoriasis, Stanford, California.
- 1986 First Upjohn Symposium on Hair Biology, Kalamazoo, Michigan.
- 1987 Third World Congress on Cornea, Washington, D.C.
- 1987 Second Upjohn Symposium on Hair Biology, Kalamazoo, Michigan.
- 1987 First Liu Memorial Lecture, Stanford Univ. Medical School, Stanford, CA.
- 1987 International Symposium on the Biology of Skin and Hair Growth, Adelaide, Australia.
- 1988 Workshop on "DNA Measurements and Other Markers and Probes as Diagnostic and Prognostic Factors in Human Solid Tumors," Wilmington, Delaware.
- 1988 Symposium on "Molecular and Cell Biology of Intermediate Filaments," Fourth International Congress of Cell Biology, Montreal, Canada.
- 1988 Symposium on "Genetics, Development and Differentiation," 8th International Congress of Eye Research, San Francisco, California.
- 1988 Workshop on "The New Frontiers of Diagnostic Pathology," 17th International Congress of Pathology, Dublin, Ireland.
- 1988 Conference on "Cytoskeletal Proteins in Tumor Diagnosis," Cold Spring Harbor Lab, New York.
- 1989 Organizer, Symposium on Intermediate Filaments, Joint Annual Meeting of the American Society for Cell Biology & American Society for Biochemistry & Molecular Biology, San Francisco, CA.
- 1989 William Montagna Lecture, Soc. of Investigative Dermatol., Washington, D.C.
- 1989 Gordon Conference on Keratinization and Epithelial Differentiation, New Hampshire.
- 1990 Isadore Bernstein Symposium, Recent Developments in Keratinocyte Biology, Ann Arbor, Michigan.
- 1990 Ninth International Congress of Eye Research, Helsinki, Finland.
- 1990 Organizer, Workshop on Epithelial Differentiation, International Conference on Differentiation and Neoplasia, Vancouver, Canada.
- 1990 First Annual Northwestern University Cancer Center Colloquium on the Molecular and Cellular Basis of Disease, Chicago, Illinois.
- 1990 Molecular and Cellular Biology of Prostate Cancer, Prouts Neck, Maine.
- 1990 Gordon Conference on Intermediate Filaments, New Hampshire.
- 1990 First Congress of the Asian-Pacific Organization for Cell Biology, Shanghai, China.
- 1990 NIH Workshop on Alopecia Areata, Bethesda, Maryland.
- 1991 Workshop on Stem Cell Biology, Fred Hutchinson Cancer Research Center, University of Washington, Seattle, Washington.

- 1991 Susan Swerling Lecture, Dana-Farber Cancer Institute, Harvard Medical School, Boston, Massachusetts.
- 1991 Gordon Conference on Epithelial Differentiation & Keratinization, Tilton, New Hampshire.
- 1991 NIH Workshop on Interstitial Cystitis, Bethesda, Maryland.
- 1991 13th Postgraduate Dermatology Seminar of the Toronto Dermatological Society, Toronto, Canada.
- 1991 Alopecia Areata Foundation Annual Meeting, Dallas, Texas.
- 1992 Co-organizer, Intermediate Filament Workshop, Annual Meeting of American Association of Anatomists, New York, NY.
- 1992 18th World Congress of Dermatology, New York, NY.
- 1992 Gordon Conference on Intermediate Filaments, Holderness, New Hampshire.
- 1992 Symposium on the Biology of Skin, Snowmass, Colorado.
- 1992 NIH Fundamental Issues in Vision Research: Molecular and Cell Biology Approaches, Woods Hole, Massachusetts.
- 1993 Vice Chair, Gordon Conference on Epithelial Differentiation & Keratinization, Tilton, New Hampshire.
- 1993 ASCB/EMBO Conference on Intermediate Filament Networks in Cell Biology, Airlie House, Airlie, Virginia.
- 1993 Workshop on Mouse Mutations as Animal Models and Biomedical Tools: Skin and Hair Mutation, Jackson Lab, Bar Harbor, Maine.
- 1994 Alcon Research Institute 11th Annual Awards Symposium, Fort Worth, Texas.
- 1994 EMBO Workshop on Growth & Differentiation of Epithelial Cells, Genova, Italy.
- 1994 Fundamental Issues in Vision Research, National Eye Institute, Woods Hole, MA.
- 1994 Second International Research Workshop on Alopecia Areata, National Institutes of Health, Bethesda, MD.
- 1994 20th Annual Meeting of the Chinese Dermatological Society, Kaoshiung, Taiwan.
- 1995 Interstitial Cystitis Symposium, National Institutes of Health, Bethesda, MD.
- 1995 American Academy of Dermatology, New Orleans, LA.
- 1995 Chair, Gordon Research Conference on Epithelial Differentiation & Keratinization, Tilton, NH.
- 1995 Program Chair, 6th International Symposium of the Society of Chinese Bioscientists in America, Vancouver, British Columbia, Canada.
- 1996 International Bladder Symposium, Boston, Mass.
- 1996 Immunobiological and Genetic Approaches for the Treatment of Alopecia and Other Hair Diseases, San Diego, Calif.
- 1996 Second Ocular Surface and Tear Workshop, Bascom Palmer Eye Institute, Miami, Florida.
- 1996 International Workshop on the Molecular Biology of Skin and Skin Diseases, Instituto Juan March de Estudios e Investigaciones, Madrid, Spain.
- 1996 Advances in the Biology of the Skin: Pharmacology and Toxicology, Rutgers University, Piscataway, NJ.
- 1996 Advances in Cell Biology, American Urological Association, Houston, Texas.
- 1996 Fundamental Issues in Vision Research: Molecular and Cell Biological Approaches, Marine Biology Labs, Woods Hole, Mass.
- 1996 International Symposium on Ocular Surface, Chang Gung Memorial Hospital 20th Anniversary Symposium, Lin-Kuo, Taiwan.
- 1996 6th Annual Meeting of the New York Biotechnology Association, New York, NY.
- 1996 Special Symposium on the Ocular Surface, 35th Scientific Session of the Eye Bank Association of America, Chicago, IL.
- 1997 IBC International Industry Conference on "Drug Discovery Approaches to Cosmeceuticals", Meadowlands, NJ.

