CURRICULUM VITAE

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PLACE OF BIRTH

Colombo, Sri Lanka

EDUCATION

Ph.D.	Queen's University	Chemistry	1980
B.Sc.	Queen's University	Chemistry	1975

ACADEMIC RESEARCH AND INDUSTRIAL EXPERIENCE

Vice-President, Research and International	Oct 1, 2022 -	University of Manitoba, Manitoba, Canada
Honorary Professor, Institute for Glycomics	Sept 17, 2022 -	Griffith University, Queensland, Australia
Director, Gold Coast Health& Knowledge Precinct	Sept 2021 – Sept 30, 2022	Griffith University, Queensland, Australia
Deputy Vice-Chancellor Research	Feb.2020-Aug 2021	Griffith University, Queensland, Australia
Emeritus Professor	Feb 2020-	Simon Fraser University, Canada
President	2014-2018	Natural Sciences and Engineering Research Council of Canada (NSERC)
Vice-President, Research	2004-2014	Simon Fraser University, Canada
Visiting Professor	May 2011	L'université Paris Sud 11, France, Department of Genetics and Microbiology
Chair	1999-2004	Chemistry, Simon Fraser University, Canada
Professor	1993-Present	Chemistry, Simon Fraser University, Canada
Visiting Professor	January-March 1993	Carlsberg Laboratory, Denmark, Department of Chemistry
Associate Professor	1989-1993	Chemistry, Simon Fraser University, Canada
Assistant Professor (NSERC URF)	1983-1989	Chemistry, Simon Fraser University, Canada
NRC Research Associate	1982-1983	Division of Biological Sciences, NRC, Ottawa, Canada
NATO Science Fellow	1980-1982	ICSN, CNRS, France

MEMBERSHIPS IN LEARNED SOCIETIES

- Chemical Institute of Canada
- American Society for Microbiology

- American Chemical Society
- Universities Australia
- Royal Society of Canada
- Great Barrier Reef Foundation

AWARDS, CITATIONS AND HONOURS

Innovation in Science and Technology Award (South Asian Drishti Media Group), 2018; Lifetime Achievement Award of the Sri Lanka Foundation, 2018; Co-chair of the Canada-India Joint Science and Technology Cooperation Committee (JSTCC), 2017-18; Chair, Global Research Council (GRC), 2017-18; Vice-Chair, Chemical Institute of Canada (CIC), 2014-15; Montréal Medal of the Chemical Institute of Canada (CIC) for outstanding contributions to the profession of chemistry and chemical engineering in Canada, 2014; Alfred Bader Award of the Canadian Society for Chemistry (CSC) for excellence in research in organic chemistry, 2013; Member, International Think Tank on the future of Glycoscience, Berlin, 2012; R.U. Lemieux Award of CSC, 2012; President, CSC 2010-11; Vice-President, CSC 2009-10; Host Pacifichem 2010; President, International Carbohydrate Organization (ICO), 2006-08; Chair and Organizer, International Carbohydrate Symposium, Whistler, BC 2006; Acting President, SFU, several occasions 2005-14; BC Innovation Council Frontiers in Research Award 2005; President, SFUniventures Corporation 2004-14; Founder and Chief Scientific Officer, Mimos Therapeutics Inc. 2004-09; Canadian Representative to the ICO 2004-14; Faculty of Science Excellence in Teaching Award, SFU 2003-04; Fellow, Academy of Science, Royal Society of Canada 2003; Bernard Belleau Award of the CSC in Medicinal Chemistry 2002; BC Sugar Achievement Award 2002; Apotex Lecturer Award, 2000; CSC Merck Frosst Centre for Therapeutic Research Lecture Award, 1993; ACS Horace S. Isbell Award 1992; CNC IUPAC Award 1988.

PROFESSIONAL DISTINCTONS (1997-Present)

