

RON A. BOUCHARD

CURRICULUM VITAE

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I. BIOGRAPHY

Dr. Bouchard is an intellectual property lawyer and scholar, specializing in innovation, government regulation and litigation of medical research and commercial products. His career has focused on the science, law, policy, regulation and commercialization of medical technologies. He started his career as a medical scientist, completing a PhD and Postdoctoral Fellowship in the field of ion channel biophysics and Ca²⁺ imaging. He shifted focus to obtain a law degree specializing in pharmaceutical and biotechnology law and has been involved in the prosecution, acquisition, financing, distribution and litigation of intellectual property rights. Dr. Bouchard has appeared before the Federal Court of Canada and the Supreme Court of Canada. He has consulted with firms, universities, governments and international organizations on legal, regulatory and policy issues. He worked with the Government of Canada on its platforms for lifecycle-based drug approval and public private partnerships in technology commercialization. Dr. Bouchard's work has been funded by federal and provincial funding agencies and private endowments. His current research is focused on the clinical, regulatory and intellectual property aspects of global therapeutic product development, including medical research, commercialization, patenting, licensing and regulatory approval, with a focus on empirical assessment of the impact of government regulation on innovation and affordable medication in the global life sciences sector. He is particularly interested in systems approaches to human behavior.

- **Professor**; Research Team Leader, Faculties of Law & Medicine (2007-2012)
- **Law**; LLM, SJD (2005-2007)
- **Bar**; Law Society of Upper Canada (2000)
- **Lawyer; Consultant** (1997-2007)
- **Law**; JD (1994-1997)
- **Medical Scientist**; BPE, RA, PhD, Postdoctoral Fellow (1982-1994)

II. DEGREES & CERTIFICATIONS

- **SJD** (PhD, Law), University of Toronto (hold) 2006-2008
- **LLM**, University of Toronto 2005-2006
- **Bar**, Law Society of Upper Canada 2000
- **JD**, Queen's University 1994-1997
- **Post-Doctoral Fellow**, University of Calgary; Mayo Clinic 1990-1994
- **PhD** (Pharmacology & Therapeutics), University of Manitoba 1986-1990
- **BPE** (Clinical Exercise Physiology), University of Manitoba 1982-1986

III. EMPLOYMENT

ACADEMIC

Associate Professor

Sabbatical

June 2011-June 2012

Faculties of Law and Medicine, University of Manitoba, Canada

June 2010-June 2011

Faculties of Law and Medicine, University of Alberta, Canada

Oct 2007-Apr 2010

- Lead, Global Consortium Study of Pharmaceutical Linkage (11 PIs; 9 Nations). 2010-2011.
- Principal Investigator. New Investigator Award. Canadian Institutes for Health Research (CIHR). \$300,000/5 Years. 2010-2015.
- Principal Investigator. Research Allowance (Operating). CIHR. \$50,000/1 Year. 2010-2011.
- Principal Investigator. "Rising Star" Career Establishment Award (Recruitment Opportunity Program). AHFMR. \$260,000/3 Years. 2007-2010.
- Principal Investigator. CIHR Operating Grant Application. "Global & Domestic Public Health Implications of Pharmaceutical Linkage Regulations." September 15, 2010.
- Principal Investigator. CIHR Partnerships for Health Improvement (PSHI) Program Application. "Impact of Pharmaceutical Exclusivity Mechanisms on Canadian Drug Costs and Expenditures." November 1, 2010.
- Lead Instructor. *Bioethics*. (Law 3380 CRN 25347). 2011.
- Lead Instructor. *Commercializing Medical Research* (Law 599: B20). 2009.
- Lead Instructor. *Health Law & Policy* (Law 599: B7). 2008.
- Guest Lecturer. *Commercialization and Technology Transfer* (Biochem. 481). 2008.
- Guest Lecturer. *Clinical Trials and Drug Approval* (Medical Resident Training). 2008.
- Research Affiliate. IP Osgoode. York University, Toronto, Canada. 2010-Present.
- Research Fellow. Health Law Institute. University of Alberta. Faculty of Law. 2007-2010.
- Member. University of Alberta Internal CFI Application Review Committee. 2008.
- Member. External Reference Group. Government of Canada. Bill C-51/Progressive Licensing Framework for Drug Approval. 2008.
- Invited Speaker. BIO Korea. 2011.
- Participant. Institute for Health Economics Conference on Comparative Effectiveness. 2009.
- Reviewer: *McGill Journal of Law and Health; Medical Journal of Australia, Melbourne University Law Review; University of British Columbia Law Review; OMICS; Current Pharmacogenomics and Personalized Medicine; International Systems Dynamics Society*.
- Supervisor. 15 JD, MBA, MD, MA students on five grant-related projects.
- Work cited as evidence before Supreme Court of Canada (*Apotex v. Sanofi* 2008 SCC 61).
- 66 articles, abstracts, books, book chapters, blog entries, newspaper articles, and student lab reports and presentations/workshops.
- Lab blog: <http://sciencelegal.blogspot.com/>

LAW; MANAGEMENT CONSULTING

Science & Legal, Toronto, ON, Canada
Chair; Consulting Co.

1994-Present

- Provide management consulting to firms, government, business leaders, NGOs, and Principle Investigators on matters relating to domestic and international drug regulation, domestic medical research funding initiatives, commercialization of publicly funded research, legal, corporate, intellectual property and regulatory needs of start-up firms at varying stages of development, and various matters relating to the conduct of basic medical research.
- Clients: Gerson Lehrman Group, JD Capital Management LLC, SHI Consulting Inc., World Health Organization (WHO), Genome Canada, Ontario Genomics Institute, Ontario Cancer Research Network, Génome Québec, Ministère du Développement Économique et Régional et de la Recherche du Québec, University of Toronto Faculty of Medicine and Rotman School of Business, Toronto Hospital for Sick Children, University of San Diego, Queen's University, University of Calgary, University of Manitoba, Universidad Autonoma de Puebla (Mx), St. Boniface Research Centre, and Canadian Center for Substance Use in Sport and Health.
- General areas of practice include management consulting, leadership, technology valuation, market analysis, knowledge management, multi-party negotiations, program evaluation, business development, strategic innovation and competitive intelligence.
- Specific areas of practice include biotechnology and pharmaceutical commercialization and licensing activities, domestic and international regulatory frameworks, intellectual property strategy and due diligence, therapeutic product profile, and intellectual property litigation.

SHI Consulting Inc. Toronto, ON, Canada
Senior Consultant; Biotechnology, Pharmaceuticals

Feb 2005-Oct 2005

- Led team of consultants, communications experts, federal civil service, and national political advisors in support of the 2005 Commercialization Panel struck by government to develop policy and implementation mechanisms to increase productivity through commercialization of innovative technologies resulting from publicly and privately-funded research.
- Led the development of proprietary Intellectual Property Service Offering, including creation of a technology valuation matrix methodology and commercialization decision-tree analysis to provide current and prospective clients with a quantitative assessment methodology for intellectual property valuation, strategy and commercialization.
- Led a project involving the Therapeutic Product Profile of a series of novel compounds for use in neurological indications. Coordinated meeting of a major multinational pharmaceutical firm and its international panel of experts. Drafted Executive Summary of major scientific, clinical, regulatory and marketing issues and suggests for implementation.
- Led projects in the development of commercial strategies for research-based organizations, including analysis of commercial applications of resident technologies, potential market spaces and attractiveness, competitors, industry-grade intellectual property activities, and modeling of projected revenue streams.

Hazzard & Hore, Toronto, ON, Canada
Lawyer; IP, Litigation, Regulatory Law

Feb 2004-April 2005

- Intellectual Property Litigation. Patent litigation pertaining to pharmaceutical and biotechnology inventions, in particular under the *Patented Medicine (Notice of Compliance) Regulations*.
- Appearances at Federal Court of Canada at the trial and appellate level (*Pfizer v. Rhoxalpharma* 2004 FC 1685; 2005 FC 487), including the Supreme Court of Canada (*BMS v. Biolyse* 26 SCC 2005). Responsibilities included appearances at court and coordinating

and drafting notices of allegation, motion materials, statements of claim, statements of defense, facta, case memos and numerous expert scientific witness affidavits.

- Intellectual Property Regulatory Law & Policy. Responsibilities included drafting Committee Reports for federal Government, provincial Government and pharmaceutical industry associations pertaining to the *Patented Medicine (Notice of Compliance) Regulations*, *Food and Drug Act*, *Food and Drug Regulations*, and the *Patent Act*.

Torys LLP, Toronto, ON, Canada
Lawyer; IP, Corporate/Commercial Law

April 2000-Dec 2001

- Performed general corporate work, including drafting and negotiating private placement of securities, purchase and sale agreements, share option agreements, annual meeting materials, providing disclosure advice to technology corporations, and preparing closing documents for M&A transactions.
- Major files included sale of assets, including overseeing transfer of all IP assets, of Hollinger Inc. to CanWest Global Communications Inc. (\$4B CN), sale of assets of Efos Corp. to Exfo Electro-Optical Engineering Inc. (\$165M CN), licensing agreements for Tm Biosciences and Luminex, including up-front milestone payments (\$1M US), multinational licensing and distribution agreements for Lorus Therapeutics Inc. and its international partners, and numerous other M&A and licensing deals.

Ernst & Young, LLP, Toronto, ON, Canada
Lawyer; IP, Regulatory Law & Patent Prosecution

Jan 2000-April 2000

- Assisted Partners in driving licensing deals, drafted licensing agreements for biotechnology and pharmaceutical products, and drafted research and development agreements for multinational pharmaceutical companies.
- Assisted Partners in patent prosecution and patent and copyright infringement opinions.

Bereskin & Parr, Toronto, ON, Canada
Articling Lawyer; IP, Litigation & Patent Prosecution

July 1997- July 1998

- Assisted Partners in IP litigation. Attended motions and trial before the Federal Court of Canada (*Milliken v. Interface* 1998 FCJ 135; 2000 FCJ 129). Drafted legal facta, research memoranda, letters to clients, conducted client interviews.
- Assisted Partners in patent prosecution, biotechnology patent applications, responses to U.S., Canadian and PCT Office Actions, opinion letters, legal memoranda, and client interviews.

IV. ACADEMIC PROGRAMS

University of Toronto, Faculty of Law, Toronto, Canada¹
SJD (PhD) Program; IP Law, Health Law & Policy

Sept 2006-May 2008

- CIHR Health Law & Policy Fellow.
- Research Fellow, Munk Centre for International Studies Program on Health & Society.
- External Reference Group. Health Canada, Progressive Licensing Framework. 2006- 2007.
- Invited Participant, CIHR, Partnerships with the Private Sector Stakeholder Workshop. 2007.
- Invited Speaker. Licensing Executives Society, Canadian Branch. Implications of US Supreme

¹ Doctoral studies put on hold following acceptance of Associate Professorship at University of Alberta in fall 2007. SJD to be completed.

- Court decision in *KSR v. Teleflex* for Canadian patent law. 2007.
- Invited Participant, Province of Alberta Conference on Systems Biology. Banff Centre. 2007.
- Research Assistant, Genome Canada Operating Grant (Trudo Lemmens and Brent Zanke): “Assessment of Risk for Colorectal Tumors in Canada (ARCTIC)” 2005-2007.
- Leadership Development Program. Korn/Ferry International. 2006-2007.
- SJD Work: *Commercialization of Publicly Funded Medical Research*.
- Supervisor: Dr. Trudo Lemmens. Faculty of Law.

University of Toronto, Faculty of Law, Toronto, Canada 2005-2006
LLM Program; IP Law, Health Law & Policy

- CIHR Health Law & Policy Fellow.
- Research Assistant, Genome Canada Operating Grant (Trudo Lemmens and Brent Zanke): “Assessment of Risk for Colorectal Tumors in Canada (ARCTIC)”
- Co-Submission with Trudo Lemmens to the WHO on intellectual property issues relating to the WHO’s clinical trial registry platform scheduled for implementation in 2006. Pages 1-8.
- LLM Thesis: *What is The Right Approach to Obviousness in Patent Litigation Under Canada’s Pharmaceutical Linkage Regulations: To Test or Not to Test?* 2006.
- Supervisor: Dr. Trudo Lemmens. Faculty of Law.

