

**D. BENJAMIN BORSON, M.A., J.D., Ph.D.**  
**CURRICULUM VITAE**  
**21 October 2020**

**DISCLAIMER**

The information contained in this Curriculum Vitae is for informational purposes only, and does not imply or guarantee that any future or current legal representation will produce similar results.

**EXECUTIVE EXPERIENCE**

Founder and President, Borson Law Group, PC, Intellectual Property Law Practice  
Adjunct Professor of Law, Golden Gate University School of Law  
Past Member, Patent Public Advisory Committee, USPTO  
Past Board Member and Past Chair, Business Law Corporate Counsel Section,  
Contra Costa County Bar Association  
Chair, Legislation Interest Group, IP Law Section, State Bar of California  
Co-Chair, Hot Topics Subcommittee, AIPLA  
Co-Chair, Patent Policy Subcommittee, AIPLA  
Co-Chair, Patent Law Subcommittee on Patentability, AIPLA  
President and Board Member, Contra Costa Performing Arts Society  
Past President, current Vice President and Board Member, Amphion Music Club  
Past Member, New Zealand Biotechnology Organization  
Past member of the Executive Committee, Intellectual Property Law Section, State Bar of  
California; member of IP and International Law Sections  
Past Co-Chair, Council of State Bar Sections  
Founder and Past President, BioScience Forum  
Past Chair, Northern California Pharmaceutical Discussion Group  
Past Principal Investigator, NIH Grant-Funded research program in basic biomedical  
research  
Past President, Buchanan Flying Club  
Past President, Bay Flute Club

**LEGAL EXPERIENCE**

Intellectual Property. Develop and implement business-focused U.S. and foreign IP strategies. Advise clients regarding requirements of patentability, scientific and legal strategies for supporting patent applications, trade secrets, licensing and trademark applications. Advise clients regarding domestic and international intellectual property implications of business decisions, licensing, contracting and litigation.

Scientific Consultation: Experimental design and implementation; evaluation of methods and results. Medical therapy and therapeutic standards in physiology, pharmaceuticals, molecular diagnostics and genetic markers of disease.

Patent Drafting: Drafting and filing provisional and utility patent applications, PCT and non-PCT foreign patent applications. Drafting patents relating to therapeutics including antisense, immunology, analytical methods, pharmaceuticals, bioinformatics, chemicals, medical devices, medical and semiconductor polymers, manufacturing processes, methods of use, semiconductor processing equipment for polymer deposition and manufacture, organic and inorganic chemistry, superconductors, information technology and software, oncogenes, nucleic acids, oncogene products; methods of use: immunoassays, antisense and antibody therapy, diagnostic methods, mechanical inventions, consolidation of applications and claim drafting.

Patent Prosecution: Biotechnology, chemical, pharmaceutical, bioinformatics, software, medical device, immunological, mechanical, superconductivity and semiconductor patent prosecution: drafting amendments relating to cellular uptake, efficacy of antisense nucleotide therapeutics, bio-polymer chemistry, semiconductors, medical chemistry. Preparation of Information Disclosure Statements. Drafting declarations and petitions supporting patentability. Drafting Opposition documents for foreign prosecution. Consultation with foreign associates. Over 140 patents issued

Legal Opinions: Research and preparation of legal opinions regarding joint ventures, non-infringement and invalidity; due diligence analysis of patent applications, patents and patent portfolios.

Contracts and Licensing: Negotiate and draft purchase and resale agreements, confidentiality agreements, employee agreements, consulting agreements, technology transfer and licensing agreements. Evaluation of technical and legal services and due diligence. Over 50 Licenses and Agreements and 12 validity or non-infringement opinions prepared.

Trademarks: Drafting, prosecution, and maintenance of trademark and service mark applications and registrations in United States and in foreign countries.

Dispute Resolution: Legal research and analysis, preparing motions and memoranda of points and authorities, filing court documents, court appearances, mediation and arbitration; draft cease and desist letters.

Client Development: Develop life sciences and high-technology practice. Meet with prospective clients, discuss intellectual property strategies and services, develop and implement intellectual property strategies. Portfolio of current clients includes immunology, bioinformatics, oncology, superconductors, pharmaceuticals, diagnostics, phototherapy, molecular diagnostics and assay development.

Public Service: Develop and present lectures on Legal, Business and Scientific matters for U.S. and foreign clients; provide and coordinate input to legislative and agency rule-making processes. Past member Patent Public Advisory Committee of the USPTO; past

member of IP Section Delegation to Washington DC and the USPTO. Organize Educational Symposia on Science, Technology and Law. Member, American Intellectual Property Law Association Patent, International Law and Biotechnology Committees. Co-Chair, AIPLA Patent Sub-Committee on Section 101, Co-Chair Patentability Subcommittee, Co-Chair, Patent Policy Subcommittee. Past Chair and current member of the Board, Business Law Corporate Counsel Section, Contra Costa County Bar Association.

Training Associates and Staff Supervise attorneys, staff and interns in drafting and prosecution of patent applications, trademarks and trade secrets world-wide, patentability and infringement opinions, firm practices and USPTO practices.

Community Service Perform musical works for non-profit organizations; organize and develop programming for non-profit musical organizations.

## REPRESENTATIVE CLIENTS

<b>Company</b>	<b>Technology</b>
Acacia Patent Acquisition, LLC	Biotechnology
ADC2 Technologies, LLC.	Video Compression and Decompression; software
Advanced Microdevices	Semiconductor Manufacturing and Chemistry
Advanced Technology & Materials, Inc.	Chemistry, Nanotechnology, Advanced Materials and Semiconductor Manufacturing
AIST-NT, Inc.	Atomic Force Microscopy
Alpha Golf, Inc.	Medical Devices, Systems Engineering and Therapeutics
Apollo Future Technology, Inc.	Trademarks
Array Bioscience Corporation	Chemistry, Nanotechnology and Instrumentation
Attend Systems LLC	Data Center Equipment Management Systems
Biophysica, Inc.	Organic Chemistry and Pharmaceuticals
Canon USA, Inc.	Advanced Materials, Semiconductor Manufacturing and Tools Design
Cellular Technology Limited	Biotechnology and Diagnostic Instrumentation
DNP Pharmaceuticals	Biotechnology and Nucleic Acid Therapeutics
Fisher and Associates	Medical Diagnosis and Treatment
Fitzsimmons & Associates	Ergonomics
FzioMed Inc.	Biotechnology; Medical Devices
GNI Ltd.	Biotechnology and Bioinformatics
Immune Solutions Ltd.	Vaccines
MSM Protein Technologies	Immunology, Antibody Therapeutics
Neuren Pharmaceuticals Limited	Biotechnology, Chemistry and Pharmaceuticals
Otago Innovation Ltd.	Molecular Biology, Pharmaceuticals
Pacific Edge Ltd.	Genetic Testing, Diagnostics, and Bioinformatics
Perseis Ltd.	Antibody Therapeutics and Diagnostics
Photomed Technologies, Inc.	Medical Devices and Therapeutics
Powell, M.	Chemotherapeutics
PrognosDx	Molecular Diagnosis and Prognosis
Quantum Polymer Corporation	Chemistry, Nanotechnology and Advanced Materials

Rossi, T.	Agriculture
RPK Pharmaceuticals, Inc.	Trademarks
Salesforce.com	Information Technology
Simpson Strong-Tie Company	Construction
Suncrest, USA Inc.	Hydroponic Agriculture
Tolmei, R.	Mechanical Engineering
True Light Technologies, Inc.	Audiovisual Software
University of California	Peptide Therapeutics

## **EMPLOYMENT IN THE LAW**

2014                    **Member, Committee on Professional Responsibility and Conduct**, State Bar of California.

2010-2015           **Adjunct Professor of Law, Golden Gate University School of Law**

2009-2012           **Member, Patent Public Advisory Committee, United States Patent and Trademark Office**

2006-                    **Founder and President, Borson Law Group, PC**

2004 - 2006           **Of Counsel: Fliesler Meyer LLP**  
(formerly Fliesler, Dubb, Meyer & Lovejoy LLP)

2003                    **Of Counsel: Fliesler, Dubb, Meyer & Lovejoy LLP**

1997 - 2003           **Associate: Fliesler, Dubb, Meyer & Lovejoy LLP:**

1996 - 1997           **Law Offices of Leona L. Lauder:** Biotechnology patent prosecution

1996                    **Philip A. Dalton & Associates:** Mechanical patent preparation

1994                    **University of San Francisco Continuing Legal Education Program**  
*Lecturer: Uses of DNA Technology in Forensic Sciences.*  
Polymerase chain reaction, restriction fragment length polymorphism, statistical analysis.

1993                    **Flehr, Hohbach, Test, Albritton, & Herbert**, San Francisco, California     *Summer Associate:*

Biotechnology patent prosecution: drafting amendments pertaining to nucleic acids and proteins; methods of use including antisense therapy, diagnostic methods including immunoassays.

Litigation support: legal research and drafting: joinder, infringement, licensing. Patent portfolio evaluation. Gene therapy, nucleic acid delivery.

Scientific consultation protein synthesis, cellular uptake of therapeutic agents.

1987 - 1992

**University of California, San Francisco and Genentech, Inc.,**  
South San Francisco

Experimental design: implementation of scientific support for patent applications. Biotechnology patent prosecution: drafting disclosure documents and patent applications, declarations, and amendments relating to Therapeutic Uses and Composition and Matter of Enkephalinase.

## LEGAL CERTIFICATION

State Bar of California  
United States District Court for the Northern District of California  
Registered to Practice before the U.S. Patent and Trademark Office

## EDUCATION

University of San Francisco School of Law. J.D., 1995  
University of California, San Francisco. Ph.D. Physiology, 1983  
University of California, Riverside. M.A. Biology, 1973  
San Francisco State College. B.A. Biology, 1969

## PROFESSIONAL ORGANIZATIONS

BioScience Forum (Founder and Past President)  
Northern California Pharmaceutical Discussion Group (Past Chair)  
Past Member, Patent Public Advisory Committee (PPAC), USPTO (2009-2012)  
State Bar of California  
Committee on Professional Responsibility and Conduct (COPRAC; 2013-2014)  
Professional Liability Insurance Availability and Affordability Working Group  
Council of Sections Advisor (2005-2006)  
Council of Sections (Co-Chair 2004-2005)  
Council of Sections (Co-Vice Chair 2003-2004)  
Intellectual Property Section  
Legislation Interest Group (Chair 2006-)

Council of State Bar Sections IP Representative (2004-2006)  
Executive Committee (2001-2004)  
Patent Standing Committee (1999- )  
Special Commission on Proposed USPTO Rules (Chair)  
Board of Governor's Task Force on Sections (Section Representative  
2004-2006)  
IP Section Delegate, Conference of California Bar Associations (2007-  
2010)  
Am. Intel. Prop. Law Assoc. Biotechnology, International law and Patent  
Committees,  
Co-Chair, Hot Topics Subcommittee (2016- )  
Co-Chair, Patent Policy Subcommittee (2014-2016)  
Co-Chair, Patentability Subcommittee (2011-2014)  
Co-Chair, Patent Subcommittee on Section 101 (2009-2011).  
  