Member, Innovation Places Stakeholder Reference Group, Queensland Department of Tourism, Innovation and Sport, Mar-Sept 2022. Chair, Gold Coast Health & Knowledge Precinct Strategic Advisory Group (2020 – 21, Member Griffith Enterprise Advisory Board 2020 -21, Co-Chair, Sustainability Development Committee, Griffith University 2020 -21, Chair, Gold Coast Health and Knowledge Strategic Advisory Group (2020–21) Chair, Research Continuity Planning Committee for COVID response (2020-21), Chair, Resource and Hiring Approval Group (2020-21), Member, Universities Australia DVCRs Committee (2020-21), Member, Innovative Research Universities DVCRs Committee (2020-21), Member Office of the Chief Scientist COVID-19 Think Tank (2020-21), Member, Board of the Great Barrier Reef Foundation, International Scientific Advisory Committee 2020-21), Chair of the 7th Global Research Council Meeting, Moscow, Russia (2018); Founding sponsor of the Walter A. Szarek Endowed Lecture Series at Queen's University, Canada and Officiator of the inaugural lecture by Sir J. Fraser Stoddart, 2016 Nobel Prize Winner in Chemistry (2018); Co-host and Organizer of 11th Gender Summit, Montreal (2017); Co-host and Organizer of the 6th Annual Meeting of the Global Research Council, Ottawa (2017) Co-Organizer (with T. Lowary), Asia-Canada Glycoscience Meeting Vancouver (2014); Member, Selection Committee, Overall Performance Evaluation and Audit (OPEA), Canada Foundation for Innovation (CFI) 2013-14; Member, Steering Committee, France Canada Research Fund (FCRF) 2012-14; Member, Board of Directors, Automotive Canada Partnership Grant "Low-Pt PEM Fuel Cell Network" 2012-14; SSHRC Representative for SFU 2011-14; Member, Board of Directors, CSC and Chemical Institute of Canada (CIC) 2009-12; Member, Academic Operations Committee, Great Northern Way Campus, 2009-10; Member, Scientific Advisory Board, Sirona Biochem Corp 2009-14; Member, Council of Canadian Academies Expert Panel on Research Integrity 2009-10; Chair, Selection Committee, Whistler Award, ICO 2009-10; Co-Organizer, Glycobiology Symposium, Pacifichem, Hawaii 2000; Member, Canada-India Education Alliance (CIEA) 2009-14; Member, Board of Directors, Great Northern Way Campus, 2008-09; Member, Executive Committee, Pacific Institute for Climate Solutions 2008-14; Member, Board of Directors and Audit Committee, Centre for Drug Research and Development (CDRD) 2007-14; Member, Executive Committee FCRF 2007-10; NSERC Grant Selection Committee Review 2007-10; Chair,

Selection Committee, Rutherford Memorial in Chemistry Medal 2007-09; Peer Review Member, CIHR Seed Grant (Drug Development Program) 2006-07; Member, Governing Council, WESTGRID 2006-09; Chair, Board of Directors for Research Institutes, 4D LABS, VIVA, and IRMACS 2006-14; Member, Advisory Board, Steacie Institute for Molecular Sciences, NRC 2006-11; Member, Board of Directors, Discovery Parks, Inc. 2004-14; Member, Advisory Committee, NSERC Research Partnership Directorate 2005-09; Member, Editorial Board, *Carbohydrate Research* 2000-10; Member, Accelerator Grants Committee for Exceptional New Opportunities (AGENO), NSERC 2003-04; Member, Advisory Board, National High-Field NMR Centre (NANUC) 1999-2009; Co-Editor, Special Volume of the *Canadian Journal of Chemistry* in honour of Walter A. Szarek 2006; Member, Adjudication Committee for Merck Frosst Award of the CSC 2004; Member, Board of Directors, TRIUMF 2005-07; Member, Board of Directors, Pacific Institute for Mathematical Sciences (PIMS) 2004-07; Member, Board of Directors, Centre for Additions Research BC 2004-07; Bernard Belleau Lecturer, McGill University 2003; NSERC Representative for SFU, 2002-10; Member, Adjudication Committee for R.U. Lemieux Award (2012) and B. Belleau Award (2008) of the CSC; Member, College of Reviewers, Canada Research Chairs 2000-02; Member, NSERC Reallocation Steering Committee for Chemistry 2000-02; Organizer, 81st CSC Conference 1998; Organizer, Gordon Conference on Carbohydrates 1997.

BRIEF DESCRIPTION OF RESEARCH INTERESTS

- Investigation of the nature and origin of conformational effects.
- Synthesis and conformational analysis of oligosaccharide antigenic determinants.
- Molecular recognition in antibody-antigen interaction.
- Development of immunodiagnostic reagents and vaccines employing carbohydrate antigens.
- Design of glycosylation inhibitors for control of microbial infections and chronic mammalian conditions, e.g. cancer, type-2 diabetes.
- Interaction between transition-state- and non-hydrolyzable substrate analogues and carbohydrases
- Synthesis, conformational analysis, and reactions of organosulfur and organoselenium compounds.
- Discovery of peptide mimics of oligosaccharide epitopes for immunodiagnostics, vaccines, and therapeutics.
- Transferred-NOE/STD NMR spectroscopy.
- Bound conformations of ligands by combined NMR/Molecular dynamics protocols.
- Structure and dynamics of oligosaccharides.
- Synthetic methods in carbohydrate chemistry.
- Nucleoside and nucleotide analogues as antiviral agents.
- Nucleotide analogues as gene-silencing agents.
- Control of glycoprotein trafficking in cells.
- Development of analytical methods for glycan profiling.
- Modulation of convertase activity in cells.
- Modulation of lipid-linked oligosaccharide biosynthesis.
- Modulation of UDP-Gal*p* mutase activity in *M. tuberculosis*.
- Modulation of intestinal glucosidase activities for control of obesity, type-2 diabetes, and other metabolic disorders.