Queen’s University, Faculty of Law, Kingston, Canada 1994-1997
LLB/JD Program

- Associate Editor, *Queen’s Law Journal*
- Author, *Queen’s Law Journal*
- Author, *New Queen’s Counsel* newspaper

University of Calgary, Calgary, Canada; Mayo Clinic, U.S.A. 1990-1994
Post-Doctoral Fellow, Research Associate

- CIHR Postdoctoral Fellow in membrane biophysics and intracellular ion imaging.
- Designed, conducted, analyzed and published results of electrophysiological and Ca²⁺ imaging experiments in the areas of ion channel and exchanger biophysics, intracellular Ca²⁺ homeostasis and excitation-contraction coupling in single isolated cardiac cells.
- Supervisor: Dr. Wayne Giles. Faculty of Medicine. Department of Physiology.

University of Manitoba, Faculty of Medicine, Winnipeg, Canada 1986-1990
PhD Program (Converted MSc to PhD)

- Accelerated MSc/PhD program funded by the Canadian Heart and Stroke Foundation.
- Ranked number one in the Department three years, and received the ‘gold medal’ (EL Drewry Memorial Award) on graduation for excellence in medical research.
- PhD Thesis: *Effects of Changes in the Rate and Rhythm of Stimulation on Excitation-Contraction Coupling in Mammalian Ventricular Muscle*. 1990.
- Supervisor. Dr. Deepak Bose. Faculty of Medicine. Department of Pharmacology & Therapeutics.

University of Manitoba, Faculty of Medicine, Winnipeg, Canada 1983-1986
Clinical Exercise Research Fellow

- Planned and conducted exercise physiology training for patients with chronic renal failure.

- Included aerobic and anaerobic exercise programs, analyzing data from programs, analyzing vital signs and 3-lead electrocardiograms in sole-use laboratory.
- Supervisor. Dr. Ashley Thomson. Faculty of Medicine. Department of Nephrology.

V. COMPETITIVE AWARDS

- CIHR. New Investigator Award. University of Alberta/Manitoba. *2010-Present*.
- AHFMR Recruitment/Career Start-Up Award. University of Alberta. *2007-2010*.
- CIHR Health Law & Policy Fellowship. University of Toronto. Faculty of Law. *2005-2008*.
- Strauss Intellectual Property Fellowship. University of Toronto. Faculty of Law. *2007*.
- Munk Centre for International Studies Fellowship. University of Toronto. *2006*.
- Innovation Law & Policy Scholarship. University of Toronto. Faculty of Law. *2006*.
- Genome Canada Fellowship. University of Toronto. Faculty of Law. *2005-2007*.
- University of Toronto Fellowship. University of Toronto. *2005*.
- Robert Law Fellowship. University of Toronto. Faculty of Law. *2005*.
- David Sabbath Prize. Health Law. Queen's University. Faculty of Law. *1997*.
- Canadian Heart & Stroke Professional Associate Fellowship. Queen's University. *1994-1996*.
- CIHR Postdoctoral Fellowship. University of Calgary. *1990-1993*.
- AHFMR Postdoctoral Fellowship. University of Calgary. *1990-1993*.
- E.L. Drewry Memorial Research Award. "Gold medal". University of Manitoba. *1990*.
- St. Boniface Research Foundation Award. University of Manitoba. *1990*.
- Manitoba Health Services Commission Award. University of Manitoba. *1990*.
- Victor Corroll Award. Academic proficiency. University of Manitoba. *1986*.
- Canadian Heart & Stroke Doctoral Research Award. University of Manitoba. *1988-1990*.
- University of Manitoba Graduate Scholarship. University of Manitoba. *1987*.

VI. CLIENT MANAGEMENT & SUPERVISION

Professional: Law Firm & Management Consulting

1997-Present

- Executive Clients: President, CEO, CSO, CFO, Executive Director: 14
- Senior Clients: VPs Legal, BD, Finance, Marketing, Research, Director: 10
- Expert Witnesses: MD, PhD, MD/PhD: 10
- Corporate and IP Law Clerks: 3
- Consultants: 4; Legal Assistants: 5

Academic: Science & Legal

1986-Present

- Dean, Chair, Directors, Principal Investigator: 9
- Senior Research Associates: 6
- PhD Students and Postdoctoral Fellows: 7
- JD/LLB, LLM, MD, MSc, MA, MBA Students: 30
- BSc Students: 4; Technicians: 6; Administrative Assistant : 2

VII. GRANTS

A. Existing Funds:

- Principal Investigator. New Investigator Award. Canadian Institutes for Health Research (CIHR). "Empirical Analysis of the Effectiveness of Patent Rights as an Incentive for Pharmaceutical Innovation." **\$300,000** Award/5 Years. 2010-2016. Ranked 4th of 62 applications in category (6.45 percentile; rating 4.45 out of 5.00).

- Principal Investigator. Research Allowance associated with CIHR New Investigator Award. **\$50,000**/1 Year. 2010-2011. Renewable.

B. Past Funds:

- Principal Investigator. Alberta Heritage Foundation for Medical Research (AHFMR). “Rising Star”/Career Establishment Award. “Complexity and the Law”. **\$260,000**/3 Years. 2007-2010.

C. Recent Applications:

- Lead Principal Investigator. CIHR Operating Grant Program. “Global & Domestic Public Health Implications of Pharmaceutical Linkage Regulations.” Collaborators: Dan Cahoy (U.S.), Tom Faunce (Australia), HeSeob Nam (Korea), Feroz Ali Kadher (India), Paul Jones (China), Bengt Domeij (Sweden), Graham Dutfield (U.K.), Juan Louis Serrano (Mexico), Aidan Hollis (Canada), and Joel Lexchin (Canada). **\$994,000**/4 Years. 2011-2015. Application: September 15, 2010.
- Principal Investigator. CIHR Partnerships for Health System Improvement (PSHI) Program. “Impact of Pharmaceutical Exclusivity Mechanisms on Canadian Drug Costs and Expenditures.” Co-Principal Investigators: Aidan Hollis (Calgary); Paul Grootendorst (Toronto). **\$600,000**/3 Years. 2011-2014. MHRC Pre-Commitment **\$150,000**; Alberta Pre-Commitment **\$150,000**. Application: November 1, 2010.

VIII. PUBLICATIONS

A. Legal

Full-Length Peer-Reviewed Papers:

1. **Bouchard, R.A.** Qualifying Intellectual Property II: A Novel Innovation Index for Pharmaceutical Products. *Santa Clara Computer and High Technology Law Journal*. 29(1): 1-121. In. Press. Jan 2012.
2. **Bouchard, R.A.** Qualifying Intellectual Property I: Harmonized Measurement of New and Follow-On Drug Approvals, Patents and Chemical Components. *Boston University Journal of Science and Technology Law*. 18(1): 1-70. In Press. Jan 2012.
3. Grootendorst, P., **Bouchard, R.A.**, Hollis, A. Canada's Pharmaceutical Intellectual Property Laws: The Case for Fundamental Reform. *Canadian Medical Association Journal*. 184(17): 1-7. 2011.
4. **Bouchard, R.A.** Cahoy, D., Domeij, B., Dutfield, G., Faunce, T., Hollis, A., Jones, P., Ali Khader, F., Lexchin, J., Nam, H., & Serrano, J.L. Structure-Function Analysis of Global Pharmaceutical Linkage Regulations. *Minnesota Journal of Law, Science & Technology*. 12(2): 391-461. 2011.
5. **Bouchard, R.A.** I’m Still Your Baby: Canada’s Continuing Support of U.S. Linkage Regulations for Pharmaceuticals. *Marquette Intellectual Property Law Review*. 15(1): 72-146. 2011.
6. **Bouchard, R.A.**, Hawkins, R., Clark, R., Hagtvedt, R., & Sawani, J. Empirical Analysis of Drug Approval-Drug Patenting Linkage for High Value Pharmaceuticals. *Northwestern Journal of Technology & Intellectual Property*. 8(2): 174-227. 2010.

7. **Bouchard, R.A.**, Sawani, J., McLelland, C. Sawicka, M. & Hawkins, R. The *Pas de Deux* of Pharmaceutical Regulation and Innovation: Who's Leading Whom? *Berkeley Technology Law Journal*. 24(3): 1461-1522. 2009.
8. Sawicka, M & **Bouchard, R.A.** Empirical Analysis of Drug Approval Data 2001-2008: Are Canadian Pharmaceutical Players "Doing More With Less"? *McGill Journal of Law & Health*, 3(1): 49-84. 2009.
9. **Bouchard, R.A.** & Monika Sawicka. The Mud and the Blood and the Beer: Canada's New Progressive Licensing Framework for Drug Approval. *McGill Journal of Law & Health*, 3(1): 85-119. 2009.
10. **Bouchard, R.A.** & Lemmens, T. Privatizing Biomedical Research- A 'Third Way'. *Nature Biotechnology*. 26(1): 31-36. 2008.
11. **Bouchard, R.A.** Balancing Public and Private Interests in the Commercialization of Publicly Funded Medical Research: Is There a Role for Compulsory Government Royalty Fees? *Boston University Journal of Science and Technology Law*. 13(2): 120-192. 2007.
12. **Bouchard, R.A.** Reflections on the Value of Systems Models for Regulation of Medical Research and Product Development. *Health Law Review*. 17(1): 28-43. 2008.
13. **Bouchard, R.A.** *KSR v. Teleflex* Part 2: Impact of U.S. Supreme Court Patent Law on Canadian and Global Systems-Based Innovation Ecologies. *Health Law Journal*. 15(1): 247-293. 2008.
14. **Bouchard, R.A.** *KSR v. Teleflex* Part 1: Impact of U.S. Supreme Court Patent Law on Canadian Intellectual Property and Regulatory Rights Landscape. *Health Law Journal*. 15(1): 222-246. 2008.
15. **Bouchard, R.A.** Living Separate and Apart is Never Easy: Inventive Capacity of the PHOSITA as the Tie that Binds Obviousness and Inventiveness. *University of Ottawa Law & Technology Journal*. 4(1). 1-57. 2007.
16. **Bouchard, R.A.** Should Scientific Research in the Lead-Up to Invention Vitiating Obviousness Under the Patented Medicines (Notice Of Compliance) Regulations: To Test or Not to Test? *Canadian Journal of Law & Technology*. 6(1): 1-27. 2007.
17. **Bouchard, R.A.** Benefit Sharing and the Privatization of Medical Research. *Munk Centre for International Studies Briefings*. CPHS 5: 190-216. 2007.

Books:

18. **Bouchard, R.A.** *Patently Innovative. How Pharmaceutical Firms Use Emerging Patent Law to Extend Monopolies on Blockbuster Drugs*. Biohealthcare Publishing (Oxford) Limited (Oxford UK). ISBN: 9781907568121. 2011.

Book Chapters:

19. **Bouchard, R.A.** Legal, Regulatory and Ethical Dimensions of Mandatory Clinical Trial Registration. *Clinical Trials: Law and Regulations*. A. Sabitha, ed. Amicus Books, Icfai University Press. 1-29. 2008.

20. Lemmens, T. & **Bouchard, R.A.** Mandatory Clinical Trial Registration: Rebuilding Public Trust in Medical Research. *Global Forum Update on Research for Health*. 4th ed. London, Pro-Brook Publishing Ltd. 40-46. 2007.
21. Lemmens, T. & **Bouchard, R.A.** Regulation of Pharmaceuticals in Canada. J. Downie, T. Caulfield & C. Flood, eds., *Canadian Health Law & Policy*, 3rd ed. Toronto. Butterworths. 318-387. 2007.

Law Blogs:

22. **Bouchard, R.A.** *Jurisdynamics*. Innovation Incentives Part 3: Combining Innovation Index and Product Cluster Models of Drug Development. Innovation Ecology. December 6, 2011. Available at: <http://jurisdynamics.blogspot.com>. Also published at BioLaw.com.
23. **Bouchard, R.A.** *Jurisdynamics*. Innovation Incentives Part 2: Patent Valuation. December 6, 2011. Available at: <http://jurisdynamics.blogspot.com>. Also published at BioLaw.com.
24. **Bouchard, R.A.** *Jurisdynamics*. Innovation Incentives Part 1: regulated Therapeutic Product Lifecycle. November 30, 2011. Available at: <http://jurisdynamics.blogspot.com>. Also published at BioLaw.com.
25. **Bouchard, R.A.** *IP Osgoode*. Patent Valuation Part 2: Combining Innovation Index and Product-Patent Clusters. November 5, 2011. Available at: <http://www.iposgoode.ca>.
26. **Bouchard, R.A.** *IP Osgoode Featured Post*. Patent Valuation Part 1: A Novel Innovation Index for Valuation of Life Sciences Inventions. November 14, 2011. Available at: <http://www.iposgoode.ca/2011/11/anovelinnovationindexforlifesciencesinventions/>
27. **Bouchard, R.A.** *IP Osgoode*. Global Pharmaceutical Linkage Regulations: A Consortium Framework. November 23, 2010. Available at: <http://www.iposgoode.ca/2010/11/global-pharmaceutical-linkage-regulations-a-consortium-framework/>
28. **Bouchard, R.A.** *IP Osgoode*. Living Separate and Apart is Never Easy: Obviousness and Inventiveness in Pharmaceutical Litigation. March 26, 2010. Available at: <http://www.iposgoode.ca/2010/04/living-separate-and-apart-is-never-easy-obviousness-and-inventiveness-in-pharmaceutical-litigation/>
29. **Bouchard, R.A.** *IP Osgoode Featured Post*. I'm Still Your Baby: Canada's Continuing Support of U.S. Linkage Regulations for Pharmaceuticals. March 8, 2010. Available at: <http://www.iposgoode.ca/2010/03/im-still-your-baby-canadas-continuing-support-of-u-s-linkage-regulations-for-pharmaceuticals/>
30. **Bouchard, R.A.** *Jurisdynamics*. Complexity, IPR Rights and Innovation Ecologies. Part 1: Intellectual Property and Regulatory Rights Considerations. Mar. 14, 2008. Available at: <http://jurisdynamics.blogspot.com/2008/03/complexity-ipr-rights-and-innovation.html>
31. **Bouchard, R.A.** *Jurisdynamics*. Complexity, IPR Rights and Innovation Ecologies. Part 2: Distributive Considerations. March 16, 2008. Available at: http://jurisdynamics.blogspot.com/2008/03/complexity-ipr-rights-and-innovation_16.html
32. **Bouchard, R.A.** *First Movers*. Complexity and the PHOSITA. Feb. 21, 2007. Available at: <http://firstmovers.blogspot.com/2007/02/complexity-and-phosita.html>

Public Submissions, Articles and Book Reviews:

33. Lemmens, T & **Bouchard, R.A.** Comments on the Legal, Regulatory and Ethical Aspects of the WHO Clinical Trial Registry Platform. Submitted to the World Health Organization Formal Consultation on Disclosure Timing Policy. Geneva, April 2006. Available at: <http://www.who.int/ictrp/011_Lemmens_Bouchard_5Aprilo6.pdf>
34. **Bouchard, R.A.** Book Review. Law Reform & Medical Injury Litigation. By S. McLean. *Queen's Law Journal*. 21(2): 541-548, 1996.
35. **Bouchard, R.A.** You and the pharmaceutical industry: David v. Goliath? *New Queens Counsel*. 7(1): 18-19, 1995.
36. **Bouchard, R.A.** Private health care: Coming soon to a hospital near you? *New Queens Counsel*. 6(4):11-12, 1995.
37. **Bouchard, R.A.** The right to die: Whose right is it anyway? *New Queens Counsel*. 6(2):11-12, 1994.

Abstracts:

38. **Bouchard, R.A.** Empirical Analysis of Drug Approval-Drug Patenting Linkage and its Role in Pharmaceutical Innovation. Intellectual Property Institute of Canada (IPIC) Meeting. November 20, 2009.
39. Sawani, J., Sawicka, M., McLelland, C., Burrows, K., Sklar, C., **Bouchard, R.A.** The Shifting Sands of Pharmaceutical Innovation. University of Alberta Research Day. May 28, 2009.
40. Sawicka, M., Sawani, J., McLelland, C., Burrows, K., Sklar, C., **Bouchard, R.A.** Empirical Analysis of Canadian Drug Approvals 2001-2008: Are Canadian Pharmaceutical Players "Doing More with Less"? University of Alberta Research Day. May 28, 2009.

Submitted/In Progress:

41. **Bouchard, R.A.** & Clark, R. Empirical Analysis of the Consequences of Linking Market and Regulatory Incentives for Pharmaceutical Innovation. To be submitted. Winter 2012.
42. **Bouchard, R.A.** How to Write a Scientific Paper for Publication in Legal Journals. In Preparation. Fall 2011.
43. **Bouchard, R.A.** Implications for Legal Theory of Incorporating Formal Systems Frameworks: Initial Thoughts on a Lambda-Delta ($\lambda\Delta$) Model. In Preparation. Fall 2011.
44. **Bouchard, R.A.** Evidence for Cluster-Based Drug Development and its Impact on Global Pharmaceutical Policy and the Availability of Essential Medications. In Preparation. Fall 2011.
45. **Bouchard, R.A.** Constitutional Rights Balancing and the Problem of Mandatory Clinical Trial Data Disclosure. In preparation (*draft manuscript complete*), Fall 2011.
46. **Bouchard, R.A.** Distributive Systems Analysis of the Effectiveness of Government Incentives on Drug Development and the Availability of Affordable Drugs. In preparation (*draft manuscript complete*), 2011.

47. **Bouchard, R.A.** In Canada, You Can Have Your (Patent) Cake and Eat It Too: Empirical Analysis of Justice Rothstein's Decision in *Apotex v. Sanofi*. In preparation (*draft manuscript complete*), 2011.
48. **Bouchard, R.A.** Historical Study of Canadian Science & Technology Policy Relating to Medical Research. In preparation (*draft manuscript complete*), 2011.

Lab Student Reports in Service of Manuscript Preparation:

49. McFarlane, J. The Answer is Patently Obvious: A Review of Justice Marshall Rothstein's Patent Jurisprudence. 1-18. November 18, 2010.
50. Eng, S. Analysis of the Level of Innovation and Profitability of New and Follow-on Drugs. 1-5. October 15, 2010.
51. Sawani, J. Method for Analyzing Drug Approval-Patent Linkages for Most Profitable, Priority Review and NOC/c drugs. 1-8. October 21, 2009.
52. Sklar, C. Comparative Effectiveness Research. 1-6. July 27, 2009.
53. Sawicka, M.A. The Canadian Drug Approval Process. 1-20. July 15, 2009.
54. Sawicka, M.A. Bill C-51: Canada's Progressive Licensing Regime for Drug Approval Part 1: Literature Review. April 15, 2009.
55. Sawicka, M.A. Bill C-51: Canada's Progressive Licensing Regime for Drug Approval Part 2: Empirical Analysis of Drug Approvals Between 2001-2008. April 15, 2009.
56. McLelland, C. Methodology for Studying the Nexus between Drug Approval and Drug Patenting. 1-13. April 15, 2009
57. Rozmus, A.R. Rights Balancing and the Problem of Mandatory Clinical Trial Data Disclosure: Legal Grounds Pertaining to Data Disclosure. 1-51. April 10, 2009.
58. Rozmus, A.R. Rights Balancing and Mandatory Clinical Trial Registration. 1-13. March 3, 2009.
59. Rozmus, A.R. The Good the Bad and the Overlap: Heath, Stein & Shaw. 1-6. February 3, 2009
60. Foster, J. Complex Equality and Complex Systems: Approaching Distributive Justice. 1-8. February 19, 2009.
61. Foster, J. The Good, the Bad, and the Impossible: Fitness and Social Justice. 1-2. November 27, 2008.
62. Shaw, S. Complex Adaptive Systems, International Relations and Pharmaceutical Innovation. 1-6. June 7, 2008.
63. Shaw, S. Rawls Original Position/Veil of Ignorance from a Complexity Theory Perspective. 1-2. June 6, 2008.
64. Shaw, S. Relevance to rTPL of "Complexity in World Politics: Concepts and Methods of a New

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65. Shaw, S. Relevance to rTPL of "System Effects: Complexity in Political and Social Life". By Robert Jervis. 1-5. May 24, 2008.
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B. Scientific

Full-Length Peer-Reviewed Papers:

67. Omelchenko, A., **Bouchard, R.A.**, Shurraw, S., Trac, M., Hnatowich, M., Hryshko, L.V. Frequency-dependent regulation of the cardiac NCX1.1 Na⁺-Ca²⁺ exchanger. *American Journal of Physiology*, Oct; 289(4):H1594-603. 2005.
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72. **Bouchard, R.A.**, Weber, A.R., Geiger, J.D. Review: Informed decision making on sympathomimetic use in sport and health. *Clinical Journal of Sports Medicine*. 12:209-224. 2002.
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74. Tushima, R.G., Wickendon, A.D., **Bouchard, R.A.**, Oudit, G.Y., Lui, P.P., Backx, P.H. Modulation of iron uptake in heart by L-type calcium channels: Possible implications in iron overload. *Circulation Research*. 84: 1302-1309. 1999.
75. Fedida, D., **Bouchard, R.A.**, Chen, F.S.P. Slow gating charge immobilization in the human potassium channel Kv1.5 and its prevention by 4-Aminopyridine. *Journal of Physiology*. 494.2: 377-387. 1996.
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88. Hryshko, L.V., **Bouchard, R.A.**, Chau, T., Bose, D. Inhibition of rest-potentiation in canine ventricular muscle by the calcium channel agonist BAY K 8644: Comparison with caffeine. *American Journal of Physiology (Heart Circulation Physiology. 26)* 257: H399-H406. 1989.
89. Bose, D., Kobayashi, T., **Bouchard, R.A.**, Hryshko, L.V., and Bose, D. Scattered light intensity fluctuation in the canine ventricular myocardium: correlation with inotropic drug effect. *Canadian Journal of Physiology and Pharmacology*. 66: 1232-1238. 1988.

Book Chapters:

90. Bose, D., **Bouchard, R.A.**, Saha, J.K., Hryshko, L.V., Chau, T. Inhibition of sarcoplasmic reticular Ca^{2+} release by the Ca^{2+} channel agonist, BAY K 8644: Are sarcolemmal Ca^{2+} channels involved? In *Calcium channel modulators in ischemic heart disease and other cardiovascular*

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Public Submissions, Articles & Book Reviews:

92. Geiger, J.D & **Bouchard, R.A.** Drug is not a “four letter word”. *The Enhancer: Sport Medicine Council of Manitoba Journal*. November: 1-2. 2002.

Abstracts:

93. Orta, G., **Bouchard, R.A.**, Salinas E. Inhibition of I_{Na} by primaquine. *Biophysical Journal*. 80:224(a). 2001.
94. Tushima, R.G., Wickendon, A., **Bouchard, R.A.**, Lui, P.P., Backx, P. Fe^{2+} permeation through L-type Ca^{2+} channels: Mechanism of iron uptake by the heart. *Circulation*. 96(8) Supp. A1995. 1997.
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100. Giles, W.R., Clark, R.B., Braun, A., Fedida, D., **Bouchard, R.A.** Ionic mechanisms of repolarization in mammalian ventricle. *Journal of Molecular and Cellular Cardiology*. 24(S4):S12, 1992.
101. **Bouchard, R.A.**, & Fedida, D. The positive inotropic effect of α_1 -adrenoceptor activation is dependent upon action potential prolongation in rat cardiac myocytes. *Journal of Physiology*. 446:143P, 1991.
102. Fedida, D. & **Bouchard, R.A.** Relationship between action potential duration and unloaded cell shortening revealed by α_1 -adrenoceptor stimulation in rat ventricular cells. *Canadian Journal of Cardiology*. 7(SA):112A, 1991.
103. **Bouchard, R.A.**, & Bose, D. Direct contribution of the Na^+-Ca^{2+} exchange process toward developed tension in mammalian ventricular muscle. *Biophysical Journal*. 57(2): 455. 1990.

104. Bose, D., Hryshko, L.V., **Bouchard, R.A.**, Saha, J.K., Chau, T., Unusual alteration of cardiac sarcoplasmic reticulum calcium stores by calcium agonists. 33rd Oholo Conference on Calcium Channel Modulators. Israel. 33: 18. 1989.
105. **Bouchard, R.A.**, & Bose, D. Mechanism of the negative tension staircase in rat ventricular myocardium. *The Physiologist*. 31: 7-8. 1988.
106. **Bouchard, R.A.**, Hryshko, L.V., Saha, J.K., Bose, D. The calcium channel agonist BAY K 8644 reveals differences in the mode of action of ryanodine and caffeine on mammalian cardiac sarcoplasmic reticular function. *Federation Proceedings*. 2: 4867. 1988.
107. Saha, J.K., **Bouchard, R.A.**, Hryshko, L.V., Chau, T., Bose, D. Is inhibition of calcium release from the canine ventricular SR by BAY K 8644 due to an action on the calcium channel? *Federation Proceedings*. 2: 1819. 1988.
108. Bose, D., **Bouchard, R.A.**, Hryshko, L.V., Kobayashi, T., Chau, T. Assessment of the contribution of sarcoplasmic reticular calcium in mammalian excitation-contraction coupling by laser light scattering. *International Symposium on Heart Disease*, International Society of Heart Research Meeting. India, 1988

IX. INVITED PRESENTATIONS

A. Legal

1. **Bouchard, R.A.** Drug Approval-Patent Linkage Systems. BIO Korea. Seoul, South Korea. September 30, 2011.
2. **Bouchard, R.A.** Empirical Analysis of Drug Approval-Drug Patenting Linkage and its Role in Pharmaceutical Innovation. Canadian Intellectual Property Office (CIPO). Ottawa, Canada. December 2, 2010.
3. **Bouchard, R.A.** Empirical Analysis of Drug Approval-Drug Patenting Linkage and its Role in Pharmaceutical Innovation. Industry Canada. Ottawa, Canada. November 29, 2010.
4. **Bouchard, R.A.** UBC Symposium. Innovation & Intellectual Property. Vancouver. May 2010.
5. **Bouchard, R.A.** Do Patents Stimulate Innovation? Assessment of Empirical Research using Canadian Pharmaceutical Data. Innolab Workshop Series. University of Calgary. February 10, 2010.
6. **Bouchard, R.A.** Empirical Analysis of Drug Approval-Drug Patenting Linkage and its Role in Pharmaceutical Innovation. Western Intellectual Property Law Academy/Intellectual Property Institute of Canada (IPIC) Meeting. Toronto. November 20, 2009.
7. **Bouchard, R.A.** Drug regulatory systems: The unintended consequences of domestic and global science and technology policy on the rate and direction of innovative activity of brand-name and generic pharmaceutical firms. International System Dynamics Conference. Albuquerque, USA. July 2009.
8. **Bouchard, R.A.** Impact of U.S. Supreme Court patent law on non-US and global systems-based innovation ecologies. 50th Annual Systems Dynamics Conference. Athens, Greece. July 2008.

9. **Bouchard, R.A.** Value of systems models for regulation of innovative medical research and product development. UBC Symposium. Alternative Forms of Intellectual Property. Vancouver. May 2008.
10. **Bouchard, R.A.** Commercialization of publicly funded medical research. Innovation Series. Munk Centre for International Studies. Toronto, Canada. December 2007.
11. **Bouchard, R.A.** Commercialization of publicly funded medical research. University of Toronto Health Law & Policy Series. Faculty of Law. Toronto, Canada. October 2007.
12. **Bouchard, R.A.** Impact of U.S. Supreme Court patent law on Canadian intellectual property and regulatory rights landscape. Licensing Executives Society. Toronto, Canada. October 2007.
13. **Bouchard, R.A.** Commercialization of publicly funded medical research. Faculties of Law and Medicine & Dentistry. Edmonton, Canada. August 2007.
14. **Bouchard, R.A.** Commercialization of publicly funded biomedical technologies. CIHR Health Law & Policy Colloquium. Halifax, Canada. May 2007.
15. **Bouchard, R.A.** To test or not to test: What is the correct approach to obviousness under the Canadian Patented Medicines (Notice of Compliance) Regulations? CIHR Health Law & Policy Colloquium. Toronto, Canada. May 2006.
16. **Bouchard, R.A.** Commercializing medical research. Comparative Program in Health & Society Series. Munk Centre for International Studies. Toronto, Canada. March 2006.

B. Scientific

17. **Bouchard, R.A.** Modulation of iron uptake by cardiac L-type calcium channels under conditions of iron overload. Winnipeg, Canada. August 1996.
18. **Bouchard, R.A.** 4-Aminopyridine prevents gating charge immobilization and C-type inactivation in the cloned human potassium channel Kv1.5. Baltimore, USA. February 1996.
19. **Bouchard, R.A.** Probing the physiology of human K⁺ channels with 4-aminopyridine. Kingston, Canada. September 1995.
20. **Bouchard, R.A.** 4-Aminopyridine prevents rapid inactivation and immobilization of gating charge in the gating in the cloned human potassium channel Kv1.5. Puebla, MX. July 1995.
21. **Bouchard, R.A.** Action potential duration modulates calcium influx, Na⁺-Ca²⁺ exchange and intracellular calcium release in rat ventricular myocytes. Woods Hole, USA. April 1995.
22. **Bouchard, R.A.** E-C coupling and [Ca²⁺]_i homeostasis in mammalian heart studied using fluorescence microscopy and whole-cell voltage clamp. Winnipeg, Canada. July 1994.
23. **Bouchard, R.A.** E-C coupling and [Ca²⁺]_i homeostasis in rat ventricular myocytes studied using the action potential clamp technique. New Orleans, USA. March 1994.
24. **Bouchard, R.A.** Intracellular calcium homeostasis and excitation-contraction coupling in mammalian heart. Kingston, Canada. September 1994.

25. **Bouchard, R.A.** Effects of action potential prolongation on Ca^{2+} current, $[\text{Ca}^{2+}]_i$ and contraction studied using the action potential clamp technique. New Orleans, USA. March 1994.
26. **Bouchard, R.A.** Voltage-dependence of contraction in isolated rat ventricular myocytes. Washington, USA. February 1993.
27. **Bouchard, R.A.** Regulation of unloaded cell shortening by sarcolemmal $\text{Na}^+/\text{Ca}^{2+}$ exchange in isolated rat ventricular cells. Washington, USA. February 1993.
28. **Bouchard, R.A.** The positive inotropic effect of α_1 -adrenoceptor activation is dependent upon action potential prolongation in rat cardiac myocytes. Cambridge. UK. July 1991.
29. **Bouchard, R.A.** Direct contribution of the $\text{Na}^+-\text{Ca}^{2+}$ exchange process toward developed tension in mammalian ventricular muscle. Baltimore, USA. February 1990.
30. **Bouchard, R.A.** Mechanism of the negative tension staircase in rat ventricular myocardium. Los Vegas USA. May 1988.
31. **Bouchard, R.A.** The calcium channel agonist BAY K 8644 reveals differences in the mode of action of ryanodine and caffeine on mammalian cardiac sarcoplasmic reticular function. Los Vegas USA. May 1988.
32. **Bouchard, R.A.** The effect of exercise on chronic renal failure patients. Canadian Nurses Association Meeting. Winnipeg, Canada. October 1985.

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X. ONE-PAGER

Law:

- Appeal, Supreme Court of Canada: *BMS v. Biolyse* 26 SCC 2005. Patent litigation re: taxol.
- Trials, Federal Court of Canada: *Pfizer v. Rhoxalpharma* 2004 FC 1685; 2005 FC 487 (T-807-03; T-342-04). Patent litigation re: azithromycin.
- Trial, Federal Court of Canada: *Milliken Industries Ltd. v. Interface Flooring Systems Inc.* 1998 FCJ 135; upheld on appeal 2000 FCJ 129. Copyright litigation re: carpet tile designs.
- M&A: \$4B Hollinger-CanWest Global deal, including all IP assets. 2000.
- M&A: \$126M Efos-Exfo Electro-Optical Engineering deal. 2001.
- Licensing, Distribution and Material Transfer Agreements: Tm Biosciences-Luminex deal (\$1M upfront milestone) 2001, various Lorus Therapeutics Inc. deals. 2001.
- Patent Portfolio Analysis and Due Diligence, Lorus Therapeutics Inc., Covington Fund. 2000.
- Associate Professor, Faculties of Law and Medicine. 2007-Present.
- Standard Obviousness in Pharmaceutical Litigation. 3 Papers: *Can. J. L. Tech.; Ottawa; Health L.J.*
- Technology Commercialization. 3 Papers: *Boston; Nature Biotech. Munk Briefings.*
- Empirical Analysis of Drug Approval, Drug Patenting and Pharmaceutical Innovation. 6 Papers: *Santa Clara; Boston (2); Berkeley; Marquette; Northwestern; McGill (2).*
- Complex Public Health/Innovation Systems. 4 Papers: *Berkeley; CMAJ; Health L. Rev.; Health L. J.*
- Regulation of Drugs and Clinical Trials. 2 papers: *CMAJ; McGill.* 3 book chapters: *Canadian Health Law & Policy; Global Forum on Public Health; Clinical Trials: Law & Regulations.*
- Global Pharmaceutical Linkage. 1 paper, *Minn. J. L. Sci. Techn.*
- Book: *Patently Innovative. How Pharmaceutical Firms Use Emerging Patent Law to Extend Monopolies on Blockbuster Drugs.* Biohealthcare Publishing (Oxford) Limited. 2011.
- Munk Centre for International Studies Fellowship, CIHR Health Law & Policy Fellowship, David Sabbath Prize for Health Law, plus other awards, scholarships and fellowships.
- AHFMR. "Rising Star" Career Establishment Award. \$260,000. 2007-2010.
- CIHR New Investigator Salary Award and Research Allowance. \$350,000. 2010-2015.
- Global Lead; Principal Investigator. Consortium Study of Pharmaceutical Linkage. 2010-2011.
- Work cited in evidence before Supreme Court of Canada: *Apotex v. Sanofi* [2008 SCC 61].

Management Consulting:

- Technology Evaluation and Financial Modeling Study. Brown Cancer Centre, Louisville USA. 2005.
- Technology Evaluation and Commercialization Analysis. Jewish General Hospital, Montreal. 2005.
- TPD Analysis and Recommendations for follow on Strategic Plan. Wyeth, New Jersey, USA. 2005.
- Rotman Expert Panel on Commercialization Report. Government of Canada. 2005.
- Development of firm IP & Technology Valuation Service Offering. 2005.
- Development of firm CFI Translational Research Grant Service Offering. 2005.
- Advice to World Anti-Doping Agency. Canadian Centre for Drugs in Sport & Health. 2002.
- Numerous papers published; creation new scientific programs and methods, with 9 PIs. 1994-2007.
- WHO Clinical Trial Registry: Advice on IP and Regulatory aspects of WHO CTR initiative. 2006.
- Generic drug approval standards and strategic IP issues. Gerson Lehrman Group (NYC). 2007.

Science:

- Bouchard et al, *J. Physiol.* 469: 583-599.1993. Two-electrode study of the role of I_{Ca} , Na/Ca exchange and V_m escape in activating excitation-contraction coupling in single cardiac cells.
- Bouchard et al, *Circ. Res.* 76: 790-801. 1995. Simultaneous measurement of I_m , $[Ca^{2+}]_i$ and cell shortening under action potential clamp and voltage clamp conditions in single cardiac cells.
- Fedida et al, *J. Physiol.* 494.2: 377-387. 1996. High resolution gating current and I_K measurements in HEK cells expressing cloned Kv1.5 channels.
- Bouchard et al, *Mol. Pharm.* 65(3): 802-810. 2004. Biophysical study of wild type and mutant NCX1.1 Na/Ca exchangers using the giant sarcolemmal patch technique.
- EL Drewey Award 1990 (Gold Medal), plus other awards, scholarships and fellowships. 1986-2007.
- 42 scientific publications, including papers, abstracts, book chapters, etc. 1988-2007.