- 1997 General Motors Cancer Research Foundation Conference on Cutaneous Malignancies, NIH, Bethesda, MD.
- 1997 7th SCBA International Symposium, Toronto, Canada.
- 1998 International Bladder Research Congress, San Francisco, CA.
- 1998 Conference on Life Sciences for the 21st Century—Centennial Celebration of Peking University.
- 1998 Fundamental Issues in Vision Research: Molecular and Cell Biological Approaches, Marine Biology Labs, Woods Hole, Mass.
- 1998 Kihei Tanioku Lecture, International Congress of Investigative Dermatology, Cologne, Germany.
- 1998 Sixth Pacific Rim Biotechnology Conference and BioExpo '98, Hong Kong.
- 1998 Chinese Urology Association, Shanghai, China.
- 1999 American Academy of Dermatology, New Orleans, Louisiana.
- 1999 Annual Meeting of the Society for Investigative Dermatology, Special Workshop on Effective Scientific Design and Communication, Chicago, Illinois.
- 1999 Advances in the Biology and Treatment of the Skin; Hair, Models & Mechanisms, Basement Membrane, Cutaneous Pharmacology, Rutgers University, Piscataway, NJ.
- 1999 22nd Meeting of the Pacific Skin Research Club, Taipei, Taiwan.
- 1999 International Molecular Farming Conference, London, Ontario, Canada.
- 1999 Gordon Conference on Epithelial Differentiation & Keratinization, Tilton, New Hampshire.
- 1999 Biotechnology in Taiwan: Opportunities and Challenges in the New Millennium, Newark, New Jersey.
- 1999 International Bladder Foundation Symposium, Washington, DC.
- 2000 Keynote Lecture, 2nd Asia Conference on Cornea and Refractive Surgery, on Corneal epithelial stem cells: past, present and future, Tokyo, Japan.
- 2000 Protein Expression Conference, Cambridge Healthtech Institute, Arlington, VA.
- 2000 FASEB Summer Research Conference on the Tetraspanin Superfamily, Snowmass, Colorado.
- 2000 International Symposium on Urological Research, Taipei, Taiwan.
- 2000 The Fifth Asian Congress on Urology, Beijing, China.
- 2000 XIV International Congress of Eye Research, Santa Fe, New Mexico.
- 2000 International Symposium on Interstitial Cystitis and Basic Bladder Research, Minneapolis, Minnesota.
- 2000 The Fourth International Alexandria Oncology Conference and European School of Oncology Course, Alexandria, Egypt.
- 2001 Symposium on Stem Cells and Tissue Engineering, Taipei, Taiwan.
- 2001 Symposium on Stem Cells: Biology, Characterization and Therapeutic Potential, Association of Research in Vision and Ophthalmology, Fort Lauderdale, Florida.
- 2001 Keynote Speaker on corneal epithelial stem cells, International Ocular Surface Society, Fort Lauderdale, Florida.
- 2001 Symposium on Genetics of Regeneration, Association for Advanced Wound Care, Las Vegas, Nebraska.
- 2001 Frontiers in Vision Science, Tufts Medical School, Boston, MA.
- 2002 Timberline Symposium: Embryogenesis, Growth, and Differentiation of Epithelial Tissues, Timberline, Oregon.
- 2002 Irwin Blank Residents Forum, Society of Investigative Dermatology, LA, CA.
- 2002 FASEB Research Conference on Proteins in the Tetraspanin Family, Tucson, Arizona.
- 2002 Gordon Research Conference on Signal Transduction by Engineered Extracellular Matrices, New London, Connecticut.