MOST SIGNIFICANT CONTRIBUTIONS TO RESEARCH AND/OR TO PRACTICAL APPLICATIONS:

1. This review article (Johnson, M.A.; Pinto, B.M. *Topics in Current Chem.,* 2008, 273: 55–116) summarizes our unprecedented work on the nature of mimicry of carbohydrates by peptides, and provides a hypothesis for functional vs. structural mimicry. The discovery has implications for the design of more economical, higher affinity vaccines, and is being pursued by e.g. l'Institut Pasteur, Paris. We have "gone the distance" with this program, from the molecule to the system, and have

published in the immunology literature (Borrelli, S., et al. *Am. J. Immunol*., 2006, 2: 73-83; *Clin. Vaccine Immunol*., 2008, 15: 1106-1117); this complements our carbohydrate-based vaccine program, also recognized by the immunology community (*Infect. Immun.,* 2005*,* 73: 6383-6389).

2. Contribution #2 (*Proc. Natl. Acad. Sci.,* 2003, 100: 15023-15028; *Biochemistry,* 2002, 41: 13575-13586) describes crystallographic evidence of a peptide-mimic antibody complex and its comparison to a complex of the same antibody with its native oligosaccharide ligand. This is a significant milestone since it was the first time that a direct comparison of a carbohydrate and its peptide mimic in complex with a common protein receptor was possible. The results provide support for our hypothesis (Contribution #1) of the nature of mimicry, and has now allowed us to test theories of mimicry (*J. Biol. Chem.*, 2003, 278: 24740-24752) and to design higher-affinity, glycopeptide ligands (*Carbohydr. Res.*, 2009, 344: 1412-1427) that might find use as vaccines.

3. A state-of-the-art STD-NMR/molecular dynamics protocol for probing protein-ligand interactions (*ChemBioChem*., 2009, 10: 2052-2059; *Bioorg. Med. Chem*., 2010, 18: 5123-5128; *Chem. Eur. J.*, 2011, 17: 11438-11445; *Chem. Eur. J.*, 2011, 17: 11446-11455; *ChemBioChem*. 2016, 17: 2264-2273.) has been developed. This protocol is very powerful in that computed structures are validated by experimental information—the correlation is based on a calculation of relaxation and exchange effects that are then compared to experimentally-derived STD effects. We are one of the few groups doing quantitative work in this field. This protocol yielded the only structural model (at the time) for UDP-galactopyranose mutase in complex with substrates and inhibitors that was used for future inhibitor design (*Biochemistry,* 2005, 44: 14080-14089; *J. Am. Chem. Soc*., 2008, 130: 3157-3168; *Proteins: Structure, Function, and Bioinformatics.,* 2009, 74: 972-979).

4. The synthesis of sulfonium ions as mimics of alkaloid glycosidase inhibitors (protonated in the active site) has yielded valuable insights into the nature of this mimicry (*J. Org. Chem.,* 2006, 71: 2935-2943; *J. Org. Chem.,* 2006, 71: 1262-1264; *Carbohydr. Res.,* 2006, 341: 1685-1691; *Carbohydr. Res.,* 2007, 342: 901-912; *Proteins: Structure, Function, and Bioinformatics*, 2008, 71: 1484-1496). The program has led also to the structure elucidation and synthesis of active ingredients (and analogues thereof) of an herbal treatment for diabetes that has been used in Indian traditional medicine. These compounds are glucosidase inhibitors and have considerable potential for the treatment of Type-2 diabetes by inhibiting the action of intestinal glucosidases, or for development of diagnostic tests (*Clin. Chem.,* 2004, 50: 1785-1796). The active sites of key intestinal enzymes have been mapped (*FEBS Journal.,* 2006*,* 273: 2673-2683; *Carbohydr. Res.,* 2007, 342: 1551-–1582; *J. Org. Chem.,* 2007, 72: 806-812; *J. Org. Chem.*, 2008, 73: 6172-6181; *Coll. Czech Republic Commun.,* 2009*,* 74: 1117-1136; *Biochemistry*, 2010, 49: 443–451; *J. Biol. Chem.,* 2010, 285: 17763-17770; *Natural Product Reports*, 2010, 27: 481-488; *Bioorg. Med. Chem*., 2010, 18: 2829–283; *Bioorg. Med. Chem. Lett.,* 2011, 21: 6491*; Org. Lett.,* 2010*,* 12: 1088-1091; *Org. Lett*., 2010, 12: 1632-1635; *J. Chem. Soc., Chem. Commun.* 2011, 47: 9134-9136; *Chem. Eur. J.,* 2011, 17: 14817-14825; *J. Biol. Chem.,* 2012, 287: 31929-31938. The work has been reviewed recently in *Acc. Chem. Res.* 2014, 47 (1): 211–225). A landmark achievement was the structure elucidation of the natural product kotalanol (*J. Am. Chem. Soc.,* 2009, 131: 5621-5626). Most recently, we have examined taste cell-expressed glucosidase activity (*Proc. Natl. Acad. Sci*., 2016, 113: 6035-6040).

5. We were the first to develop the selenium Pummerer reaction (*J. Am. Chem. Soc.,* 2006, 128: 227-239), and have applied this reaction and that of its sulfur congener, in collaboration with Masad Damha, to the synthesis of novel oligonucleotides containing Se and S in the ribose ring, with si-RNA activity (*J. Am. Chem. Soc*., 2008, 130: 8578-8579; *Nucleic. Acids Res.,* 2007, 35: 1441-1451).

6. We have explored the modification of oligosaccharide content on glycoproteins as control elements for intra-cellular trafficking during *N*-glycoprotein biosynthesis, and have achieved spectacular results using small molecules as triggers (*Glycobiology,* 2011, 21: 1290-1300). Control of cholesterol

biosynthesis and β-endorphin has been achieved. We have shown that these changes are a result of blocking the biosynthesis of dolichol-linked oligosaccharides and mimic Class I congenital disorders of glycosylation (*ChemBioChem.,* 2011, 13: 392-401). With David Vocadlo, we have also extended this approach to modify cell-surface expression of oligosaccharide markers that mediate inflammation and cancer propagation (*J. Biol. Chem.,* 2012, 287: 40021-40030)

7. We have developed a new class of nanomolar neuraminidase inhibitor, oseltamivir-zanamivir hybrids, with specificity for the influenza virus A over mammalian enzymes. Remarkably, our lead compound is active against all mutations to date engineered by the influenza virus, although these escape compromise by the currently used agents oseltamivir, zanamivir, and permavir (*PLOS ONE*. 2013, 8(3) e59873; *J. Med. Chem.*, 2010, 53: 7377–7391; *Bioorg. Med. Chem.*, 2011, 19: 2817-2822; *Antiviral Res.*, 2011, 90: 160-163; *Scientific Reports (Nature Publishing Group),* 2013, 3: 2871−2876; *PLoS ONE* 2014, 9(1): e86365); *J. Virol.*, 2016, 90: 10693-10700). We have also developed an unusual class of spirolactams as neuraminidase inhibitors (*Angew. Chem. Int. Ed.* 2014 53: 1076—1080) as well as a novel class of neuraminidase inhibitors based on a bicyclo[3.1.0]hexane scaffold (*Org. Biomol. Chem.*, 2016, 14: 6539-6533).

PUBLICATIONS (2011-Present)

JOURNAL ARTICLES

181. Albohy, A.*, S. Mohan*, B.M. Pinto, C.W. Cairo (2011). The Limited Potency of Oseltamivir Analogs Against Human Neuraminidases Provides a Strategy for Improving the Selectivity of Influenza Viral Neuraminidase Inhibitors. *Bioorg. Med. Chem.* 19: 2817-2822. (NSERC Disc)
182. Szczepina, M.G.*, D.W. Bleile*, J. Müllegger*, A.R. Lewis, B. M. Pinto (2011). WaterLOGSY NMR Experiments in Conjunction with Molecular Dynamics Simulations Detect Immobilized Water Molecules that Bridge Peptide Mimic MDWNMHAA to Anti-carbohydrate Antibody SYA/J6. *Chem. Eur. J.* 17: 11438-11445. (NSERC Disc). *Selected for frontispiece*.
183. Zandberg, W.F.*, S. Benjannet, J. Hamelin, B. M. Pinto, N.G. Seidah (2011). *N*-glycosylation Controls Trafficking, Zymogen Activation, and Substrate Processing of Proprotein Convertases PC1/3 and SKI-1. *Glycobiology*. 21: 1290-1300. (NSERC Disc)
184. Niikura, M., N. Bance*, S. Mohan*, B.M. Pinto (2011). Replication Inhibition Activity of Carbocycles Related to Oseltamivir on Influenza A Virus *in vitro*. *Antiviral Res.* 90: 160-163. (NSERC Disc)
185. Jones, K.*, L. Sim*, S. Mohan*, J. Kumarasamy, H. Liu*, S. Avery*, H. H. Naim, R. Quezada-Calvillo, B. L. Nichols, B. M. Pinto, D. R. Rose (2011). Mapping the Intestinal α-Glucogenic Enzyme Specificities of Starch-digesting Maltase-glucoamylase and Sucrase-isomaltase. *Bioorg. Med. Chem.* 19: 3929-3934. (CIHR)
186. Fernández-Herrera, M.A.*, H. López-Muñoz, J. M. V. Hernández-Vázquez, M. López-Dávila, S. Mohan*, M. L. Escobar-Sánchez, L. Sánchez-Sánchez, B. M. Pinto, J. Sandoval-Ramírez (2011). Synthesis and Biological Evaluation of the Glycoside (25R)-3,16-Diacetoxy-22-oxocholest-5-en-26-yl-β-D-glucopyranoside: A Selective Anticancer Agent in Cervicouterine Cell Lines. *Eur. J. Med. Chem.* 46*:* 3877-3886. (NSERC Disc)
187. Szczepina, M.G.*, D.W. Bleile*, B.M. Pinto (2011). Investigation of the Binding of a Carbohydrate-mimetic Peptide to its Complementary Anti-carbohydrate Antibody by STD-NMR Spectroscopy and Molecular Dynamics Simulations. *Chem. Eur. J.* 17: 11446-11455. (NSERC Disc)
188. Eskandari, R.*, K. Jones*, R. R. Kongara*, K. Jayakanthan*, M. Chaudet*, D. R. Rose, B. M. Pinto (2011). Probing the Intestinal □-Glucosidase Enzyme Specificities of Starch-digesting Maltase-glucoamylase and Sucrase-isomaltase: Synthesis of 3′- and 5′- Maltose-extended De-*O*-sulfonated Ponkoranol. *Chem. Eur. J.* 17: 14817–14825. (CIHR)

189. Eskandari, R.*, K. Jones*, D. R. Rose, B. M. Pinto (2011). Probing the Intestinal □-Glucosidase Enzyme Specificities of Starch-digesting Maltase-glucoamylase and Sucrase-isomaltase: The Effect of Heteroatom Substitution of Sulfur for Selenium on Enzyme Specificity. *J. Chem. Soc., Chem. Commun.* 47: 9134- 9136. (CIHR)

190. Zandberg, W.F.*, N. Gao*, J. Kumarasamy, M. A. Lehrman, N. G. Seidah, B. M. Pinto (2011). 5-Thiomannosides Block the Biosynthesis of Dolichol-linked Oligosaccharides and Mimic Class I Congenital Disorders of Glycosylation. *ChemBioChem.* 13: 392-401. (NSERC Disc)

191. Eskandari, R.*, K. Jones*, D. R. Rose, B. M. Pinto (2011). Selectivity of 3'-*O*-Methylponkoranol for

Inhibition of *N*- and *C*-terminal Maltase Glucoamylase and Sucrase Isomaltase, Therapeutic Targets for Digestive Disorders and Their Sequelae. *Bioorg. Med. Chem. Lett.* 21: 6491-6494. (CIHR)

192. Shi, Y.*, B.M. Pinto (2012). Molecular dynamics simulations of carbohydrate-mimetic haptens in complex with a complementary anti-carbohydrate antibody. *Carbohydr. Res.* 358: 89-95. (NSERC DISC)

193. Fernández-Herrera, M. A.*, H. López-Muñoz, J. M. V. Hernández-Vázquez, L. Sánchez-Sánchez, M. L. Escobar-Sánchez, B. M. Pinto, J. Sandoval-Ramírez (2012). Synthesis and selective anticancer activity of steroidal glycoconjugates. *Eur. J. Med. Chem*. 54: 721-727. (NSERC Disc)

194. Mohan, S.*, S. McAtamney*, K. Jayakanthan*, R. Eskandari*, M. von Itzstein, B M. Pinto (2012). Antiviral Activities of Sulfonium-Ion Glucosidase Inhibitors and 5-Thiomannosylamine-Disaccharide Derivatives Against Dengue Virus. *Int. J. Antimicrob. Agents*. 40: 273-276. (NSERC Disc)

195. Lee, B.-H.*, R. Eskandari*, K. Jones*, R.K. Reddy*, R. Quezada-Calvillo, B. Nichols, D.R. Rose, B. Hamaker, B.M. Pinto (2012). Modulation of Starch Digestion for Slow Glucose Release Through "Toggling" of Activities of Mucosal α-Glucosidases. *J. Biol. Chem*. 287: 31929-31938. (CIHR)

196. Jones, K.*, R. Eskandari*, H.H. Naim, B.M. Pinto, D.R. Rose, (2012). Investigations of the Structures and Properties of the Human Intestinal Enzymes MGAM and SI. *J. Pediatr. Gastroenterol. Nutr.* 55: S20-S24. (CIHR)

197. Greenway, K.L.*, A.G. Bischoff*, B.M. Pinto (2012). Hyperconjugation as Probed Experimentally with the Conformational Deuterium Isotope Effect. *J. Org. Chem.* 77: 9221−9226. (NSERC Disc)

198. Zandberg, W.*, J. Kumarasamy, B.M. Pinto, D. Vocadlo (2012). Metabolic Inhibition of Sialyl-LewisX Biosynthesis by 5-Thiofucose Remodels the Cell Surface and Impairs Selectin-Mediated Cell Adhesion. *J. Biol. Chem.* 287: 40021-40030. (NSERC Disc)

199. Dahabieh, M.S.*, D. Samantha*, J.-C. Brodovitch, C. Frech*, M.A. O'Neill, B.M. Pinto (2012). Sequence Dependent Structural Dynamics of Primate Adenosine-to-Inosine Editing Substrates. *ChemBioChem* 13: 2714–2721. (NSERC Disc)

200. Greenway, K.L.*, E.B. LeGresley*, B.M. Pinto (2013). The Influence of 150-Cavity Binders on the Dynamics of Influenza A Neuraminidases as Revealed by Molecular Dynamics Simulations and Combined Clustering. *PLoS ONE*. 8(3): e59873. doi:10.1371/journal.pone.0059873 (NSERC Disc)

201. Gu, G.*, P.J.P. Adabala*, M.G. Szczepina*, S. Borrelli*, B.M. Pinto (2013). Synthesis and Immunological Characterization of Modified Hyaluronic Acid Hexasaccharide-conjugates. *J. Org. Chem.* 78: 8004−8019. dx.doi.org/10.1021/jo4012442 (NSERC Disc).

202. Kerry, P., S. Mohan*, R.J. Russell, N. Bance*, M. Niikura, B.M. Pinto (2013). Structural basis for a class of nanomolar influenza A neuraminidase inhibitors. *Scientific Reports (Nature Publishing Group)* 3: 2871−2876. doi: 10.1038/srep02871. (NSERC Disc).

203. Mohan, S.*, R. Eskandari*, B.M. Pinto (2014). Naturally Occurring Sulfonium-ion Glucosidase Inhibitors and their Derivatives: A Promising Class of Antidiabetic Agents. *Acc. Chem. Res.* 47: 211-225. doi: 10.1021/ar400132g. (NSERC Disc).
204. Wang, S.*, D. L. Shen*, D. Lafont, A.-S. Vercoutter-Edouart, M. Mortuaire, Y. Shi*, O. Maniti, A. Girard-Egrot, T. Lefebvre, B.M. Pinto, D.Vocadlo, S.Vidal (2014). Design of glycosyltransferase inhibitors targeting human O-GlcNAc Transferase (OGT). *MedChem. Comm.*5: 1172-1178. (NSERC Disc).
205. Adabala, P. J. P.*, E. LeGresley*, N. Bance*, M. Niikura, B.M. Pinto (2013). Exploitation of the Catalytic Site and 150 Cavity for Design of Neuraminidase Inhibitors. *J. Org. Chem.* 78: 10867−10877. doi**:** 10.1021/jo401854w. (NSERC Disc).
206. Auzanneau, F.-I., S. Borrelli*, B.M. Pinto (2013). Synthesis and Immunological Activity of an Oligosaccharide-conjugate as a Vaccine Candidate Against Group A *Streptococcus*. *Bioorg. Med. Chem. Lett.* 23: 6038−6042 (NSERC Disc).
207. Poulin, M.B., Y. Shi*, C. Protsko, S. A. Dalrymple, D. A. R. Sanders, B. M. Pinto, T.L. Lowary (2014). Specificity of a UDP-GalNAc Pyranose–Furanose Mutase. A Potential Drug Target for *Campylobacter jejuni* Infections. *ChemBioChem* 15: 47−56. doi: 10.1002/cbic.201300653. (NSERC Disc).
208. Mohan, S.*, P.S. Kerry, N. Bance*, M. Niikura, B.M. Pinto (2014). Serendipitous Discovery of a Potent Influenza Virus A Neuraminidase Inhibitor. *Angew. Chem. Int. Ed.* 53: 1076—1080. (NSERC Disc).
209. Shi, Y.*, B.M. Pinto (2014). Human Lactate Dehydrogenase A Inhibitors: A Molecular Dynamics Investigations. *PLoS ONE 9(1): e86365. doi:10.1371/journal.pone.0086365.* (NSERC Disc).
210. Lira-Navarrete, E., J. Iglesias-Fernàndez, W.F. Zandberg, I. Compañón, Y. Kong, F. Corzana, B.M. Pinto, H. Clausen, J.M. Peregrina, D. Vocadlo, C. Rovira, R. Hurtaddo-Geurrero (2014). Combined structural snapshots and metadynamics reveal a substrate-guided S_Ni-type reaction for polypeptide GalNAc-transferase T2. *Angew. Chem. Int. Ed.* 53: 8206-8210. doi: 10.1002/anie. 201402781. (NSERC Disc).
211. Shi, Y.*, A. Arda*, B. M. Pinto (2015). Combined Molecular Dynamics STD-NMR and Corcema Protocol Yields Structural Model for a UDP-galactopyranose Mutase-inhibitor Complex. *Bioorg. Med. Chem Lett*. 25: 1284-1287. doi: 10.1016/j. bmcl 2015.01.044. (NSERC Disc).
212. Kuppala, R.*, S. Borrelli, K. Slowski*, D. A. R. Sanders, K. P. R. Kartha*, B. M. Pinto (2015). Synthesis and Biological Evaluation of Non-ionic Substrate Mimics of UDP-Galp as Candidate Inhibitors of UDP Galactopyranose Mutase. *Bioorg. Med. Chem Lett*. 25: 1995-1997. doi 10.1016/j.bmcl 2015.03.006. (NSERC Disc).
213. Colombo, C., C. Aupic*, A. R. Lewis, B. M. Pinto (2015). In situ Determination of Fructose Isomer Concentrations in Wine Using ^{13}C Quantitative NMR Spectroscopy. *J. Agric. Food Chem.* 63: 8551-8559. DOI: 10.1021/acs.jafc.5b03641. (NSERC Disc).
214. Shi, Y.*, C. Colombo, J. R. A. Kuttiyatveetil*, N. Zalatar *, K. E. van Straaten*, S. Mohan, D. A. R. Sanders, B. M. Pinto (2016). A Second, Druggable Binding Site in UDP-galactopyranose Mutase from *Mycobacterium tuberculosis*? *ChemBioChem* 17: 2264-2273. DOI: 10.1002/cbic. 201600469. (NSERC Disc).
215. Sukumaran, S.K., K. K. Yee, S. Iwata, R. Kotha, R. Quezada-Calvillo, B. L. Nichols, S. Mohan , B. M. Pinto, N. Shigemura, Y. Ninomiya, R. F. Margolskee (2016). Taste cell-expressed Intestinal Brush Border Enzymes Contribute to Gustatory Responses of Disaccharides. *Proc. Natl Acad. Sci.* 113: 6035-6040. (CIHR).
216. Mahdavi-Amiri, Y.,* S. Mohan, S. Borrelli, K. Slowski,* D. A. R. Sanders, B. M. Pinto (2016). Mechanism-based Candidate Inhibitors of Uridine Diphosphate Galactopyranose Mutase (UGM). *Carbohydr. Res.* 419: 1-7. (NSERC Disc).
217. Colombo, C., B. M. Pinto, A. Bernardi, A. J. Bennet (2016). Synthesis and Evaluation of Influenza A Viral Neuraminidase Candidate Inhibitors Based on a Bicyclo[3.1.0]Hexane Scaffold. *Org. BioMol.Chem*. 14: 6539-6553. (CIHR).

218. Wu, Y., F. Gao, J. Qi, Y. Bi, L. Fu, S. Mohan, Y. Chen, X. Li, B. M. Pinto, C. J. Vavricka, P. Tien, G. F. Gao (2016). Resistance to mutant group-2 influenza neuraminidases of an oseltamivir-zanamivir hybrid inhibitor. *J. Virol.* 90: 10693-10700. (NSERC Disc).
219. Mohan, S., B. M. Pinto (2017). Exploration of the 150 Cavity and the Role of Serendipity in the Discovery of Inhibitors of Influenza Virus A Neuraminidase. *Can. J. Chem.,* 96: 91-101 (NSERC Disc).
220. Jones, C, P.W. Percival, A.J. Bennet, S. Holdcroft, N.R. Branda, B.M. Pinto, G.R. Agnes, Z.-G. Ye, D.B. Leznoff (2018). SFU Chemistry 1965–2016. *Can. J. Chem.* 96: V–IX.
221. Mohan, S., J. Thompson, B. M. Pinto, A. J. Bennet (2018). Versatile Synthetic Route to Carbocyclic N-Acetylneuraminic Acid and its Derivatives. *Tetrahedron* (Special issue in honour of the 100th anniversary of Sir. Derek H.R. Barton), 74: 5213-5221. (NSERC Disc).
222. Sannikov, O.*, E. Ye*, B. M. Pinto, P. Saunders, N. Merbouh (2020). Introducing Complex NMR Mixtures at the Undergraduate Level: Isomerization, Separation and Analysis of the Diels-Alder Adducts from the Reaction of Methylcyclopentadiene and Maleic Anhydride (Part II). *J Lab Chem Edu 2020, 8 (3): 39-80 DOI: 10.5923/j.jlce.20200803.01*
* Denotes student authors.

INVITED TALKS AT CONFERENCES

51. Pinto, B.M. (2012). SFU Innovation Ecosystem: A Model for Canada. Roundtable on Leading Innovation: Incubators and Networks, hosted by Kevin Lynch, Vice-Chair BMO and David Mitchell, President, Public Policy Forum, Toronto, Feb. 3, 2012. Main Audience: Decision Makers
52. Pinto, B.M. (2012). "SFU India Strategy: Build the Relationship." Research Collaboration with Emerging Nations: Canada's Experience in India and Brazil, American Association for Advancement of Science Meeting, Vancouver, Feb. 17, 2012. Main Audience: General Public
53. Pinto, B.M. (2012). "What it is!" Roundtable on Communicating in a Minute: Reaching Decision Makers. American Association for Advancement of Science Meeting, Vancouver, Feb. 19, 2012. Main Audience: General Public
54. Pinto, B.M. (2012). Look What you Started, Ray! NMR Methods for Probing Protein-ligand Interactions. 95th Canadian Chemistry Conference and Exhibition, Ray Lemieux Award Lecture, Calgary, May 30, 2012, Abstr. 1821. Main Audience: Researchers
55. Pinto, B.M. (2012). A Tribute to the Life and Chemical Contributions of Melanie O'Neill. 95th Canadian Chemistry Conference and Exhibition, Lemieux Award Lecture, Calgary, May 27, 2012. Main Audience: Researchers
56. Pinto, B.M. (2012). Modulation of Starch Digestion for Slow Glucose Release Through "Toggling" of Activities of Mucosal α-Glucosidases. 26th International Carbohydrate Symposium, Madrid, Spain, July 26, 2012. Main Audience: Researchers
57. Pinto, B.M. (2012). Modulation of Starch Digestion for Slow Glucose Release Through Inhibition of Pancreatic Amylase and the Mucosal α-Glucosidases. 9th Starch Digestion Consortium Meeting, Waterloo, Ont., August 27, 2012. Main Audience: Researchers
58. Pinto, B.M. (2012). Straddling Science and Politics to Promote the Future of Glycoscience. Dahlem Workshop on Glycomics. Berlin, Germany, November 18, 2012. Main Audience: Researchers
59. Pinto, B.M. (2013). Probing Hyperconjugation Experimentally With the Conformational Deuterium Isotope Effect. 245th ACS National Meeting, New Orleans, Louisiana, April 7-11, 2013, Abstr. 5. Main Audience: Researchers
60. Pinto, B.M. (2013). Serendipity and Nature's Guide to Therapeutic Interventions. 96th Canadian Chemistry Conference and Exhibition, Alfred Bader Award Lecture, Quebec City, May 26-30, 2013, Abstr. 159. Main Audience: Researchers
61. Pinto, B.M. (2013). Controlling Intestinal Mucosal-Glucosidase Activities with Small Molecule Inhibitors. 11th Starch Digestion Consortium Meeting, Chicago, October 13-14, 2013. Main Audience: Researchers

62. Pinto, B.M. (2013). Controlled Degradation of Starch by Toggling of Intestinal Glucosidase Enzymes. ALAMY Fifth Symposium, Slovakia, October 20-24, 2013. Main Audience: Researchers

63. Pinto, B.M. (2014). From an Ayurvedic Treatment for Type-2 Diabetes to the Controlled Degradation of Starch. The 27th International Carbohydrate Symposium, Bangalore, India, January 12-17, 2014. Main Audience: Researchers

64. Pinto, B.M. (2014). IRMACS as the Conduit between the Research Community and Secure Computing. IRMACS Day, April 4, 2014. Main Audience: General University Public

65. Pinto, B.M. (2014). Biomedical and Health Research at SFU: Alive and Well. Health Research Day, SFU, April 10, 2014. Main Audience: Academic Researchers and Health professionals

66. Pinto, B.M. (2014). Control of Starch Degradation by Intestinal Glycosidases. 12th Starch Digestion Consortium Meeting, San Diego, USA. April 30 – May 1, 2014. Main Audience: Starch Experts, Academic and Industrial.

67. Pinto, B.M. (2014). Building a Culture of Innovation at Universities. Indian Oil Corporation Conference, Tamilnadu, India, May 12, 2014, Main Audience: Industrial leaders

68. Pinto, B.M. (2014). Ayuverdic Treatment for Diabetes and other Metabolic Disorders. Dinner speaker at Indian Oil Corporation Conference, R & D Conclave: Emerging Technologies for Sustainable Growth. TamilNadu, India, May 12, 2014. Main Audience: Industrial leaders

69. Pinto, B.M. (2014). Ramblings of a Chimeric Researcher/Administrator: *Montreal Medal Lecture.* The Future of Chemistry Symposium, 97th CSC Conference and Exhibition, Vancouver, June 1, 2014. Main Audience: Academic and Industrial leaders

70. Pinto, B.M. (2014). New Inhibitors of Influenza Virus A Neuraminidase. The Future of Chemistry Symposium, 97th CSC Conference and Exhibition, Vancouver, June 2, 2014. Main Audience: Academic and Industrial leaders

71. Pinto, B.M. (2014). Building a Culture of Innovation at Universities. The Future of Chemistry Symposium, CSC Conference, Vancouver, June 2, 2014. Main Audience: Academic and Industrial leaders.

72. Pinto, B.M. (2015). The Innovation Continuum. Conference Board of Canada. April, 2015. Main Audience: Academic, Business, and Industrial leaders.

73. Pinto, B.M. (2015). New Inhibitors of Viral Neuraminidases. Conference on AntiViral Therapies. University of Texas, Austin, Texas, USA, June 2, 2015. Main Audience: Academic leaders.

74. Pinto, B.M. (2015). New Inhibitors of Viral Neuraminidases. Symposium in Honour of David Bundle. University of Alberta, Edmonton, Alberta, Canada. July 19, 2015. Main Audience: Academic leaders.

CONFERENCE PROCEEDINGS

173. Zandberg, W.F., J. Kumarasamy, T. M. Gloster, B. M. Pinto, D. J Vocadlo. