CV Summary J. Paul Santerre, Univ. of Toronto, Ontario, Canada.

Research Interests:
Physical/surface/biological characterization of polymers, novel biomaterial development for tissue interfaces, drug polymers, material biodegradation by enzymes and macrophages, medical device design.

University of Toronto Appointments:

Director for the Institute of Biomaterials and Biomedical Engineering, Faculties of Engineering, Medicine and Dentistry, Sept 2008-June 2013.
Associate Dean Research, Dentistry, University of Toronto, July 1, 2003-2008.
Full Professor, Dentistry, Division of Biological and Diagnostic Sciences, University of Toronto, July 1, 2000 to present.
Full Professor, Institute for Biomaterials and Biomedical Engineering, Univ. of Toronto, May 1, 1999 to present.
Cross Appointment, Chem.Eng. and Applied Chemistry, University of Toronto, July 1994 to present.
Cross Appointment, Metallurgy and Materials Science, University of Toronto, December 1995 to present.
Full member of the School of Graduate Studies at the University of Toronto, July 1, 1994 to present.
Member of the Collaborative Graduate Program Committee, Institute for Biomat. and Biomed. Eng., Univ. of Toronto, Sept 1997 to present.
Coordinator of the Summer Student Program, Faculty of Dentistry, Univ. of Toronto, Jan 1998- Dec 2001.

Recent Management Experience:

Director for the Institute of Biomaterials and Biomedical Engineering, Univ. of Toronto (2008-present)
Major responsibilities:

- Oversight for all biomedical engineering undergraduate and graduate programs, coordination of curriculum, research and promotion of the field of biomedical engineering with Dentistry, Engineering and Medicine. See website: http://www.ibbme.utoronto.ca/
- Reporting: to the Deans of Dentistry, Engineering and Medicine
- Personnel: executive staff 6; support staff of 1; 38 core faculty; 50+ cross-appointed faculty; approx $16-30M/year in research grant activity
- Budget: annual operating budget of ≈ $8M

Appointed President and Chair of the 10th World Biomaterials Congress, Montreal, 2009 by the Canadian Biomaterials Society after a successful bid to the International Union of Societies for Biomaterials Science and Engineering. Appointment runs from Sept 2009-2016.
Major responsibility: oversight for the organization of an international conference with approximately 3000-4500 projected attendees. This is the most significant biomaterials meeting in the World, held every 4 years.

Associate Dean Research, Faculty of Dentistry Univ. of Toronto (2003-2008)
Major responsibilities:

- Represent the Faculty on all research matters and director of the Dental Research Institute
- Reporting: to the Dean of the Faculty of Dentistry
- Personnel: executive staff of 3; support service staff of 10; Principal investigators 45
- Annual budget: office operating budget of $500,000 ; DRI research budget > $9,000,000

Co-director of CIHR's training network for Network for Oral Research Training and Health (NORTH) (2001-2008); www.northdentalresearch.ca
Major responsibilities:

- Reporting: to the director of the Institute for Muculoskeletal Health and Arthritis at CIHR

- Personnel: 1 admin assistant; 1 IT administrator; 10 Univ. co-ordinators
- Co-ordinated research programs for 40-45 undergrad dental students and their mentors at all 10 Cdn dental schools
- Annual budget: $300,000

President (2000-2004) **and Chief Scientific Officer** (2000-2005); retained as CSO (2005-present) for Interface Biologics Inc-reporting: report to a board of directors and the Chief Executive Officer of the company.

- Personnel: 16 research staff and 5 administrative staff
- Annual budget: $2,500,000/year

President (1993-95, 1997-98) **and Member of the Board of Directors** (1997-2002) for the Canadian Biomaterials Society

- Reporting: As president I reported to the Board of Directors
- personnel: worked with an executive of 4 staff
- Budget: $12,000/year with an investment portfolio of approximately $120,000.