- 2002 Special Speaker, Forum on Graduate Education, National Yang Ming University, Taipei, Taiwan (“ Teaching students how to do research: current status, misconceptions and perspectives”).
- 2002 Chinese Urological Symposium, Changsa, China.
- 2002 Keynote Speaker, Symposium on Epithelial Cell Biology, University of Southern California (“Corneal epithelial stem cells: past, present and future”).
- 2002 Special Speaker on scientific methods, the 4th Asian-Pacific Organization for Cell Biology Congress, Taipei, Taiwan.
- 2002 28th Annual Meeting of the Chinese Dermatological Society, Taipei, Taiwan.
- 2002 Keynote Speaker on keratinocyte stem cells, Brisbane Biotechnology Conference, Queensland, Australia (“Keratinocyte stem cells”).
- 2002 Society of Basic Urological Research Symposium on the Functional Genomics of the Urogenital System, Tucson, Arizona.
- 2003 Keynote Speaker, Society of Cell and Molecular Biology, Taiwan (“Urothelial growth and differentiation”).
- 2003 Borden Lecturer, Joint Annual Meeting of the British Society of Cell Biology and Developmental Biology, Warwick, UK (“How much can you trust your PhD advisor?”).
- 2003 Plenary Speaker, 5th Pan-Pacific Connective Tissue Symposium, Ube-City, Yamaguchi, Japan (“Trust in authorities, risk assessment and experimental design”).
- 2003 Gordon Conference on Epithelial Differentiation & Keratinization, Tilton, New Hampshire (“Structure and function of urothelial plaques”).
- 2003 Leopold P. Koss Scientific Symposium on Cancer of the Bladder and the Uterine Cervix: New Perspectives, New York Academy of Medicine (“Uroplakins and transgenic bladder tumor models”).
- 2003 Keynote Speaker, 17th Annual Meeting on Keratinocyte Biology, Akita, Japan (“Training of Young Biomedical Investigators”).
- 2003 Keynote Speaker, Chinese Society of Cell Biology, Nanjing, China (“Scientific Methods”).
- 2003 28th Annual Alumni Meeting, Memorial Sloan Kettering Cancer Center, NY (“Uroplakins, urothelial differentiation and bladder diseases”).
- 2004 FASEB Summer Conference on Retinoids, Gallaway Gardens, Pine Mountain, Georgia.
- 2004 FASEB Summer Conference on Tetraspanins, Gallaway Gardens, Pine Mountain, Georgia.
- 2004 Society of Chinese Bioscientists in America, Beijing, China
- 2004 4th Beijing International Symp on Recent Advances in Urology, Beijing, China.
- 2004 Basic Research in Interstitial Cystitis, NIDDK, Bethesda, MD.
- 2005 Keynote Speaker, Symposium on “Urothelial Cell Physiology in Normal and Disease States”, an IUPS 2005 Satellite Symposium, San Diego, CA.
- 2005 International Bladder Symposium, Baltimore, MD.
- 2005 Urologist Training College, Peking University, Hanzou, China.
- 2005 Symposium on the Frontier Research in Biomedical Science of the Jung-Yaw Lin Culture and Education Foundation, Tainan, Taiwan.
- 2005 Inaugural Special Lecturer, Annual Meeting of the MD Anderson Cancer Center Postdoctoral Association, Houston, Texas.
- 2005 Group on Graduate Research, Education and Training (GREAT) on *The Future of the Biomedical Science Workforce*, Fort Myers, Florida.
- 2005 Keynote Speaker, Society for Basic Urological Research-European Society of Urological Research Joint Annual Symposium, Miami Beach, Florida.
- 2006 Cornerstone Speaker, Gordon Conf on Intermediate Filaments, New Port, RI.
- 2006 Co-chair, FASEB Summer Conference on Tetraspanins, Tucson, Arizona.
- 2006 Basic Research in Interstitial Cystitis, NIDDK, Bethesda, MD.