Contra Costa County Bar Association, Chair, Business Law Corporate Counsel  
Section (2011-2013), Treasurer (2014-2016)  
Federal Circuit Bar Association (past)  
San Francisco Intel. Prop. Law Assoc. (past)  
Federated Association of Societies for Experimental Biology (past)  
American Lung Association (past)  
American Physiology Society (past)  
American Association of Cell Biologists (past)  
American Chemical Society (past)  
American Association of Pharmaceutical Scientists (past)

## **PROFESSIONAL DEVELOPMENT**

Originated and maintained legal practice relating to life sciences, chemistry, semiconductor manufacturing, copyright, IP counseling and IP transactions, in pharmaceuticals, analytical instrumentation, biotechnology, genetics, information technology, bioinformatics, immunology, diagnostics, therapeutics, superconductive materials and semiconductor processing.

## **PATENTS PREPARED, PROSECUTED AND/OR ISSUED**

1. Jui H. Wang et al., *Poly-Substituted-Phenyl-Oligoribonucleotides Having Enhanced Stability and Membrane Permeability and Methods of Use*, U.S. Pat. No: 5,858,988, issued Jan 12, 1999.
2. Herbert E. Schwartz et al., *Bioresorbable Compositions of Carboxypolysaccharide Polyether Intermacromolecular Complexes and Methods for Their Use in Reducing Surgical Adhesions*. U.S. Pat. No: 5,906,997, issued May 25, 1999.

3. Radu Barsan et al., *Use of Borophosphorous Tetraethyl Orthosilicate (BPTEOS) to Improve Isolation in a Transistor Array*. U.S. Patent No: 5,908,308, issued June 1, 1999.
4. James E. Currie et al., *Planarization Composition for Removing Metal Films*. U.S. Pat. No: 5,993,685, issued November 30, 1999.
5. Ashraf R. Khan et al., *Surface Modification of Semiconductors Using Electromagnetic Radiation*. U.S. Pat. No: 6,015,759, issued January 18, 2000.
6. Herbert E. Schwartz et al., *Bioresorbable Compositions of Carboxypolysaccharide Polyether Intermacromolecular Complexes and Methods for Their Use in Reducing Surgical Adhesions*. U.S. Pat. No: 6,017,301, issued January 25, 2000.
7. Chung J. Lee et al., *Precursors for Making Low Dielectric Constant Materials with Improved Thermal Stability*. U.S. Pat. No: 6,020,458, issued February 1, 2000.
8. Herbert E. Schwartz et al., *Bioresorbable Compositions of Carboxypolysaccharide Polyether Intermacromolecular Complexes and Methods for Their Use in Reducing Surgical Adhesions*. U.S. Pat. No: 6,034,140, issued March 7, 2000.
9. Giovanni Antonio Foggiato et al., *Large Area Discharge Excitation Radiator*. U.S. Pat. No: 6,049,086, issued April 11, 2000.
10. Chung J. Lee et al., *Low Dielectric Constant Materials and Method*. U.S. Pat. No: 6,051,321, issued April 18, 2000.
11. Sunil D. Mehta et al., *Annealing of Silicon Oxynitride and Silicon Nitride Films to Eliminate High Temperature Charge Loss*. U.S. Pat. No: 6,071,784, issued June 6, 2000.
12. David Leksell et al., *Chamber for Reducing Contamination During Chemical Vapor Deposition*. U.S. Pat. No: 6,079,353, issued June 27, 2000.
13. Chung J. Lee et al., *Deposition Systems and Processes for Transport Polymerization and Chemical Vapor Deposition*. U.S. Pat. No: 6,086,679, issued July 11, 2000.
14. Gouxi Pan, *High Hardness and Wear-Resistant Flux Cored Wire*. U.S. Pat. No: 6,103,997, issued August 15, 2000.

15. David Leksell et al., *Chamber for Reducing Contamination During Chemical Vapor Deposition*. U.S. Pat. No: 6,114,227, issued September 5, 2000.
16. Herbert E. Schwartz et al., *Bioresorbable Compositions of Carboxypolysaccharide Polyether Intermacromolecular Complexes and Methods for Their Use in Reducing Surgical Adhesions*. U.S. Pat. No: 6,133,325, issued October 17, 2000.
17. Chung J. Lee et al., *Chemicals and Methods for Making Fluorinated Poly(Para-Xylylenes)*. U.S. Pat. No: 6,140,456, issued October 31, 2000.
18. Yue-Song He et al., *Barrier Layer Decreases Nitrogen Contamination of Peripheral Gate Regions During Tunnel Oxide Nitridation*. U.S. Pat. No: 6,143,608, issued November 7, 2000.
19. Zoran Krivokapic, *Convex Device with Selectively Doped Channel*. U.S. Pat. No: 6,153,454, issued November 28, 2000.
20. William Oppelt, et al., *Laparoscopic Insertion and Deployment Device*, U.S. Pat. No: 6,193,731, issued February 27, 2001.
21. Lu You et al., *Cure Process for Manufacture of Low Dielectric Constant Interlevel Dielectric Layers*. U.S. Pat. No: 6,200,913, issued March 13, 2001.
22. Jonathan Lin et al., *Improving Field Leakage by Using a Thin Layer of Nitride Deposited by Chemical Vapor Deposition*. U.S. Pat. No: 6,211,022, issued April 3, 2001.
23. Lu You et al., *Rapid Acceleration Methods for Global Planarization of Spin-On Films*. U.S. Pat. No: 6,225,240, issued May 1, 2001.
24. Effiong Ibok, *Graded Anti-Reflective Barrier Films for Ultra-Fine Lithography* U.S. Pat. No: 6,235,456, issued May 22, 2001.
25. Chung J. Lee et al., *Precursors for Making Low Dielectric Constant Materials with Improved Thermal Stability*. U.S. Pat. No. 6,258,407 B1, issued July 10, 2001.
26. James E. Currie et al., *Planarization Compositions for Removing Metal Films*. U.S. Pat. No. 6,267,909, issued July 31, 2001.
27. Jui H. Wang. *Antiviral Anticancer Poly-Substituted Phenyl Derivatized Oligoribonucleotides and Methods for Their Use*. U.S. Pat. No. 6,291,438, issued September 18, 2001.



28. Hyeon-Seag Kim et al., *Process for Manufacturing Shallow Trenches Filled With Dielectric Material Having Low Mechanical Stress*. U.S. Pat. No: 6,297,128, issued October 2, 2001.
29. Seshu B. Desu et al., *Near-Room Temperature Thermal Chemical Vapor Deposition of Oxide Films*, U.S. Pat. No: 6,316,055, issued November 13, 2001.
30. Lu You et al., *Apparatus and Methods for Uniform Scan Dispensing of Spin on Materials*. U.S. Pat. No: 6,317,642, issued November 13, 2001.
31. David Greenlaw et al., *Process to Separate the Doping of Polygate and Source Drain Regions in Dual Gate Field Effect Transistors*. U.S. Pat. No: 6,319,804, issued November 20, 2001.
32. Richard Brewer, Thomas J. Grebinski, James E. Currie, Michael Jones, William Muller, and Ann Nguyen, *Planarization Compositions and methods for Removing Interlayer Dielectric Films*, U.S. Patent No. 6,122,600, issued November 27, 2001.
33. Chung J. Lee et al., *Low Dielectric Constant Materials with Improved Thermal and Mechanical Properties*. U.S. Pat. No: 6,323,297, issued November 27, 2001.
34. Seshu B. Desu et al., *Oxide/Organic Polymer Multilayer Thin Films Deposited by Chemical Vapor Deposition*. U.S. Pat. No: 6,358,863 B1, issued March 19, 2002.
35. Lu You et al., *Solution Flow-In for Uniform Deposition of Spin-on Films*. U.S. Pat. No: 6,387,825, issued May 14, 2002.
36. Lu You et al., *Methods of Manufacture of Uniform Spin-On Films*. U.S. Pat. No: 6,407,009, issued June 18, 2002.
37. Hyeon-Seag Kim, *Gate Insulator Process for Nanometer Mosfets*. U.S. Pat. No: 6,413,826, issued July 2, 2002.
38. Effiong Ibok, *Method for Fabricating High Permittivity Dielectric Stacks Having Low Buffer Oxide*. U.S. Pat. No: 6,417,041, issued July 9, 2002.
39. Hyeon-Seag Kim et al., *Process for Manufacturing Shallow Trenches Filled With Dielectric Material Having Low Mechanical Stress*. U.S. Pat. No: 6,455,912, issued September 24, 2002.
40. Desu et al., *Near-Room Temperature CVD Synthesis of Organic Polymer/Oxide Dielectric Nanocomposites*. U.S. Patent No: 6,495,208 B1, issued December 17, 2002.

41. Lu You et al., *Closed Deposition Apparatus and Methods for Regulating Drying of Spin-On Films*. U.S. Pat. No: 6,530,340 B2, issued March 11, 2003.
42. Chung J. Lee et al., *Precursors for Making Low Dielectric Constant Materials With Improved Thermal Stability*. U.S. Pat. No: 6,534,616, issued March 18, 2003.
43. Raisa V. Talroze and Leonid N. Grigorov, *Conductive Polymer Materials and Methods for Their Manufacture and Use*, U.S. Pat. No: 6,563,132, issued May 13, 2003.
44. Mark E. Miller et al., *Polyacid/Polyalkylene Oxide Foams and Gels and Methods for Their Delivery*, U.S. Pat. No: 6,566,345 B2, issued May 20, 2003.
45. Peter D. Gluckman et al., *Regulation of Tyrosine Hydroxylase*. U.S. Pat. No: 6,617,311 B1, issued September 9, 2003.
46. Chung J. Lee et al., *Low Dielectric Constant Materials Prepared From Photon or Plasma Assisted Chemical Vapor Deposition and Transport Polymerization of Selected Compounds*. U.S. Pat. No: 6,663,973, issued December 16, 2003.
47. Tajrena Alexi, *Methods for Promoting Weight Gain Using GPE-Related Compounds*. U.S. Pat. No: 6,682,753 B2, issued January 27, 2004.
48. David I. Kreimer et al., *Systems and Methods for Filter Based Spectrographic Analysis*. U.S. Pat. No: 6,707,548, issued March 16, 2004.
49. Milos Sovak et al., *A Topical Antiandrogen for Hair Loss and Other Hyperandrogenic Conditions*. European Patent No: 1 169 301.
50. Peter Gluckman et al., *Use of GPE to Protect Glial Cells or Non-Dopaminergic Cells From Death From Neural Injury of Disease*. U.S. Pat. No: 6,780,848, issued August 24, 2004.
51. Peter Gluckman et al., *Methods to Improve Neural Outcome*. U.S. Pat. No: 6,812,208, issued November 2, 2004.
52. Milos Sovak et al., *Topical Antiandrogen for Hair Loss and Other Hyperandrogenic Conditions*. U.S. Pat. No: 6,828,458, issued December 4, 2004.
53. Raisa Talroze et al., *Conductive Polymer Materials and Methods for their Manufacture and Use*, U.S. Pat. No: 6,844,567, issued January 18, 2005.
54. Lance Hunter, *Shaving Cream Dispenser*. U.S. Pat. No: 6,860,413, issued March 1, 2005.

55. Herbert Schwartz et al., *Compositions of Polyacids and Polyethers and Methods for Their Use in Reducing Adhesions*. U.S. Pat. No: 6,869,938, issued March 22, 2005.
56. Allan Gardiner et al., *Illuminator with Filter Array and Bandwidth Controller*. U.S. Pat. No: 6,886,964, issued May 3, 2005.
57. Lin-Shu Lin et al., *Chemically Activated Carboxypolysaccharides and Methods for Use to Inhibit Adhesion Formation and Promote Hemostasis*. U.S. Pat. No: 6,923,961, issued August 2, 2005.
58. Christopher Williams, *Processing EEG Signals to Predict Brain Damage*. U.S. Pat. 6,931,274, issued August 16, 2005.
59. Mark Vickers et al., *Treatment of Hypertension Using Growth Hormone in Mammals Subjected to Fetal Programming*. U.S. Pat. No: 6,933,278, issued August 23, 2005.
60. Peter Gluckman et al., *Regulation of Tyrosine Hydroxylase by GPE*. U.S. Pat. No: 6,933,282, issued August 23, 2005.
61. Leonid Grigorov et al., *Quantum Devices Based on Crystallized Electron Pairs and Methods for Their Manufacture and Use*. U.S. Pat. No: 7,014,795, issued March 21, 2006.
62. Norman Abood et al., *GPE Analogs and Peptidomimetics*, U.S. Pat. No: 7,041,214, issued May 9, 2006.
63. William Oppelt et al., *Hemostatic Compositions of Polyacids and Polyalkylene Oxides and Methods for Their Use*. Australian Patent No: 2001255716.
64. Peter Gluckman et al., *GPE Analogs*. U.S. Pat. No: 7,112,570, issued September 26, 2006.
65. Chung Lee et al., *Precursors for Making Low Dielectric Constant Materials With Improved Thermal Stability*. Korean Patent No: 602222, registered July 10, 2006.
66. Chung Lee et al., *New Deposition Systems and Processes for Transport Polymerization and Chemical Vapor Deposition*. Korean Patent No: 621226, registered August 30, 2006.
67. Constance Haber et al., *Therapeutic Methods Using Electromagnetic Radiation*. U.S. Pat. No: 7,150,710, issued December 19, 2006.

68. Geoffrey Krissansen et al., *Treatment of Demyelinating Diseases*. U.S. Pat. No: 7,192,931, issued March 20, 2007.
69. Richard Berg et al., *Compositions of Polyacids and Polyethers and Methods for Their Use as Dermal Fillers*. U.S. Pat. No: 7,192,984, issued March 20, 2007.
70. Mark Miller et al., *Polyacid/Polyalkylene Oxide Gels and Methods for Their Delivery*, U.S. Pat. No; 7,265,098, issued September 4, 2007.
71. David Batchelor et al., *Methods for Detecting Weakly Immunogenic Analytes*. U.S. Pat. No: 7,282,432, issued October 16, 2007.
72. Michael Powell, *Diagnosis and Treatment of Human Dormancy Syndrome*, U.S. Pat. No: 7,288,257, issued October 30, 2007.
73. Arjen Scheepens et al., *Neuroprotective Effect of Growth Hormone*. U.S. Pat. No: 7,304,029, issued December 4, 2007.
74. Angel DeCegama, *Methods for Real-Time Software Video/Audio Compression, Transmission, Decompression and Display*. U.S. Pat. No: 7,317,840, issued January 8, 2008.
75. Anthony Reeve et al., *Medical Applications of Adaptive Learning Systems Using Gene Expression Data*. U.S. Pat. No: 7,370,021, issued May 6, 2008.
76. Seiya Imoto et al., *Biological Discovery Using Gene Regulatory Networks Generated from Multiple-Disruption Expression Libraries*. U.S. Pat. No. 7,430,475, issued September 30, 2008.
77. Michael Powell. *Diagnosis and Treatment of Human Dormancy-Related Sequellae*, U.S. Pat. No: 7,485,298, issued February 3, 2009.
78. Paul William Richard Harris et al., *Neuroprotective Macrocyclic Compounds and Methods for Their Use*, U.S. Pat. No: 7,485,630, issued February 3, 2009.
79. Ron Tolmei, *Activation of Remote Control Transmitter Functions by External Inputs*. U.S. Pat. No: 7,535,401, issued May 19, 2009.
80. Norman A. Abood and Margaret Anne Brimble, *GPE Analogs and Petpidomimetics*, European Patent No: EP 1 401 808 B1, granted 8 July 2009.
81. Frank Sieg, Edmund Hughes, Thorsten Gorba, *Neural Regeneration Peptides and Methods for Their Use in Treatment of Brain Damage*, U.S. Pat. No: 7,563,862, issued July 21, 2009.

82. Paul V. Lehmann, Alexey Y. Karulin, and Thomas Oliver Kleen, *Nanoparticle and Microparticle Based Detection of Cellular Products*. U.S. Pat. No: 7,598,093, issued October 6, 2009.
83. Peter David Gluckman, Gregory Brian Thomas, Jian Guan, Michael Dragunov, Ashmit Kumar Anand, Frank Sieg, and Margaret Anne Brimble, *Effects of Glycyl-2 Methyl-Prolyl Glutamate on Neurodegeneration*. U.S. Pat. No: 7,605,177, issued October 20, 2009.
84. Frank Sieg, Edmund Hughes, Thorsten Gorba, *Neural Regeneration Peptides and Methods for Their Use in Treatment of Brain Damage*, Japanese Patent No: 4,399,260, issued October 30, 2009.
85. Frank Sieg et al. *Neural Regeneration Peptides and Methods for Their Use in Treatment of Brain Damage*. Japanese Patent No. 4,399,260, issued January 13, 2010.
86. Michael Powell, *Diagnosis and Treatment of Human Dormancy Syndrome*, U.S. Pat. No: 7, 648,704, issued January 19, 2010.
87. Ron Tolmei, *Means, Methods, and Apparatus to Reduce the Possibility of a Motor Vehicle Entering a Freeway Ramp in the Wrong Direction of Travel, Towards Oncoming Traffic*,. U.S. Pat. No: 7,650,236, issued January 19, 2010.
88. Peter David Gluckman, Margaret Anne Brimble, Douglas Wilson, Frank Casper Tortella, Anthony Joseph Williams, Xi-Chun May, Jed. A. Hartings and Devina Gryder, *Treatment of Non-Convulsive Seizures in Brain Injury Using G-2-Methyl-Prolyl-Glutamate*, U.S. Pat. No: 7,714,020, issued May 11, 2010.
89. Allan Gardiner and Brent Michael McCullough, *Systems and Methods for Displaying Changes in Biological Responses to Therapy*, U.S. Pat. No: 7,720,306, issued May 18, 2010.
90. Frank Ernest Aldwell, Bryce Malcolm Buddle, and Ian George Tucker, *Antigenic Compositions*, U.S. Pat. No: 7,758,869, issued July 20, 2010.
91. Frank Sieg et al. *Neural Regeneration Peptides and Methods for Their Use in Treatment of Brain Damage*. U.S. Pat. No. 7,776,786, issued August 3, 2010.
92. Au-Yeung Kwok-Leung and Lee B. Bussey. *Apparatus and Methods for Preparative Scale Purification of Nucleic Acids*, U.S. Pat. No. 7,771,945, issued August 10, 2010.
93. Margaret Anne Brimble and Jian Guan, *Cyclic G-2AllylProline in Treatment of Parkinson's Disease*, U.S.. Pat. No. 7,776,876, issued August 17, 2010.

94. Robert Bridenbaugh, Warren Dang, and Lee B. Bussey, *Methods for Purifying Nucleic Acids*. U.S. Pat. No. 7,807,822, issued October 5, 2010.
95. Margaret Anne Brimble, Paul William Harris, and Frank Sieg, *Analogues of Glycyl-Prolyl-Glutamate*, U.S. Pat. No. 7,863,304, issued January 4, 2011.
96. Constance Haber and Allan Gardiner, *Therapeutic Methods Using Electromagnetic Radiation*, U.S. Pat. No. 7,878,965, issued February 1, 2011.
97. Jingyuan Wen, Gregory Brian Thomas, Mike John Bickerdike, *Oral Formulations of Glycyl-2-Methyl Prolyl Glutamate*, U.S. Pat. No. 7,887,839, issued February 15, 2011.
98. Constance Haber and Allan Gardiner, *Therapeutic Methods Using Electromagnetic Radiation*, U.S. Pat. No. 7,918,779, issued April 5, 2011.
99. Hjalmar Nekarda, Jan Friederichs, Bernhard Holzmann, Robert Rosenberg, Anthony Edmund Reeve, Michael Alan Black, Johan Lindsay McCall, Yu-Hsin Lin, and Robert Craig Pollock, *Prognosis Prediction for Colorectal Cancer*, Singapore Patent No. 143,707, granted 29 April 2011.
100. Ron Tolmei, *Visual Indicator for Electrosurgical Instrument Fields*, U.S. Pat. No. 7,963,957, issued June 21, 2011.
101. Paul William Richard Harris and Margaret Anne Brimble, *Neuroprotective Macrocyclic Compounds and Methods for Their Use*, U.S. Pat. No. 8,013,170, Issued September 6, 2011.
102. Frank Ernest Aldwell, Bryce Malcolm Buddle and Ian George Tucker, *Antigenic Compositions*, Chinese Patent No. ZL 02817408.9, Issued 7 September 2011.
103. Angel DeCegama, *Systems and Methods for Compression, Transmission and Decompression of Video Codecs*, U.S. Pat. No. 8,031,782, issued October 4, 2011.
104. Margaret Anne Brimble et al., *Neuroprotective Bicyclic Compounds and Methods for Their Use*, Japanese Patent No. 4842817, granted 14 October 2011.
105. Margaret Brimble, Jian Guan, Frank Sieg, *Neuroprotective Bicyclic Compounds and Methods for Their Use*, U.S. Pat. No. 8,067,425, issued November 29, 2011.
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64. Borson, D.B. *Vanda Pharmaceuticals, Inc. v. West-Ward Pharmaceuticals International, West-Ward Pharmaceuticals Corp.* Biotech Buzz, Case Law Reviews Subcommittee, Biotechnology Committee, AIPLA (13 April 2018).
63. Borson, D.B. & S. 2217 and H.R. 4625 the “Fundamentally Understanding The Mark Leonard *Usability and Realistic Evolution of Artificial Intelligence Act of 2017*” or the “*FUTURE of Artificial Intelligence Act of 2017*,” and H.R. 4829, the “*Artificial Intelligence Job Opportunities and Background Summary Act of 2018 or the ‘AI JOBS Act of 2018*,” Report of the Legislation Interest Group, Intellectual Property Law Section, State Bar of California (March 2018).
62. Borson, D.B. *Patent Eligibility, Catch Me if You Can*, MCLE Self-Study Article, Intellectual Property Law Section, California Lawyers Association New Matter 43(1):10-14, 55 (Spring 2018).
61. Borson, D.B. *Berkheimer v. HP*, Biotech Buzz Case Law Review Subcommittee, AIPLA (February 2018).
60. Borson, D.B. *Genzyme Corp. Sanofi-Aventis U.S., LLC v. Dr. Reddy’s Laboratories Ltd, Dr. Reddy’s Laboratories, Inc. and Teva Pharmaceuticals*, Biotech Buzz Case Law Review Subcommittee, Biotechnology Committee, AIPLA (January 2018).
59. Borson, D.B. *Supreme Court Decisions: Sandoz Inc. v. Amgen, Inc. et al.*, New Matter 42(3): 23-26, 43, Intellectual Property Law Section, State Bar of California (Fall 2017).
58. Borson, D.B. & *Report of the Legislation Interest Group to the Intellectual*

- Mark Leonard Property Law Section Executive Committee: *S. 974 and H.R. 2212 The "Creating and Restoring Equal Access To Equivalent Samples" Act ("CREATES" Act) or "CREATES Act of 2017"* 29 July 2017, State Bar of California.
57. Borson, D.B. & *Federal Legislation Update*: Report of the Legislation Interest Group to the Intellectual Property Law Section Executive Committee (21 July 2017).  
Mark Leonard
56. Borson, D.B. *Short Comment on Section 101*; New Matter 42(1):13-14 (Spring 2017)
55. Borson, D.B. *In re van Os et al.*, Biotech Buzz, AIPLA Case Comment Subcommittee (January 2017).
54. Borson, D.B. & *Federal Legislation Update: new initiatives before the U.S. House of Representatives*, Report of the Legislation Interest Group to the Intellectual Property Law Section Executive Committee Report on 12 January 2017, State Bar of California.  
Mark Leonard
53. Borson, D.B. *Recent Federal Legislation, Trans Pacific Partnership Agreement and Protect Trade Secrets Act*, New Matter 41(2):28-33 (2016), State Bar of California Intellectual Property Law Section.
52. Borson, D.B. *Genetic Technologies Limited v. Merial L.L.C. Bristol-Meyers Squibb Company*, Biotech Buzz, Case Law Review Subcommittee, AIPLA, April 2016.
51. Borson, D.B. & *Report of the Legislation Interest Group* to the Intellectual Property Law Section on the *Trans Pacific Partnership Agreement and America Invents Act*, State Bar of California, 19 March 2016.  
Mark Leonard
50. Borson, D.B. & *Report of the Legislation Interest Group* to the Intellectual Property Law Section on the *Trans Pacific Partnership Agreement*, State Bar of California, 12 January 2016.  
Mark Leonard
49. Borson, D.B. & *Report of the Legislation Interest Group* to the Intellectual Property Law Section, State Bar of California, 2 November 2015.  
Mark Leonard
48. Borson, D.B. *Comments on July 2015 Guidance on Eligible Subject Matter*, 26 October 2015, <http://www.uspto.gov/patent/laws-and-regulations/comments-public/comments-july-2015-update-subject-matter-eligibility>.
47. Borson, D.B. *The Medicines Company v. Hospira, Inc.* Biotech Buzz, Case Law

Review Subcommittee, AIPLA, August 21, 2015.

46. Borson, D.B. *Legislation Update*, New Matter 40(1):23-30 (Spring 2015). Leonard, M.
45. Borson, D.B. *Legislation Update*, New Matter 39(4):19-20 (Winter 2014). Leonard, M.
44. Borson, D.B. *Case Summary of AbbVie v. Janssen*, Biotech Buzz Case Law Review Subcommittee, AIPLA (16 July 2014).
43. Borson, D.B. *Legislation Interest Group Report: Extract*, New Matter 39(1):61-62 (2014). M. Leonard
42. Schultz, A. & *Report from the International Interest Group on Changes in Australian Practice*, New Matter 39(1):47-48 (2014). Borson, D.B.
41. Borson, D.B. *Comments on New USPTO Guidance for Examination of Applications Including Laws of Nature*, submitted to USPTO (29 April 2014).
40. Borson, D.B. *Senju v. Apotex*, Biotech Buzz, AIPLA Biotech Committee, (April 18, 2014).
39. Borson, D. B. *Methods Claims Must Recite Specific Steps Needed to Achieve Results*, *Smartgene v. Advanced Biological Labs.*, Biotech Buzz, AIPLA Diagnostics & Gene Patenting Subcommittee, February 24, 2014.
38. Craig, A.G & *Addressing Unfair Litigation Practices in Patent Law*, New Matter Borson, D.B. 38(4):19-23 (Winter 2013)
37. Borson, D.B. *Sunovion v. Teva and Dr. Reddy's*, Biotech Buzz, Case Law Review Subcommittee, AIPLA, November 2013
36. Borson, D.B. *Biogen v. GSK*, Biotech Buzz, Case Law Review Subcommittee, AIPLA. (April 16, 2013).
35. Borson, D.B. *Annual Report of the Patent Public Advisory Committee*, USPTO et al. November 2. 2012.
34. Borson, D.B. *Avoiding Disputes, Keep the Litigants Out of It*. Business Law Corporate Counsel Section, Contra Costa Lawyer, August 1, 2012.
33. Borson, D.B. *The Leahy-Smith America Invents Act of 2011: Section 3 of the*

- D. Eastham *AIA. New Matter, 37(1):11-21 (2012).*
32. Matteo D.C. *Annual Report of the Patent Public Advisory Committee, USPTO et al. November 4, 2011)*
31. Borson, D.B. *The Leahy-Smith America Invents Act of 2011: An Introduction.*  
D. Eastham *New Matter, 36(4): 5-24 (2011).*
30. Matteo, D.C. *Annual Report of the Patent Public Advisory Committee, et al. November 1, 2010.*
29. Borson, D.B. *Proposed Legislation on Patent Reform and IP, New Matter 34(2):160-161 (2009).*
28. Borson, D.B. *Legislation Committee Report of May 4, 2009, New Matter 34(2): 60-66 (2009).*
27. Friedman et al. *Report of the Delegation of IP Section of the State Bar of California to Washington D.C., April 6, 2009, New Matter 34(2):48-52 (2009).*
26. Borson, D.B. *Legislation Committee Report, New Matter 33(2):50-51 (2008).*
25. Grunebach et al., *A Town Focused on Change; IP Law Section's 2008 Delegation to DC, New Matter 33(2):40-45 (2008).*
24. Borson, D.B. *Assisting with U.S. Patent Prosecution and Preserving U.S. Patent Rights, In: U.S. Patent Practice for Paralegals: HalfMoon LLC. pp:4-1 to 4-83 (2008).*
23. Borson, D.B. *Note from the Legislation Committee, New Matter 32(4):4 (2007).*
22. Borson, D.B. *Report of the Legislation Committee: USPTO Final Rules on Claims and Continuations. New Matter 32(2):44-57 (2007).*
21. Mendoza et al. *Annual D.C. Trip Plays a Key Role in Maintaining Strong Federal Relationships, New Matter 32(2)34-39 (2007).*
20. Borson, D.B. *KSR v. Teleflex, Inc.: The Supreme Court Reviews Obviousness. J. Patent and Trademark Office Society 89(7):523-544 (2007).*
19. Borson, D.B. *KSR v. Teleflex, Inc.: The Supreme Court Reviews Obviousness. New Matter 32(1):11-39 (2007).*
18. Borson, D.B. *LabCorp v. Metabolite: Legal and Scientific Terminology: An Example of Poor Correlation. New Matter, 31(3):31-43 (2006).*

17. Borson, D.B. *Changes to Practice for Continuing Applications Requests for Continued Examination Practice and Applications Containing Patentably Indistinct Claims*, Ad-Hoc Commission of California Attorneys, Comments submitted to USPTO May 3, 2006.
16. Borson, D.B. *Proposed Rules for Patent Practice: Continuations and Claims*. New Matter 31(2): 16-20 (2006).
15. Borson, D.B. *Comments on Proposed Rules (37 C.F.R. Part 11)*, Ad-Hoc et al., Committee of Registered Patent Attorneys, Submitted to USPTO June 10, 2004.
14. Borson, D.B. *Intellectual Property Strategies in the Life Sciences: Introduction to Biotechnology Patents*. IBC Life Sciences, Inc. (November 2003).
13. Borson, D.B. *Current Status of U.S. Patent Law*. **In: Intellectual Property Practice for Paralegals**. Half Moon Seminars, LLC. Eau Claire, WI, 11-1- I50 (2003).
12. Borson, D.B. *Doctrine of Equivalent in Light of the Supreme Court's Decision in Festo: Law and Equity in Intellectual Property*. New Matter 27(2/3): 9-10, 36-43, (2002).
11. Borson, D.B. *Intellectual Property Protection in High Technology Industries: Trade Secrets, Patents, and Ethics*. State Bar of California &S.R.Meyer: Convention, September 7, 2001.
10. Borson, D.B. *State Immunity from Federal Patent and Trademark Laws, Part II*. New Matter, 26(1-2):5-10 (2001).
9. Borson, D.B. *Protecting Inventions in Combinatorial Chemistry* Cambridge Healthtech Institute Symposium on Exploiting Molecular Diversity Refining Small Molecule Libraries (February 12-14, 2001).
8. Borson, D.B. *State Immunity from Federal Patent and Trademark Laws, Part I*. New Matter 25(2):3-6 (2000).
7. Borson, D.B. *Patenting Inventions in Combinatorial Chemistry*, Journal of Molecular Graphics and Modeling 18(1):63-71 (2000).
6. Borson, D.B. *Overview of Intellectual Property Protection*. In: *Intellectual Property Practice for Paralegals*. Half Moon Seminars, LLC. Eau Claire, WI, pp:11-14 (1998).

5. Borson, D.B. *International Patent Practice*. In: Intellectual Property Practice for Paralegals Half Moon Seminars, LLC. Eau Claire, WI, V1 – V40 (1998).
4. Borson, D.B. *The Human Genome Project: Patenting Human Genes and Biotechnology. Is the Human Genome Patentable Subject Matter?* IDEA, Journal of Law and Technology, 35(4):461-496 (1995).
3. Borson, D.B. *Health Care: The Big Picture*. USF Forum (Oct 24 1994).
2. Borson, D.B. *Extended Parentship Act*. Model Statute In: Adrienne D. Davis, Symposium: *Surrogacy Legislation in California*; USF Law Rev. 28(3): 582 - 588 (Spring 1994).
1. Borson, D.B., *Reform of Compassionate Use of Therapeutic Drugs*. In: Daily Wong, M., & Recorder (San Francisco) (May 5 1993).  
Carriere, D.