Director of the Biomedical Polymers Laboratory, Univ. of Toronto (1993-present)

- Reporting: report to the Director of the Dental Research Institute and the Dean of the Faculty of Medicine
- Personnel: 14-18 research associates, grad students and undergrad students
- Budget: $.5 to $1.5M/year

Manager of the University Heart Institute Materials Laboratory, Univ. of Ottawa (1989-1993)

- Reporting: reported to the director of the cardiovascular devices division
- Personnel: two technicians, 1 research engineer and 3 graduate students
- Budget: $500,000/year

Education:

Ph.D., Chemical Engineering, McMaster University, Hamilton, Ontario, November 1990.
Thesis title: Sulfonated and Derivatized Sulfonated Polyurethanes for Blood Contacting Applications
M.Sc.E., Chemical Engineering, University of New Brunswick, Fredericton, New Brunswick, December 1985.
Thesis title: Molecular Orientation Induced in Polydimethyl-siloxane by Elongational and Shearing Strains
Honours B.Sc., Chemistry, Dalhousie University, Halifax, Nova Scotia, May 1983.
Thesis title: Thermodynamics of the Binding of Surfactants to Polyelectrolytes

Selected Academic Awards/Scholarships:

- Synergy Award for Innovation in Partnerships of Small and Medium Sized Companies, Natural Sciences and Engineering Research Council of Canada (NSERC), August 2012
- Fellow of the American Association for the Advancement of Science (AAAS), February 2011
- Julia Levy Award from the Canadian Society for Chemical Industry for commercialisation of innovation in Canada, in the field of Bio-medical Science and Engineering, March 2010
- Fellow of the American Institute for Medical and Biological Engineering, October 2008, inducted in February 2009.
- Nominated for the Ontario's Premiers Award for Innovator of the year, Province of Ontario, October 2006.
- Honorary member award, Omicron Kappa Upsilon Dental Society, for outstanding contribution to the art, science, or literature of dentistry, June 7, 2005.
- Fellow, Biomaterials Science and Engineering (FBSE), Life time achievement May 2004

- University of Toronto Connaught Award for New Faculty, 1994-96
- Ontario Ministry of Health Career Scientist Award, Nov. 93 - Nov. 98

Publications and grants:
Peer reviewed publications: 472 (144 papers, 328 abstract/conference proceedings/technical notes)
Patents: 59
Career research funding to date: $20 million Cdn.
Invited talks: 66 (55 scientific lectures/conference presentations; 11 industry presentations)

Student project supervision:
PDFs: 4
Ph.D. students: 14, MSc. Students: 37
Undergraduate: 85
High School: 12
Graduate Student and research staff supervision in 2012: 1 Research Associates, 1 technician , 1 post-doc fellow, 5 PhD, 6 MSc.

Peer Reviewed Grant Funding:

1. CFI, application for Ontario Centre for Characterization of Advanced Materials, $15,827,974 (CFI portion: $4,606,760); Chuck Mims (PI); co-PIs Elizabeth Edwards, Uwe Erb, Roger Mewman, Geoffrey Ozin, Doug Perovic, Paul Santerre, Steven Scott, Yu Sun, Chris Yip; submitted April 2012.

2. CIHR Operating, application for 3 years, $459,432 over 3 yrs, submitted March 1, 2010, starting Oct 1, 2011-Sept 2014, Kandel R, Massicotte, E., Santerre JP, Craig Simmons , Establishing interfaces between annulus fibrosus lamellae and bone: towards engineering tissues for intervertebral discs, funded CIHR Operating grant, application #245457 .

3. Ontario Ministry of Innovation ORF-RE funded $2,173,000/5 years, starting July 2010, Santerre JP, Esfand R, Trisegmented fluorinated polymers and pharmaceutical delivery materials for interventional cardiovascular devices, grant # RE-05-008.

4. NSERC Collaborative Research and Training Experience (CREATE) funded $1,500,000/6 years, starting April 2011-March 2016, LaRoche G, Lee M, Mantovani D, Auger F, Santerre JP, Sone E, Undsworth L, Uludag H, Kizhakkedathu J, Training Program in Regenerative Medicine, (TPRM). Awarded March 2011. NSERC grant #

5. CIHR Operating grant, applied for $126K/year for 3 years, submitted for March 1-2010, starting Oct 2010-Sept 2013, Santerre JP (PI), Labow RS, Ruel M, Suuronen E, Simmons C, Monocyte directed tissue regeneration of a blood vessel substitute using a pro-cellular degradable tubular scaffold. CIHR Operating grant, application #230762

6. Operating grant *RFA/PA:* DE10-004-Increasing the Service Life of Dental Resin -, 4 years, $269K/year, submitted January 30, 2010, Finer Y, Cvitkovitch D, Santerre JP , New composite material design based on studies of tooth-composite and microbial investigation, National Institute of Dental and Craniofacial Research Special Emphasis Panel Review of RFA-DE-10-004/-005

7. NSERC Collaborative Research and Training Experience (CREATE) program, awarded $1,650,000/6 years, starting July 2009-Dec 2014, Chau T, Baecher R, Santerre P, Naguib HE,

Colantino A, Fernie GR, Wong W, Steele C, Maki BE, Popovic MR, Mihailidis A, Collaborative Academic Rehabilitation Engineering (CARE). NSERC GRANT No: 370871-2009.

8. NSERC Discovery, awarded $40,420/year for 5 years, starting April 1, 2008 to March 2013, Santerre JP, Investigating biomaterials for restoring hard and soft tissue function in oral-facial structures. Applied for Nov 2007. NSERC # RGPIN 360520

Selected Publications:

1. 20%Turner KA, Santerre JP, Kandel RA, Tension Affects Annulus Fibrosus Cells Grown on Nanofibrous Polyurethane Scaffolds, under revision, submission in 2012. CIHR MOP 86723

2. 20%Nosikova YS, Santerre JP, Grynpas M, Kandel RA, Tension Annulus fibrosus cells can induce mineralization: An in vitro study, Spine. Submission in 2012. CIHR MOP 86723

3. Delaviz Y, Cvitkovitch DC, Santerre JP, Infection Resistant Biomaterials in "Biomaterials and medical device associated infections", ed. Lara Barnes and Ian Cooper , Woodhead Publishing Ltd, submission in August 2012. NSERC # RGPIN 360520

4. Cheung JWC, Rose E, Shih H, Santerre JP, Perfused culture of gingival fibroblasts in a degradable-polar hydrophobic ionic polyurethane (D-PHI) scaffold leads to enhanced proliferation and metabolic activity, submitted to Acta Biomaterialia, Fall 2012. NSERC # RGPIN 360520

5. Battiston KG, Labow RS, Santerre JP, Protein binding mediation of biomaterial-dependent monocyte activation on a degradable polar hydrophobic ionic polyurethane, Biomaterials, Accepted Aug 5-2012, http://dx.doi.org/10.1016/j.biomaterials.2012.08.014 CIHR MOP#230762

6. Blit, PH, Battiston KG, Yang M, Santerre JP, Woodhouse KA, , Electrospun elastin-like polypeptide enriched polyurethanes and their interactions with vascular smooth muscle cells, Acta Biomaterialia, DOI: 10.1016/j.actbio.2012.03.032, Feb 2012. CIHR MOP # 82388

7. 138.20%Nosikova YS, Santerre JP, Grynpas M, Gibson G, Kandel RA, Characterization of the annulus fibrosus-vertebral bone interface: identification of new structural features, Journal of Anatomy, doi: 10.1111/j.1469-7580.2012.01537.x. PMID: 22747710. July 3, 2012. CIHR MOP 86723

8. McBane JE, Sharifpoor S, Labow RS, Ruel M, Suuronen EJ, and Santerre JP, Tissue Engineering a Small Diameter Vessel Substitute: Engineering Constructs Based on Non-traditional Biomaterials and Cell Sources, Current Vascular Pharmacology 10, 347-60 (2012) NSERC# CHRPJ 337246-2007 and CIHR # CPG-83459

9. McBane JE, Kuihua C, Labow RS, and Santerre JP, Co-culturing monocytes with smooth muscle cells improves cell distribution within a degradable polyurethane scaffold and resudes inflammatory cytokines , Acta Biomaterialia, 8, 488-501 (2012). NSERC# CHRPJ 337246-2007 and CIHR # CPG-83459

10. Battiston KG, McBane JE, Labow RS, Santerre JP, Differences in protein binding and cytokine release from monocytes on commercial sources of tissue culture polystyrene, Acta Biomaterialia, 8, 89-98 (2012) CIHR MOP#230762

11. 20% McDonald S, Matheson LA, McBane JE, Kuraitis D, Suuronen EJ, Santerre JP, Labow RS,

Use of monocyte/endothelial cell co-cultures (in vitro) and a subcutaneous implant mouse model (in vivo) to evaluate a degradable, polar, hydrophobic, ionic polyurethane. J Cell Biochem. 112, 3762-2772 (2011) NSERC# CHRPJ 337246-2007 and CIHR # CPG-83459

12. Blit P.H., McClung WG., Brash J.L., Woodhouse K.A., Santerre J.P. Platelet inhibition and endothelial cell adhesion on elastin-like polypeptide surface modified materials. Biomaterials, 32, 5790-5800 (2011). CIHR MOP # 82388

13. 132.* McBane JE, Sharifpoor S, Kuihua C, Labow RS, and Santerre JP, Evaluating the biodegradation and in vivo biocompatibility of a degradable polar/hydrophobic/ionic polyurethane for use in vascular tissue engineering, Biomaterials. 32, 6034-44 (2011). NSERC# CHRPJ 337246-2007 and CIHR # CPG-83459

14. Sharifpoor S, Simmons CA, Labow RS, Santerre JP, Functional characterization of human coronary artery smooth muscle cells under cyclic mechanical strain in a degradable polyurethane scaffold, Biomaterials, 32, 4816-29 (2011) . NSERC# CHRPJ 337246-2007 and CIHR # CPG-83459

15. McBane JE, Battiston KG, Wadhwani A, Sharifpoor S, Labow RS, Santerre JP, Evaluating the effect of degradable biomaterials on co-cultures of monocytes and smooth muscle cells, Biomaterials, 32, 3584-95, (2011). NSERC# CHRPJ 337246-2007 /CIHR # CPG-83459

16. Blit, PH, Battiston KG, Woodhouse KA, Santerre JP, Surface emobilization of elastin-like polypeptides using fluorinated surface modifying additives, J Biomed Mater Res, 96A, 648-662 (2011). CIHR MOP # 82388

17. 128.30%Attia M., Santerre JP, Kandel RA, Fibronectin Promotes Annulus Fibrosus Cell and Collagen Alignment on Nanofibrous Polyurethane Scaffolds, Biomaterials, 32, 450-460 (2011), CIHR MOP 86723

18. Srokowski E.M., Blit P.H., McClung G.W., Brash J.L, Santerre J.P., Woodhouse K.A., Evaluation of Platelet Adhesion And Fibrinogen Accretion on a Family of Elastin-like Polypeptides. J Biomat Sci-Polym Ed, 22 (1-3), 41-57 (2011). CIHR MOP # 82388

19. McBane JE, Diba Ebadi , Soroor Sharifpoor, Rosalind S. Labow, J. Paul Santerre, Differentiation of monocytes on a degradable, polar-hydrophobic-ionic polyurethane: 2-dimensional films versus 3-dimensional scaffolds, Acta Biomaterialia, 7: 115–122 (2011). NSERC# CHRPJ 337246-2007 and CIHR # CPG-83459

20. Sharifpoor S, Simmons CA, Labow RS, Santerre JP, The Intereaction of vascular smooth muscle cells with high-porosity polyurethane scaffolds under cyclic mechanical strain, Acta Biomaterialia, 6: 4218-4228 (2010). NSERC# CHRPJ 337246-2007 and CIHR # CPG-83459