- 2006 Keynote Speaker, National Taiwan University Alumni Association, Greater New York Chapter, Fort Lee, NJ.
- 2006 Keynote Speaker, Symposium on Vesicoureteric Reflux and the Genetics of Renal Development, Institute of Child Care, University College London, UK.
- 2007 Bonner Forum Biomedizin, Bonn, Germany.
- 2007 National Yang Ming University, Taiwan.
- 2007 University of North Carolina, Chapel Hill, NC.
- 2008 Keynote Speaker, Denk Symposium: From Disease to Molecules to Disease, Graz, Austria.
- 2008 Columbia University Cancer Center, New York City.
- 2008 NIDDK, NIH, Bethesda, MD.
- 2009 Ordway Medical Institute, Albany, NY.
- 2009 NIDDK, NIH, Bethesda, MD.
- 2010 Keynote Speaker, Taiwan Biochemical Society Annual Meeting, Taipei, Taiwan
- 2010 Department of Pharmacology, University of Vermont.
- 2011 National Yang Ming University, Taiwan.
- 2011 FASEB Meeting on Tetraspanins, Vermont.
- 2011 Taiwanese Dermatological Society, Taipei, Taiwan.
- 2011 Keynote Speaker, Workshop for New Faculty Members, National Taiwan University.
- 2011 School of Chemistry and Molecular Biosciences, University of Queensland, Brisbane, Australia.
- 2012 Keynote Speaker, Austrian Academy of Sciences Postdoctoral Fellowship Award Ceremony, Vienna, Austria.
- 2012 Chinese Urological Society, Hainan, China.
- 2012 George O'Brien Center Mini-Symposium on "Epithelial and Neuronal Signaling in Lower Urinary Tract", University of Pennsylvania.
- 2012 Cell Biology Department, CINVESTAV-IPN, Mexico City.
- 2013 Department of Microbiology and Immunology, Loyola Medical College, Chicago.
- 2013 Epithelial Biology Group, Northwestern University School of Medicine.
- 2013 Genetic Research and Discovery workshop, Einstein Medical College, NY.
- 2013 Department of Analytical Chemistry, Complutense University of Madrid, Spain.
- 2013 Centro de Biología Molecular Severo Ochoa, Universidad Autónoma de Madrid, Spain.
- 2013 Department of Medicine Renal Division, Washington University, MO.
- 2013 Department of Biomedical Engineering, Washington University, MO.
- 2013 Department of Pathology, University of Utah, Salt Lake City, Utah.
- 2013 UCLA Cancer Center, CA.
- 2014 Department of Biochemistry, Johns Hopkins School of Public Health, Baltimore, MD.
- 2014 Moffitt Cancer Center, University of South Florida, Tampa, FL.
- 2014 Department of Pathology, University of Alabama, Birmingham, AL
- 2014 Department of Cell Biology, University of Ljubljana, Faculty of Medicine, Slovenia.
- 2014 National Yang Ming University, Taipei, Taiwan.
- 2014 Departments of Biochemistry and Mol Biology, Molecular Microbiology & Immunology, and Environmental Health Sciences, Johns Hopkins School of Public Health, Baltimore, MD.
- 2014 Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan.
- 2014 Cold Spring Harbor Lab, NY.
- 2014 Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan.
- 2014 National Tsinghua University, Hsinchu, Taiwan.
- 2014 National Chiao Tung University, Hsinchu, Taiwan.
- 2015 National University of Rio, Brazil.
- 2015 Steinhardt School, NYU.
- 2015 Symposium on the Genetic Origins and Complications of Urinary Tract Abnormalities,

- Columbia University.
 2015 Cold Spring Harbor Lab, NY.
 2016 Keynote Speaker, Gordon Research Conference on Cornea, Ventura, CA.
 2016 Keynote Speaker, Annual Retreat, Doctoral College of Metabolic and Cardiovascular Disease, Medical University of Graz, Austria.

J. Organizing Roles in Scientific Meetings:

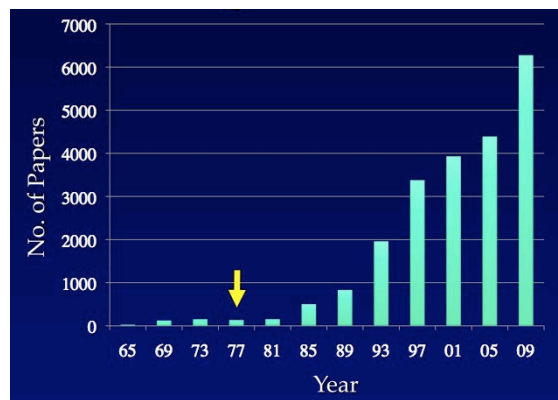
- 1983 Co-organizer, Workshop on In Vitro Differentiation of Keratinocytes, Society of Investigative Dermatology, Washington, DC.
 1983 Organizer, Session-In-Depth on Intermediate Filaments as Molecular Markers for Cell Identification: 34th Annual Meeting of the Tissue Culture Association, Orlando, Florida.
 1984 Co-organizer, International Symposium on Intermediate Filaments, New York Academy of Sciences, New York, New York.
 1989 Organizer, Symposium on Intermediate Filaments, Joint Annual Meeting of the American Society for Cell Biology & American Society for Biochemistry & Molecular Biology, San Francisco, CA.
 1989 Organizer, Workshop on Epithelial Differentiation, International Conference on Differentiation and Neoplasia, Vancouver, Canada.
 1992 Co-organizer, Intermediate Filament Workshop, Annual Meeting of American Association of Anatomists, New York, NY.
 1993 Vice Chair, Gordon Conference on Epithelial Differentiation & Keratinization, Tilton, NH.
 1995 Chair, Gordon Research Conference on Epithelial Differentiation and Keratinization, Tilton, NH.
 1995 Program Chair, 6th International Symposium of the Society of Chinese Bioscientists in America, Vancouver, British Columbia, Canada.
 2002 Co-chair, Program Committee, Annual Meeting of the Soc. of Invest. Dermatol., Los Angeles, CA.
 2006 Co-chair, FASEB Summer Research Conferences on Membrane Organization by Tetraspanins and Small Multi-transmembrane Proteins, Tucson, Arizona.

K. Research Summary & Impact:

H-Index 91 per [Google Scholar](https://scholar.google.com/citations?user=...).

(i) Discovery that Keratins Are Epithelial Differentiation Markers.

Keratins, a group of fibrous and highly insoluble proteins, were thought to be present only in the skin epidermis and its appendages such as hair and nail. Our work in the late 70's helped to establish that keratins actually form intermediate filaments in almost all mammalian epithelia greatly expanded the interest on keratins as an epithelial marker (see graph). Our papers describing these findings have been cited heavily (Cell 1978, 388 times; J Biol Chem 1978, 511; Proc Natl Acad Sci USA 1979, 570 times; Cell 1980, 274) and have therefore been considered "citation classics". During the ensuing 4-5 years, over 20 keratins were discovered with complicated expression



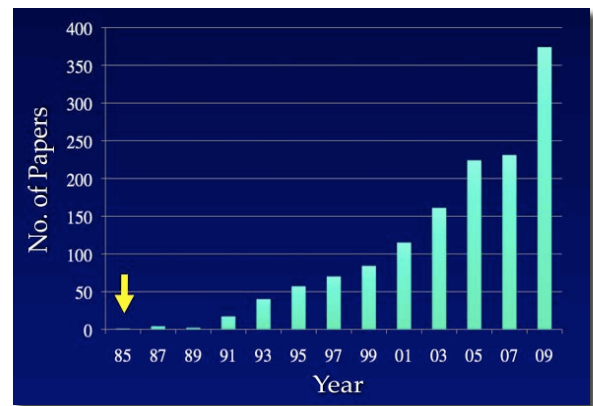
patterns. In a series of papers published in the early-to-mid 80's, we showed that specific acidic and basic keratins form co-expressed "pairs" that represent markers for different pathways and stages of epithelial differentiation (Cell 1982 cited 643 times; J Cell Biol 1982, 708 times; J Cell Biol 1984a, 410 times; J Cell Biol 1984b, 525 times; Cancer Cells Cold Spring Harbor Lab Symposium 1984, 451 times; Lab Invest 1985, 764 times). These findings have major implications for keratin structure, function & evolution.

(ii) Discovery of Corneal Epithelial Stem Cells.

Based on the unique keratin expression pattern of corneal epithelium, we reported in 1986 that corneal epithelial stem cells reside in the limbus, a previously ignored, transitional zone between cornea and conjunctiva (J Cell Biol 1986; cited 1,220 times). This work and a subsequent 1989 Cell paper done in collaboration with Robert Lavker of the Northwestern University (1,023 times) led to the rejection of the classical concept of "conjunctival

epithelial transdifferentiation" which proposed that conjunctival epithelial cells can migrate onto the denuded cornea forming a bona fide corneal epithelium. The limbal stem cell concept explains why an earlier surgical procedure, in which conjunctival epithelium was used to repair damaged corneal epithelium, was ineffective. The new concept led to the introduction of a new surgical procedure called "limbal stem cell transplantation" (198,000 results from Google search) in which limbal stem cells are used to repair a damaged or denuded corneal

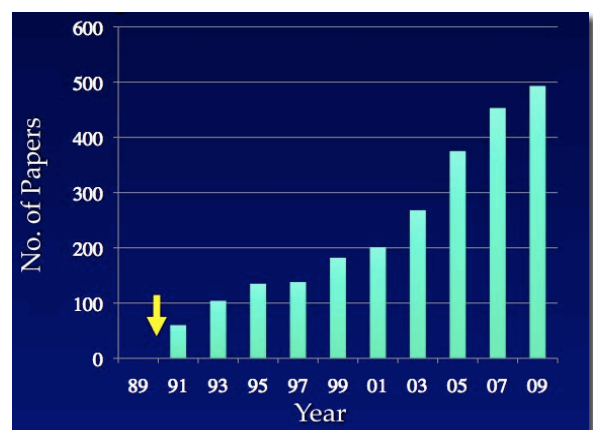
epithelium. Without limbal stem cell transplantation, corneal transplants in patients who are deficient in limbal stem cells invariably fail due to blood vessel in-growth and corneal opacity. Limbal stem cell transplantation solved this problem and restored the eyesight of many patients; this procedure is therefore being performed by ophthalmologists worldwide. In addition, the limbal stem cell concept has led to an improved understanding and classification of various anterior ocular epithelial disorders. The limbal stem cell concept is now widely accepted and is discussed in most ophthalmology textbooks.



(iii) Co-discovery of the Hair Follicle Stem Cells.

In collaboration with Robert Lavker of Northwestern University, we discovered that hair follicular epithelial stem cells are located, not in the matrix area of the hair root as suggested by the old concept, but rather in upper hair follicle in a

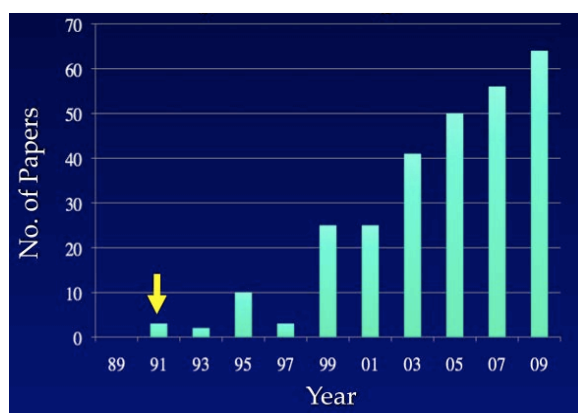
previously ignored area called the bulge - which is a part of outer root sheath and marks the lower end of the permanent (upper) portion of the hair follicle (Cell 1990, cited 1,799 times; also Cell 2000, 1,040 times). This finding can explain many paradoxical properties of the hair follicle including the dispensability of the epithelium of lower follicle in hair reconstitution assays, and provided for the first time a mechanistic model explaining the cyclic nature of the follicular growth, i.e., the so-called hair cycle in which a follicle goes through phases of growing, degenerating and resting. We proposed that the contact between the



normally slow-cycling bulge stem cells and the dermal papilla cells (a group of highly specialized follicular mesenchymal cells located at the hair root) during the resting phase plays a key role in “activating” the epithelial stem cells to undergo proliferation thereby sending a column of “transit amplifying cells” growing downward forming a new lower follicle (the “bulge-activation hypothesis”). This hypothesis has major implications on the relationships among the various keratinocyte lineages in the skin, the mechanism of hair follicle regulation, and the roles of hair follicle in skin tumor formation and in a wide range of other skin diseases.

(iv) **Discovery of Uroplakins as Major Urothelial Differentiation Markers.**

Keith Porter, a pioneer of modern cell biology, discovered in the early 60’s that numerous rigid-looking plaques cover the entire apical surface of bladder epithelium. Later investigators found that these plaques consist of 2D crystals of hexagonally arranged 16-nm particles protruding lumenally, hence the term “asymmetric unit membrane” (AUM). This structure fascinated and attracted the attention of several well-known investigators including Andrew Staehelin, David Robertson and Marian Hicks, who studied the ultrastructure of AUM in the 70’s and 80’s. Although these investigators succeeded in partially purifying the AUM’s, studies on AUM protein subunits were hindered by the fact that no one was able to generate monospecific antibodies to any of the putative AUM subunits. Without even a basic understanding of the protein composition of AUM, the field died in the late 80’s. In 1990, we provided the first description of several novel AUM protein subunits, that we named uroplakins (urothelial plaque-associated proteins). Our studies on uroplakins have established that uroplakins are markers for metastatic bladder cancer; that uroplakin Ia can serve as the urothelial receptor for the uropathogenic E. coli that cause >90% of urinary tract infections; that urinary bladder can be converted to a novel bladder bioreactor; that one can use uroplakin promoter to generate transgenic mouse models for dissecting the molecular pathways of bladder tumorigenesis; and that uroplakin knockout can cause vesicoureteral reflux – a hereditary disease affecting 1% of the newborns and one of the leading causes of renal failure in pediatric urological patients, and, with certain genetic backgrounds, death.



(v) **An Innovative Workshop on Scientific Methods**

I began teaching scientific integrity in the late 90’s, but soon realized that to teach the students “Thou Shalt Not Do This or That” was of limited use, because it failed to address the fact that some students were unable to be productive in the lab, which is a major cause of scientific misconduct. Therefore, I created in 2001 a graduate course, entitled “Scientific Methods: Survival Skills for Young Biomedical Investigators”. As a one-day workshop with four lectures (~1.5 hour each), this course addresses: (i) how to get laboratory techniques to work reproducibly and predictably (‘Lab Experiment’); (ii) how to read papers actively, rather than passively, and how to generate new ideas (‘Thought Experiment’); (iii) how to write a scientific paper; and (iv) how to be an effective seminar speaker. This course has been a requirement for all our new



PhD and MD/PhD students at NYU Medical School since 2001. Based on the extremely positive student feedback (<http://sun-lab.med.nyu.edu/scientific-methods/dr-suns-workshop>), starting 2004 I opened this workshop to students and postdocs from all the universities in the New York City area including NYU Medical School, Cornell Medical College, Columbia, Einstein, Mt. Sinai, Rockefeller, SUNY Downstate. Several of these institutes listed this one-day event as a part of their graduate students' orientation program. The workshop is usually held on a Saturday in September, is attended by 200-250 students/postdocs from all the NYC research institutes.

I have also been invited to give this workshop and related lectures by many other universities outside of NYC including more recently Albany Medical College, Cold Spring Harbor Lab (every year since 2011), Johns Hopkins School of Public Health, Loyola Medical College, University of Alabama Birmingham, University of California Davis, UCLA Cancer Center, University of South Florida and Moffitt Cancer Center, University of Utah, Austrian Academy of Sciences Fellowship Ceremony keynote speech, CINVESTAV-IPN Mexico City, Spanish Society of Analytical Chemistry and Complutense University of Madrid Spain, University of Ljubljana Slovenia Institute of Cell Biology, University of Queensland, Academia Sinica, National Taiwan Univ, National Yang Ming University, Peking University.



The course received enthusiastic responses. For example, Lecture One on experimental design (“How Much Can You Trust Your PhD Advisor?”, after it was given in 2003 as the Borden Lecture in the Joint Annual Meeting of the British Soc of Cell Biology and Developmental Biology, Warwick, England, received the following feedback:

- Peter Currie, Meeting review, *Development* **130**:3903 (2003): “This year’s *Borden lecture* was given by Henry Sun, who is Rudolf L. Baer Professor of Dermatology and Professor of Pharmacology and Urology at New York University Medical Center. In a highly entertaining talk, Henry Sun threw a lifeline for PhD students. He gave advice on how to handle trust in authority, risk assessment and experimental design whilst also supporting a more direct approach towards the coaching of PhD students.”
- Faculty, Univ of Manchester: “You gave a really inspirational talk, and I am sure your ideas will help many of us. If there is a chance that we can find the way to fly you over again in a year or so, would you interested in visiting Manchester? We have a large faculty here and I think they (staff and students) would be very keen to hear you. It might also be fun to meet with some of our PhD students as well. Maybe I could arrange something with some other Universities at the same time?”
- Faculty, Univ of Nottingham: “Thanks again for your wonderful talk at the meeting in Warwick. I, like many others at the meeting, found many elements of direct relevance to my own graduate students and it would be great to be able to 'steal' some of your talk to use. Is it possible for you to send something or to post it on your web site.”
- Faculty, Univ of Edinburgh: “I thoroughly enjoyed hearing your talk at Warwick this spring. Is there a copy available on-line? What is the source of the information about titrating a large number of variables with a small number of tests?”

The content of this lecture on experimental design (Lecture One of the workshop) was published in a paper entitled “Excessive Trust in Authorities and Its Influence on Experimental Design” ([Sun TT](#),

Nature Reviews in Molecular & Cell Biology 5: 577-581, 2004), which received the following feedback:

- Postdoc, Rockefeller University: I absolutely loved your article. I read the entire work before even retrieving the pdf from the printer, which I almost never do with any publication. Furthermore, I was moved to write you, an even more uncommon occurrence. I think my science, my notebook, and even my enjoyment of this process will benefit from having read this. Thank you for sharing your valuable thoughts on this matter!”
- Assistant Professor, Scripps Research Institute: “I have just read your article published online in nature reviews. This is **THE MOST IMPORTANT SCIENTIFIC ARTICLE** that I have ever read. I "live" according to these rules from the first day in my scientific career. There is no way (I or anyone else) could have written it better. It is a must for every student entering the lab and I thank you for writing it so scientists like myself who are setting up a new lab can give it to their students before they put the lab coats for the first time.”
- Professor of Physics, Johns Hopkins University: “Every starting graduate student should read this paper. I am sending it to my students, starting or otherwise.”

Student feedback from a recent 2014 Hopkins workshop include:

- “What an excellent workshop! I have learned more in today's one-day workshop than in many full term classes!”
- “Really great course! I feel I can immediately implement what I've learned and improve both my graduate work and my future career.”
- “The most interesting part was the psychological underpinnings of how we respond to authorities.”
- “Dr. Sun is a great presenter, easy to understand, and mixes in just the right amount of humor.”
- “I think this course is excellent for beginning students and a good review for more advanced scientists. I wish I was exposed to this course when I was a graduate student. Each section reinforced key concepts for me (Faculty).”
- “As someone who tends to excessively trust authority, I greatly appreciated this seminar!”
- “Absolutely fantastic! Students should be exposed to this kind of talk as early as possible.”
- “Even as a student with a mechanical engineering background, this workshop was remarkably useful. Dr. Sun's unyielding focus on practical applications was refreshing and exceptionally helpful.”
- “Great workshop! I think it should be added to the curriculum at Biochem Mol Biol for the first year graduate students.”
- “I have left this workshop with a handful of lessons and skills that I am eager to apply to my own research.”
- “This course is excellent because it tells students in plain language the things they need to be successful in research. Everything discussed may not be new to everyone but it is helpful to hear someone say plainly what other PIs and postdocs hint at and pretty much expect you to pick up on your own.”
- “It is very encouraging to think that I can improve my methods by trusting less in authority and being more skeptical.”

- “Wonderful Course! You are a brilliant, engaging, and persuasive speaker.”
- “I think a course like this should be required for all beginning researchers and all new faculty members just establishing their labs.”
- “Great course, entertaining, and good to spread the word of what is good science.”
- “The style was fun and engaging and the information was practical and useful.”
- “The first two sections were very motivational, making me want to run out of the seminar and get to the lab.”

For additional student feedback see <http://sun-lab.med.nyu.edu/scientific-methods/dr-suns-workshop/FeedbackI>.

Since 2001, this course has been attended by about 3,000 attendees from NYU and other NY City institutes, plus another 8,000 to 10,000 attendees from other universities (see <http://sun-lab.med.nyu.edu/scientific-methods/dr-suns-workshop>). The content of Lecture One of the workshop on experimental design was published in a [paper](#) entitled “Excessive Trust in Authorities and Its Influence on Experimental Design” (Sun TT, Nature Reviews in Molecular & Cell Biology 5: 577-581, 2004), and a book, based on the workshop, is being prepared for a major academic publisher.

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