## INSTRUCTIONAL ACTIVITIES

### Law and Intellectual Property

- 2018- **Guest Lecturer on Entrepreneurship and Intellectual Property**, St. Mary's College of California, Undergraduate and Graduate Entrepreneurship Programs.
- 2016 **Understanding Patents in Mass Spectrometry**. Develop and deliver workshop to members of the Mass Spectrometry Applications for the Clinical Laboratory (MSACL) annual Convention.
- 2014 **Update on Patents and Trademarks**, Staff Research Conference, Pacific Edge Limited.
- 2014 **Mass Spectrometry Applications in the Life Sciences**: develop and deliver lectures on commercialization and intellectual property.
- 2013-14 **Society for Brain Mapping and Therapeutics**: develop and deliver lectures on commercialization and intellectual property.
- 2009-2015 **Contra Costa County Bar Association**, Business Law Corporate Counsel Section: develop, organize and deliver lectures in business and IP law.



- 2011-2014 **Australian Biotechnology Organization** (AusBiotech): develop and present lectures on commercialization and international IP law.
- 2010-2015 **Golden Gate University School of Law**  
Adjunct Professor of Law, Course Director and lecturer: Biotechnology Law, Patent Law
- 2009-2013 **New Zealand Biotechnology Organization** (NZBIO): develop and present lectures on International IP law and commercialization.
- 2006- **Borson Law Group, PC**: develop and present workshops and lectures on intellectual property protection, scientific processes, commercialization, and defense for clients.
- 2001- **State Bar of California**  
Intellectual Property Section Representative to the Conference of Delegates of California Bar Associations: Coordinate and implement activities of the Council of State Bar Sections. Develop and implement strategies for statewide continuing legal education.  
Lectures for State Bar Annual Meeting, 2001-2008  
Lectures for State Bar IP Section Annual Institute  
Lecture for State Bar of California: In House Litigation Symposium 2004.  
Chair, Planning Committee for U.S.P.T.O. Symposia, 2003, 2005  
Lecturer, State Bar Annual Meeting, 2003-2006: Overview of IP and Ethics in IP Practice.  
Lecturer, Intellectual Property Institute, 2002 - 2006. Delivered lectures on Claim Drafting, Law and Equity in IP, Ethics in IP Practice and IP overview  
Member, Planning Committee for the Business Law/Intellectual Property Law Section Third Annual Joint Meeting, La Costa Resort, 2002.  
Prepared and delivered lectures on Patent Claiming Strategies, Business Aspects of IP law, Legal Ethics in Intellectual Property Practice, Doctrine of Equivalents and Law & Equity  
Member, Planning Committee for Copyright Office Comes to California.  
Author, articles relating to intellectual property
- 2002 - 2011 **BioScience Forum**, non-profit, educational corporation for Life Science professionals: Founder and President: Formerly Northern California Pharmaceutical Discussion Group. Organize and moderate lectures, panel discussions and symposia relating to life sciences, regulatory affairs and legal affairs for scientists, entrepreneurs and professional personnel. Prepare and present lectures on IP law to life scientists.
- 1997 - 2006 **Fliesler Meyer LLP (Formerly Fliesler, Dubb, Meyer & Lovejoy LLP)**  
Develop and implement strategies for teaching attorneys intellectual

property law

Prepare and deliver IP lectures to Attorneys and Staff.

Mentor attorneys in IP practice.

Develop and present lectures relating to Patent Office procedures and case law

Prepare and deliver lectures to universities, businesses and professional organizations relating to discovery inventions, intellectual property, life sciences, chemistry and biotechnology

1997 - 2002 **Northern California Pharmaceutical Discussion Group**

Non-profit educational organization (became BioScience Forum).

Organize and moderate lectures in Life Sciences for business and professional personnel. Prepare and deliver lectures relating to intellectual property law.

**LEGAL PRESENTATIONS**

*Graduate Entrepreneurship and Intellectual Property, St. Mary's College of California*  
**Guest Lecture.** 17 March 2020.

*Undergraduate Entrepreneurship and Intellectual Property, St. Mary's College of California*  
**Guest Lecture.** 25 November 2019.

*Graduate Entrepreneurship and Intellectual Property, St. Mary's College of California*  
**Guest Lecture.** 13 May 2019.

*Entrepreneurship and Intellectual Property, St. Mary's College of California*  
**Guest Lecture.** 21 March 2019.

*Entrepreneurship and Intellectual Property, St. Mary's College of California*  
**Guest Lecture.** 26 November 2018.

*Patent Eligible Subject Matter, Obviousness, and Obviousness-Type Double Patenting*  
**Contra Costa County Bar Association, Intellectual Property Law Section Conference.** April 17, 2018.

*Two Entrepreneurs Walk Into a Bar to Mull Over Purchase Offer, Contra Costa County Bar Association CLE Spectacular,* November 18, 2016.

*Understanding Patents in Mass Spectrometry, Workshop presented to the Annual Convention of the Mass Spectrometry Applications for Clinical Laboratories (MSACL),* Palm Springs, CA February 23, 2016.

*Two Entrepreneurs Walk Out of a Bar: Panel Discussion on the Legal Issues Faced by Businesses.* **Contra Costa County Bar Association CLE Spectacular**, November 20, 2015.

*Two Entrepreneurs Walk Out of a Bar: Panel Discussion on the Legal Issues Faced by Businesses.* **John F. Kennedy University Entrepreneurs** October 22, 2015.

*Patent Law of the United States: Course Director and Lecturer: Golden Gate University School of Law*, (August – November 2015).

*Creating Win-Win Scenarios Between Australia and China: Lecture and Panel: AusbioTech Invest Conference*, Melbourne Australia (2-3 December 2014).  
*Patent Law of the United States. Course Director and Lecturer: Golden Gate University School of Law*, (August – November 2014).

*Two Entrepreneurs Walk into a Bar, Presentation for the John F. Kennedy University Innovation Cluster*, (June 11, 2014).

*Recent Foreign Patent Legislation and USPTO Rulemaking, Patent Interest Group Teleconference, IP Law Section, State Bar of California*, (April 10, 2014).

*Translational Medicine, Education, Policy, Commercial and IP Issues, Keynote Speaker: Society for Brain Mapping and Therapeutics*, 11<sup>th</sup> Annual Convention, Sydney, Australia, (18 March 2014).

*Commercialization and Protection of Intellectual Assets in Application to Mass Spectrometry, Plenary Lecturer: Mass Spectrometry Applications in Clinical Laboratory*, Annual Convention, (March 2, 2014).

*Multijurisdictional Ethics: Review of California and USPTO Rules of Professional Responsibility; State Bar of California Intellectual Property Law Institute*, (November 8, 2013).

*Patent Law of the United States. Course Director and Lecturer: Golden Gate University School of Law*, (August – November 2013).

*Bringing Inventions to the Wider World: Protection Strategies and Commercialization; Invited Speaker*, Society for Brain Mapping and Therapeutics **10<sup>th</sup> World Conference on Brain Mapping** (May 14, 2013).

*Biotechnology Law, Course Director and Lecturer: Golden Gate University School of Law*, (January – May 2013).

*Using Intangible Assets in Starting and Running a Business. Business Law Corporate*

**Counsel Section**, Contra Costa County Bar Association, (April 24, 2013).

*Patent Law of the United States. Course Director and Lecturer: Golden Gate University School of Law*, (August – November 2012).

*Getting Started in Business: How to Advise Start-Up Enterprises.* With Peter Sproul, **Contra Costa County Bar Association Business Law Corporate Counsel Section**, (July 18, 2012).

*New United States Patent Laws and Implications for New Zealand Biotechnology, Speaker, Organizer and Chair, NZBIO Convention Auckland*, New Zealand, (March 26, 2012):

*How to Fire your Bad Clients and Keep the Good Ones. Business Law Corporate Counsel Section, Contra Costa County Bar Association CLE Spectacular*, (November 18, 2011).

*Intellectual Property: An Element of Success of a Technology Company's Life Cycle, Australian Biotechnology Organization Conference*, Adelaide, Australia, (October 2011).

*Workshops on the America Invents Act of 2011, International and Commercialization Strategies, Organizer and Speaker, NZBIO, Auckland & Dunedin New Zealand*, (October 2011).

*The Leahy-Smith America Invents Act of 2011. Intellectual Property Law Section Teleseminar*, State Bar of California:

*Copyright Threats to Companies With Web Designs, Business Law Corporate Counsel/Intellectual Property Section* presentation with Stuart West, Contra Costa County Bar Association, (June 16, 2011).

*Tips on Starting an IP Firm, State Bar of California IP Section* teleseminar, (May 24, 2011).

*Biotechnology Law, Course Director and Lecturer: Golden Gate University School of Law*, (January – May 2011).

*What Every Business Attorney Needs to Know About Intangible Assets. Business Law Corporate Counsel Section, Contra Costa County Bar Association*, (April 20, 2011).

*Commercialization and Intellectual Property Strategies, NZBIO Conference*, Auckland, New Zealand, (March 23, 2011).

*Workshops on International Intellectual Property and Commercialization Strategies*, **Organizer and Speaker: University of Otago and Otago Innovation Ltd**, Dunedin, New Zealand, (March 2011).

*Update on Federal Legislation and USPTO Rulemaking*. **State Bar of California Teleseminar**, Cyberlaw program, (January 29, 2011).

*Patenting and Patent Law from Legal and Technical Viewpoints*, **State Bar of California Teleseminar**, Cyberlaw program, (January 2011).

*Creating a World-Wide Intellectual Property Strategy*, **NZBIO Annual Convention**, Auckland New Zealand, (March 18, 2010).

*Section 101, Utility and Patentable Subject Matter in the Discovery Arts*, **USPTO Biotechnology, Chemical and Pharmaceutical Partnership Meeting**. (September 8, 2010).

*International Intellectual Property Law, Acquisition, Exploitation and Enforcement*: **State Bar of California** Section Education Institute, (January 17, 2009).

*California and Federal Ethics in Intellectual Property Law*, **State Bar of California Annual Meeting**, (September 26, 2008).

*Assisting with U.S. Patent Prosecution*, In: U.S. Patent Practice for Paralegals: **HalfMoon LLC**. (June 26, 2008).

*Intellectual Property Basics for Non-Specialists* **State Bar of California Section Education Institute**, (January 18, 2008).

*New Patent Legislation and PTO Rule Changes*, **State Bar of California Intellectual Property Institute**, (November 10, 2007).

*Ethics Issues in Intellectual Property Practice*, **State Bar of California Annual Meeting**, (September 28, 2007).

*Discovery Inventions: UCSF Entrepreneur Camp*, (July 30, 2007).

*Law of Obviousness in Light of KSR, Pfizer and Takeda: Possible Patent Strategies*, **Silicon Valley Intellectual Property Law Association**, (September 13, 2007).

*New Legislation and Case Law*: **State Bar of California Intellectual Property Annual Institute**, (November 2007).

*International Law Weekend West*. **Santa Clara University School of Law**, Santa Clara, California, (February 2-3, 2007).

*Patent Practice Nuts and Bolts of Intellectual Property*, **State Bar of California Intellectual Property Section Institute**, (November 2006).

*Continuing Applications*, **Fliesler Meyer LLP Training Meeting**, November 1, 2006.

*Ethics and Multijurisdictional Intellectual Property Practice*, **State Bar of California Annual Meeting**, (October 5, 2006).

*Patent Practice: Current Strategies and Future Trends*, **San Diego Intellectual Property Law Association**, (June 22, 2006).

*International Intellectual Property Protection: Comparisons of U.S. and Foreign Practice Issues for the General Practitioner*, **State Bar of California Annual Meeting**, (October 2006).

*Technology Transfer Systems and Intellectual Property Protection*. **Osaka University Institute of Scientific and Industrial Research**, Osaka, Japan.

*Litigation and Arbitration*: **Fliesler Meyer LLP**, (2006).

*Careers in Science: IP Management and Technology Transfer*, **Stanford University**, (November 7, 2005).

*Resolution of Patentability Disputes in Europe*. **UCLA Symposium on International IP Practice**, (September 16, 2005).

*Multijurisdictional Ethics: California and Federal Law*: **State Bar of California Annual Meeting**, (September 11, 2005).

*Patent Strategies for Follow-On Products*. **IBC's 3d Annual International Conference on Global Follow-On Biologics**, Reston, VA, (December 6-7 2004).

*Trust and Ethics in Intellectual Property Practice*. **State Bar of California Intellectual Property Section Annual Institute**, (November 6, 2004).

*Patents on Discoveries in the Life Sciences*, **State Bar of California Intellectual Property Section Annual Institute**, (November 5, 2004).

*Intellectual Property Rights Abroad: How to Obtain, Maintain and Defend Them*, **State Bar of California Annual Meeting**, (October 9, 2004).

*Ethics in IP and Corporate Matters*. **State Bar of California Intellectual Property Section Annual Institute**, (October 8, 2004).

*Technology Transfer in the Life Sciences*, **DNA Bridges Symposium**, (September 23, 2004).

*Intellectual Property Strategies for Biotechnology Inventions*, **Haas Intellectual Property Workshop, Haas School of Business**, UC Berkeley, (June 11, 2004).

*Intellectual Property Ethical Issues for In-House Counsel*. **State Bar of California: In House Litigation Conference**, (May 21, 2004).

*IP Protection & Provisional Patents for Bio-related Inventions*, **UCSF Entrepreneurs' Discussion Group**, (November 19, 2003).

*Post-Festo Update Law and Equity in Intellectual Property*, **State Bar of California Annual Intellectual Property Institute**, (November 8, 2003).

*Intellectual Property Strategies for Live Science Companies: Introduction to Biotechnology Patents*, **Course Director and Lecturer: IBC Life Sciences**. (November 3-4, 2003).

*Discovery Inventions: Scientific and Legal Issues in Life Sciences Patents*, **Fliesler Meyer LLP** (formerly Fliesler Dubb Meyer & Lovejoy LLP), (2003).

*Whose Invention is it?* **University of California, San Francisco**, Innovation Accelerator. (2003).

*Ethics in Intellectual Property Law practice*. Organizer and Moderator, **State Bar of California 76th Annual Meeting**, (September 4, 2003).

*Current Status of U.S. Patent Law*. **Half Moon Seminars, LLC**, Eau Claire, WI, (June 17, 2003).

*Protection of Discovery Inventions in the Life Sciences*, **BioScience Forum**, Milbrae, California (June 18, 2003).

*IP Strategies and Implications in the Life Sciences*, In: *Symposium: Defining and Defending Intellectual Property Rights in Biotechnology*. **J. Thomas McCarthy Institute of IP and Technology Law University of San Francisco School of Law**, (March 22, 2003).

*Intellectual Property Issues in Medical Devices*. **Drug Information Agency**, (February 24-26, 2003).

*Doctrine of Equivalents in Light of Recent Case Law Including Festo v. SMC Corp.: Law and Equity in Intellectual Property*. **State Bar of California Fall Intellectual Property Institute**, (November 9, 2002).

*Ethics and Intellectual Property Practice*. **State Bar of California Fall Intellectual Property Institute**, (November 6-8, 2002).

*Patent Claiming and Prosecution Strategies. Patent Standing Committee, State Bar of California Intellectual Property Institute*, (November 8, 2002).

*Ethical Considerations in IP Practice, FDML Staff Conference*, (October 21, 2002).

*Doctrine of Equivalents in Light of Festo. v. SMC, J&J v. RES and Symbol Tech. v. Lemelson: Law and Equity in Intellectual Property, Intellectual Property Seminar Series, Fliesler, Dubb, Meyer & Lovejoy, LLP*, (June 27, 2002).

*Ethics and Intellectual Property Practice. State Bar of California 3<sup>rd</sup> Annual Spring Meeting, Business Law. Intellectual Property Joint Meeting, State Bar of California*, (May 19, 2002).

*European Patents, Intellectual Property Rights, Trade Secrets, Trademarks and Branding Issues, In: Winning Strategies for Biomedical Companies in the European Union, World Trade Organization of the Bay Area* (2002).

*Protecting Intellectual Property in High Technology: Trade Secrets, Patents and Ethics, State Bar of California Annual Meeting*, (September 7, 2001).

*Preparing a Patent Application for Issuance, Half-Moon Seminars for Paralegals*, (June 13, 2001).

*Doctrine of Equivalents in Light of Festo v. Shoketsu Kinzoku Kogyo Kabushiki Co. and SMC Pneumatics, Inc. Fliesler Dubb Meyer & Lovejoy LLP Attorneys' Meeting*, (March 1, 2001).

*Patent Law, Biotechnology and DNA. University of San Francisco School of Law: Intellectual Property Law Association*, (February 22, 2001).

*Current Issues in Biotechnology Patents: Hastings School of Law: Intellectual Property Organization*, (February 21, 2001).

*Protecting Inventions in Combinatorial Chemistry, Keynote Address: Cambridge Healthtech Conference: Eighth Annual Exploiting Molecular Diversity: Refining Small Molecule Libraries*, (February 13, 2001).

*Filing Patent Applications. Fliesler Dubb Meyer & Lovejoy LLP Staff Conference*, (January 24, 2001).

*Patenting Biotechnological and Pharmaceutical Inventions, Northern California Pharmaceutical Discussion Group*, (December 13, 2000).

*State Immunity from Federal Patent and Trademark Laws: California State Bar Association, IP Law Section, Patent Standing Committee teleconference*, (2000).



*State Immunity from Federal Patent and Trademark Laws: Fliesler, Dubb, Meyer & Lovejoy Continuing Legal Education Program*, (June 23, 1999).

*Overview of Intellectual Property International Patent Practice*, **Half-Moon Seminars, Inc.**

*Changes to United States Patent Rules*. **Fliesler, Dubb, Meyer & Lovejoy** Continuing Legal Education Program, (1997).

*Uses of DNA Technology in Forensic Sciences* **University of San Francisco** Continuing Legal Education Program, (1994).

## **SYMPOSIA ORGANIZED**

*USPTO Comes to California, Intellectual Property Law Section of the State Bar of California*, Los Angeles and San Francisco, California (May 12, 14, 2010).

*United States Patent and Trademark Office TC 1600 West Coast Road Show 2010, Organizer and Moderator, BioScience Forum, Millbrae, California*, (February 24, 2010).

*United States Patent and Trademark Office TC 1600 West Coast Road Show 2008, Organizer and Moderator, BioScience Forum, Millbrae, California* (November 12, 2008).

*United States Patent and Trademark Office TC 1600 West Coast Road Show 2007, Organizer and Moderator, BioScience Forum, Millbrae, California* (October 31, 2007).

*United States Patent and Trademark Office TC 1600 West Coast Road Show 2005, Organizer and Moderator, BioScience Forum, Millbrae, California* (October 18, 2005).

*Pain: Mechanisms and Therapeutics, Organizer and Moderator, BioScience Forum, Millbrae, California*, (November 19, 2004).

*Hot Topics in Biotechnology Patent Law: USPTO Technology Center 1600, BioScience Forum, Millbrae California*, (September 9, 2004).

*Application of Biomarkers to the Drug Discovery and Development Process, Organizer and Moderator, BioScience Forum, Millbrae, California* (June 25, 2004).

*Clinical Trials Symposium: The Impact of Regulatory Changes on Strategic Planning for Clinical Trials, BioScience Forum, San Mateo*, (8 January 2003).

*Current Topics in Protein and Drug Binding: Conceptual, Clinical and Regulatory Issues, Organizer and Moderator, BioScience Forum, Millbrae, California (May 9, 2002).*

*United States Patent and Trademark Office Symposium: Hot Topics in Biotechnology & Software Patents and New Legislation, Organizer and Moderator, Northern California Pharmaceutical Discussion Group, Millbrae, California (September 20, 2000).*

## EMPLOYMENT IN SCIENCE

- 1976 - 1992 **University of California San Francisco, Department of Physiology: Physiology and Pharmacology for Schools of Medicine, Pharmacy, Dentistry and Physical Therapy:**  
Developer and lecturer, cardiovascular, pulmonary, gastrointestinal and renal physiology  
Developer and lecturer: National Board Review Program in Physiology and Biochemistry, School of Dentistry,  
Combined lecture/laboratory program in Physiology: Physical Therapy Program  
Designed courses, prepared course materials, prepared and delivered lectures, wrote and evaluated examinations, supervised student laboratories, individual tutorials  
**Cardiovascular Research Institute University of California San Francisco:**  
Prepared and delivered numerous lectures relating to scientific research at University, National and International meetings  
Taught and supervised staff and post-doctoral fellows relating to scientific investigations in neuroscience, physiology, molecular biology, biochemistry and pharmacology.  
Supervised post-doctoral fellows in scientific writing for publications  
Mentored post-doctoral fellows in drafting research grants
- 1986-1992 **Adjunct Lecturer**, Department of Physiology, UCSF
- 1986-1992 **Assistant Research Physiologist**, Cardiovascular Research Institute, UCSF
- 1983-1986 **Post Doctoral Fellow**, Cardiovascular Research Institute, UCSF

## EMPLOYMENT IN OTHER DISCIPLINES

- 1969 - 1977 **Federal Aviation Administration Certified Flight Instructor, Airplane and Instrument; Ground Instructor:** Airplane, Private, Commercial, Instrument and Multi-engine pilot ratings. President and Chief Pilot, Buchanan Flying Club

- 1960-           **Concert Flutist**  
Performances of Baroque, Classical, Romantic, Modern, and Avant Garde music, orchestral, chamber works, and solo performances. President, Bay Flute Club, President, Amphion Music Club, President, Contra Costa Performing Arts Society, member Etude Club, Senza Rito, Music Section of University of California, Berkeley.
- 1960 - 1968   **Flute Instructor**  
Instructed private students and master classes,

## HONORS AND AWARDS

- 2018           **Lifetime Achievement Award**, Marquis Who's Who.  
2018           **Intellectual Property Law Achievement Award**, Marquis Who's Who.  
2018           **President of the Board of Directors**, Contra Costa Performing Arts Society.  
2015-          **Member of the Board of Directors**, Contra Costa Performing Arts Society  
2014-2018    **President**, Amphion Music Club.  
2014-          Member of the Board of Directors, Amphion Music Club  
2014           **Member, Committee on Professional Responsibility and Conduct**, State Bar of California  
2010-2015    **Adjunct Professor of Law**, Golden Gate University School of Law.  
2014-2016    **Treasurer**, Business Law Corporate Counsel Section, Contra Costa County Bar Association.  
2014-          **Co-Chair**, AIPLA Patent Law Committee, Subcommittee on Patent Policy.  
2010-2013    **Chair, Business Law Corporate Counsel Section**, Contra Costa County Bar Association.  
2009-2012    **Member, Patent Public Advisory Committee**, USPTO  
2009-2011    **Co-Chair**, AIPLA Subcommittee on Section 101, Patent Committee  
2011-2013    **Co-Chair**, AIPLA Patent Law Subcommittee on Patentability.  
2009-2011    **Delegate** from IP Section of California State Bar to the Conference of California Bar Associations  
2007-2009    **Delegate** from IP Section of California State Bar: Conference of Delegates of California Bar Associations  
2006-          **Chair**, Intellectual Property Law Section Legislation Interest Group  
2004-2006    **Member, Board of Governor's Task Force on Sections**, State Bar of California.  
2004-2008    **Advisor**, Intellectual Property Law Section, State Bar of California  
2006-          **Member**, IP Law Section and International Law Section, State Bar of California  
2004-2006    **Chair**, Intellectual Property Section Commission on Proposed USPTO Rules of Professional Responsibility.

- 2003-2005 **Co-Vice Chair** (2003), Co-Chair (2004-2005)  
Council of State Bar of California Sections
- 2002-2009 **Founder and President**, BioScience Forum, non-profit life sciences  
educational corporation
- 2002-2004 **IP Section Representative: Council of Sections**: State Bar of California.
- 2001-2004 **Member: Executive Committee**: State Bar of California Intellectual  
Property Section
- 2001- **Member: Intellectual Property Advisory Committee**: USF School of  
Law
- 2000- 2002 **Chair**, Northern California Pharmaceutical Discussion Group
- 1999 - **Member**, Patent Standing Committee, State Bar of California
- 1999-2000 **Chair-Elect**, Northern California Pharmaceutical Discussion Group
- 1998-2000 **Advisory Board, Board of Directors**: Northern California  
Pharmaceutical Discussion Group.
- 1994-1996 **Board of Directors**, Balboa Terrace Homes Association
- 1991 **Member, Special Review Committee, National Institute of Health**:  
National Heart, Lung, and Blood Center of Research Program
- 1990 - **Biography** listed in:  
Who's Who in the World  
Who's Who in America  
Who's Who of American Attorneys  
Who's Who in Science and Technology  
Who's Who in Education  
Who's Who in the West
- 1989-1994 **NIH Program Project Grant**: HL 24136 Project D7:  
*Modulation of Airways by Neutral Endopeptidase*
- 1988-1991 **Cystic Fibrosis Research Development Program Grant**: RO 149-1  
*Neuropeptide Release from Airways*
- 1989 to 1992 **Editorial Board, American Journal of Physiology**: Lung Cellular and  
Molecular Physiology
- 1987-1992 **Principle Investigator**, NIH First Independent Research Service and  
Transition Award: HL-38947, *Role of Enkephalinase in  
Regulating Airways*.
- 1987 **Co-inventor**: *Therapeutic Use of Enkephalinase*  
U.S. Patent No. 5,262,178 issued 1993  
U.S. Patent No. 5,403,585 issued 1995.
- 1986-1987 **UCSF Academic Senate Committee on Research Grant**:  
*Regulation of Release of Airway Glycocalyx by Proteinases*
- 1985-1986 **UCSF Research Education and Allocation Committee Grant**:  
*Effects of Peptides and Proteinases on Airway Secretion*.
- 1984-1989 **NIH Program Project Grant**: HL 24136: Project D7:  
*Regulation of Airway Secretion*.
- 1984-1986 **American Lung Association of California Grant**:

*Roles of Inflammatory Peptides in Regulating Mucus Secretion*

- 1984 - 1986 **Parker B. Francis** Research Fellowship  
1984 **Cystic Fibrosis** Research Fellowship  
1983 - 1984 **United States Public Health Service** Postdoctoral Fellowship  
1976 - 1982 **United States Public Health Service** Predoctoral Traineeship

**SCIENTIFIC EXPERIENCE**

- 1990 - 1992 **GENENTECH, INC., South San Francisco, Department of Cellular Genetics: *Visiting Scientist.***

***Original Scientific Research***

Designed and carried out studies in biochemistry, molecular biology, gene expression, cell culture, cellular transformation & mutagenesis of a mammalian cell surface enzyme with therapeutic utility.

- 1986 - 1992 **UNIVERSITY OF CALIFORNIA, SAN FRANCISCO**

**Cardiovascular Research Institute, *Assistant Research Physiologist***

***Original Scientific Research:***

Ran biomedical research laboratory, Trained Staff and supervised post-doctoral fellows.

Physiology and Pharmacology, Designed and carried out physiological and pharmacological studies on glycoprotein secretion, regulation of muscle action, reflexes interaction of different branches of the nervous system, hormonal regulation *in vivo* and *in vitro*.

Biochemistry: Designed and carried out biochemical studies of peptide degradation, enzyme purification, neurotransmitter release, and macro molecular secretion.

Molecular Biology and Genetics: Designed and carried out molecular biological studies on gene transcription, translation, and product translation of endogeneous and exogeneous genes in tissues and cell culture.

Wrote and administered research grants

Authored over 80 publications in mammalian physiology, biochemistry, and molecular biology relating to neural and humoral regulation of mammalian organ systems

***Inventor*** Therapeutic Use of Enkephalinase. Two Issued Patents

***Teacher*** Physiology, cell biology, biochemistry, molecular biology, scientific research methods, scientific writing

***Service to Scientific Community***: Reviewed manuscripts and grants. Presented lectures and seminars, and chaired scientific meetings.

- 1986 - 1992 **UNIVERSITY OF CALIFORNIA, SAN FRANCISCO**

**Department of Physiology, *Adjunct Lecturer***

Lectures and Laboratories: Physiology, pharmacology and biochemistry for students in Medical, Pharmacy, Dentistry and Physical Therapy programs.

1983 - 1986 **UNIVERSITY OF CALIFORNIA, SAN FRANCISCO**

**Cardiovascular Research Institute, *Postdoctoral Fellow***

***Original Scientific Research:***

Neural and humoral regulation of the respiratory system

1976-1983 **UNIVERSITY OF CALIFORNIA, SAN FRANCISCO**

***Department of Physiology, Graduate Student***

Ph.D. Dissertation: *Neural Regulation of Secretion from Tracheal Submucosal Glands* (1983)

### **SELECTED INVITED SCIENTIFIC LECTURES**

- 1983 National Institutes of Health, Clinical Staff Conference  
*Neurohumoral Regulation of Airway Secretion*
- 1983 University of Hawaii, Clinical Physiology Conference  
*Inflammatory Regulation of Airway Secretion*
- 1984, 1986 Vicks Division of Research: Conference on Respiratory Secretions  
*Neurohumoral Regulation of Airway Secretion*
- 1988 Transatlantic Airways Conference, Lucerne, Switzerland  
*Roles of Neutral Endopeptidase in Regulating Airways*
- 1988 University of California, San Francisco: Department of Physiology  
*Roles of Peptides and Proteinases in Regulating Airway Functions*
- 1988 International Conference on Rhinitis and Asthma, Smygehamn, Sweden  
*Airway Secretions.*
- 1988 Third Annual Conference on Clinical Immunology, San Francisco  
*Neuropeptides and the Lung: Animal Models and Human Disease*
- 1988 UCSF Quality Assurance and Clinical Conference; Adult Allergy Faculty Practice; *Neuropeptides and Lung Reactions.*
- 1989 Temple University Pulmonary Division; *Conference on Proteases in Disease: Role of Neutral Endopeptidase in Airways*
- 1989 University of Pennsylvania Department of Pediatrics and Physiology  
*Roles of Neutral Endopeptidase in Regulating Peptide-Induced Phenomena*
- 1989 Temple University Department of Physiology  
*Role of Neutral Endopeptidase in Regulating Peptide-Induced Responses*
- 1990 XIII International Congress of Asthmology

- Neutral Endopeptidase as a Possible Anti-inflammatory Drug*
- 1990 Dokkyo University  
*Roles, Regulation, and Therapeutic Potential of Neutral Endopeptidase*
- 1990 Women's University of Tokyo  
*Roles, Regulation, and Therapeutic Potential of Neutral Endopeptidase*
- 1991 Stanford University School of Medicine; Cystic Fibrosis Research Group  
*Roles and Regulation of Neutral Endopeptidase*

## SELECTED SCIENTIFIC PUBLICATIONS

### Peer-Reviewed Articles

1. Borson DB, Chinn RA, Davis B, Nadel JA. *Adrenergic and cholinergic nerves mediate fluid secretion from tracheal glands of ferrets.* J Appl Physiol 49:1027-1031, 1980.
2. Borson DB, Charlin M, Gold BD, Nadel JA. *Neural regulation of <sup>35</sup>SO<sub>4</sub>-macromolecule secretion from tracheal glands of ferrets.* J Appl Physiol 57:457-466, 1984.
3. Gashi AA, Borson DB, Finkbeiner WE, Nadel JA, Basbaum CB. *Neuropeptides degranulate serous cells of ferret tracheal glands.* Am J Physiol 251(Cell Physiol 20):C223-C229, 1986.
4. Borson DB, Corrales R, Varsano S, Gold M, Viro N, Caughey G, Ramachandran J, Nadel JA. *Enkephalinase inhibitors potentiate substance P-induced secretion of <sup>35</sup>SO<sub>4</sub>-macromolecules from ferret trachea.* Exp Lung Res 12:21-36, 1987.
5. Caughey GH, Viro NF, Ramachandran J, Lazarus SC, Borson DB, Nadel JA. *Dog mastocytoma tryptase: affinity purification, characterization and amino-terminal sequence.* Arch Biochem Biophys 258:555-563, 1987.
6. Sekizawa K, Tamaoki J, Nadel JA, Borson DB. *Enkephalinase inhibitor potentiates substance P- and electrically induced contraction in ferret trachea.* J Appl Physiol 63:1401-1405, 1987.
7. Varsano S, Basbaum CB, Forsberg LS, Borson DB, Caughey G, Nadel JA. *Dog tracheal epithelial cells in culture synthesize sulfated macromolecular glycoconjugates and release them from the cell surface upon exposure to extracellular proteinases.* Exp Lung Res 13:157-183, 1987.

8. Dusser DJ, Nadel JA, Sekizawa K, Graf PD, Borson DB. *Neutral endopeptidase and angiotensin converting enzyme inhibitors potentiate kinin-induced contraction of ferret trachea.* J Pharm Exp Ther 244:531-536, 1988.
9. Sheppard D, Thompson JE, Scypinski L, Dusser D, Nadel JA, Borson DB. *Toluene diisocyanate increases airway responsiveness to substance P and decreases airway enkephalinase.* J Clin Invest 81:1111-1115, 1988.
10. Dusser DJ, Umeno E, Graf PD, Borson DB, Nadel JA. *Airway neutral endopeptidase-like enzyme modulates tachykinin-induced bronchoconstriction in vivo.* J Appl Physiol. 65:2585-2591, 1988.
11. Kohrogi H, Graf PD, Sekizawa K, Borson DB, Nadel JA. *Neutral endopeptidase inhibitors potentiate substance P- and capsaicin-induced cough in awake guinea pigs.* J Clin Invest 82:2063-2068, 1988.
12. Djokic TD, Sekizawa K, Borson DB, Nadel JA. *Neutral endopeptidase inhibitors potentiate substance P-induced contraction in gut smooth muscle.* Am J Physiol 256:G39-G41, 1989.
13. Djokic TD, Nadel JA, Dusser DJ, Sekizawa K, Graf PD, Borson DB. *Inhibitors of neutral endopeptidase potentiate electrically and capsaicin-induced noncholinergic contraction in guinea pig bronchi.* J Pharmacol Exp Ther 248:7-11, 1989.
14. Borson DB, Brokaw JJ, Sekizawa K, McDonald DM, Nadel JA. *Neutral endopeptidase and neurogenic inflammation in rats with respiratory infections.* J Appl Physiol. 66:2653-2658, 1989.
15. Kohrogi H, Nadel JA, Malfroy B, Gorman C, Bridenbaugh B, Patton JS, Borson DB. *Recombinant human enkephalinase (neutral endopeptidase) prevents cough induced by tachykinins in awake guinea pigs.* J Clin Invest 84:781-786, 1989.
16. Dusser DJ, Djokic TD, Borson DB, Nadel JA. *Cigarette smoke induces bronchoconstrictor hyperresponsiveness to substance P and inactivates airway neutral endopeptidase in the guinea pig.* J Clin Invest, 84:900-906, 1989.
17. Rubinstein I, Iwamoto I, Ueki IF, Borson DB, Nadel JA. *Recombinant neutral endopeptidase attenuates substance P-induced plasma extravasation in the guinea pig skin.* Int Arch Allergy and Appl Immunol. 91:232-238, 1990.
18. Borson DB, Gruenert DC. *Glucocorticoids increase expression of neutral endopeptidase in transformed human tracheal epithelial cells.* Am. J. Physiol. 260 ( Lung Cell. Mol. Physiol. 4):L83-L89, 1991.



19. Katayama M, Nadel, J.A, Bunnett NW, DiMaria, G.U, Haxhiu, M.A., Borson DB. *Catabolism of calcitonin gene-related peptide by neutral endopeptidase. Peptides 12:563-567, 1991.*
20. DiMaria GU, Katayama M, Borson DB, and Nadel JA. *Neutral endopeptidase modulates endothelin-1-induced airway smooth muscle contraction in guinea pig. Regul. Peptides 39:137-145, 1992.*

### **Review Articles, Books, and Book Chapters**

21. Borson, DB. *Neural regulation of secretion from tracheal submucosal glands.* Ph.D. Dissertation. University of California, San Francisco, CA (1982).
22. Nadel JA, Borson DB, Basbaum DB, Widdicombe JH. *Techniques for studying airway mucus secretion, ion transport and water movement. In Techniques in the Life Sciences. Techniques in Respiratory Physiology - Part I.* Otis AB, ed. Elsevier Scientific Publishers Ireland Ltd., County Clare, Ireland, pp:1-35, 1984.
23. Nadel JA, Borson DB. *Secretion and ion transport in airways during inflammation. Biorheology 24:541-549, 1987.*
24. Nadel JA, Borson DB. *Modulation of neuropeptide actions by enkephalinase. In Pharmacology.* Rand MJ, Raper C, eds. Elsevier Science Publishers B.V., pp: 425-439, 1987.
25. Nadel JA, Borson DB. *Modulation of tachykinins and bradykinin by enkephalinase. In Mechanisms in Asthma: Pharmacology, Physiology, and Management.* Armour CL, Black JL, eds. Alan R. Liss, Inc. New York, pp:123-130, 1987.
26. Borson DB, Gashi AA, Nadel JA. *Methods for studying secretion from airways. In: Methods in Mucology.* Braga PC, Allegra L, eds. Raven Press, New York City, pp: 303-334, 1988.
27. Borson DB, Nadel JA. *Regulation of airway secretions. In Workshop on Rhinitis and Asthma; Similarities and Differences.* Mygind N, Pipkorn U, Dahl R, eds. Munksgaard, Copenhagen, Denmark, Chapter 6, pp:76-99, 1990.
28. Borson DB. *Roles of neutral endopeptidase in airways. Am. J. Physiol. 260 (Lung Cellular and Molecular Physiol. 4:L212-L225, 1991.*
29. Borson, DB, Nadel, JA. *Neutral Endopeptidase as a Possible Therapeutic Drug. In: Advances in Asthmology 1990: Proceedings of the XIII International*

- Congress of Asthmology, held in Maebashi, Japan. S. Kobayashi, J.A. Bellanti, Eds. Elsevier, Amsterdam. pp: 373 - 381, 1991.
30. Borson, DB. *Possible Roles of Peptides and Peptidases in Asthma*. American College of Chest Physicians, Pulmonary and Critical Care Update: 8(8):1-12, 1992.

### **Abstracts**

31. Gamsu G, Borson B, Webb WR, Nadel JA. *Structure: function correlation in tracheal stenosis*. Am Rev Respir Dis 115:328, 1977.
32. Borson B, Chinn R, Davis B, Nadel J. *Electrical stimulation of cholinergic nerves to submucosal glands in ferret trachea in vitro*. Physiologist 22:12, 1979.
33. Borson DB, Nadel J. *Mucous secretory response of canine tracheal pouch*. Fed Proc 38:1330, 1979.
34. Borson DB, Nadel JA. *Adrenergic neurotransmission to tracheal submucosal glands of ferrets*. Clin Res 29:98A, 1981.
35. Borson DB, Nadel JA. *Cholinergic nerves inhibit adrenergic neurotransmission to tracheal submucosal glands of ferrets*. Fed Proc 40:254, 1981.
36. Borson DB, Charlin M, Gold BD, Nadel JA. *Nonadrenergic noncholinergic nerves mediate secretion of macromolecules by tracheal glands of ferrets*. Fed Proc 41:1754, 1982.
37. Borson DB, Caughey G, Lazarus SC, Gold WM, Nadel JA. *Neutral proteases of canine mastocytoma cells*. Fed Proc 44:1276, 1985.
38. Borson DB, Corrales RJ, Viro N, Nadel JA. *Substance P (SP) regulation of <sup>35</sup>SO<sub>4</sub> macromolecule secretion from ferret trachea*. Am Rev Respir Dis 131:A27, 1985.
39. Borson DB, Gold M, Varsano S, Caughey G, Ramachandran J, Nadel JA. *Enkephalinase inhibitors potentiate tachykinin-induced release of <sup>35</sup>SO<sub>4</sub>-labeled macromolecules from ferret trachea*. Fed Proc 45:626, 1986.
40. Borson DB, Malfroy B, Gold M, Ramachandran J, Nadel JA. *Tachykinins inhibit enkephalinase activity from tracheas and lungs of ferrets*. Physiologist 29:174, 1986.

41. Forsberg LS, Varsano S, Borson DB, Basbaum CB, Nadel JA. *Keratinase-sensitive cell surface glycans are synthesized by cultured tracheal epithelial cells.* Fed Proc 45:1904, 1986.
42. Sekizawa K, Tamaoki J, Nadel JA, Borson DB. *Enkephalinase inhibitor (leucine-thiorphan) potentiates mammalian tachykinin-induced contraction in ferret trachea.* Fed Proc 46:650, 1987.
43. Sheppard D, Thompson JE, Scypinski L, Dusser D, Nadel JA, Borson DB. *Toluene diisocyanate increases airway responsiveness to substance P and decreases airway enkephalinase.* Physiologist 30:196, 1987.
44. Borson DB, Brokaw J, Sekizawa K, McDonald D, Nadel JA. *Viral infection increases permeability response to substance P (SP) by decreasing tracheal neutral endopeptidase (NEP).* FASEB J. 2:A1382, 1988.
45. Borson DB, Brokaw J, Sekizawa K, McDonald D, Nadel JA. *Viral infection increases tracheal permeability response to substance P (SP) in rats by decreasing neutral endopeptidase (NEP).* J Cell Biochem [Suppl] 12B:295, 1988.
46. Nadel JA, Djokic TD, Djokic LT, Borson DB. *Neutral endopeptidase inhibitor potentiates neurotensin-induced contraction in guinea pig bronchi.* FASEB J. 2:A1383, 1988.
47. Kohrogi H, Nadel JA, Malfroy B, Gorman C, Bridenbaugh B, Patton JS, Borson DB. *Recombinant enkephalinase inhibits substance P- and capsaicin-induced cough in awake guinea pigs.* Am Rev Respir Dis 139:A133, 1989.
48. Borson DB, Jew S, Gruenert DC. *Glucocorticoids increase expression of neutral endopeptidase in transformed human tracheal epithelial cells.* Physiologist 32:226, 1989.
49. Katayama M, Bunnett NW, Ueki IF, Nadel JA, Borson DB. *Recombinant human neutral endopeptidase (NEP) cleaves calcitonin gene-related peptide (CGRP).* FASEB J. 4:A998, 1990.
50. DiMaria GU, Katayama M, Graf PD, Borson DB, Nadel JA. *Neutral endopeptidase modulates endothelin-induced contraction of guinea pig trachea.* Pharm. Res. 22 (Suppl2):170, 1990.
51. Borson DB, Gruenert DC. *Cystic Fibrosis cells in culture express neutral endopeptidase (NEP, enkephalinase).* Pediatric Pulmonology (Suppl. 5):250, 1990.

52. Borson DB, Katayama M. *Calcitonin gene-related peptide inhibits cleavage of substance P by recombinant human neutral endopeptidase.* FASEB J.5:A863, 1991.
53. Katayama M, Nadel JA, Borson DB. Recombinant human neutral endopeptidase (NEP) cleaves human endothelin (ET1). FASEB J. 5:A863, 1991.
54. Borson DB, Gies D, and C. Gorman. *Transmembrane domain is necessary for expression of functional human neutral endopeptidase.* J. Cell. Biol. 115:61A, 1991.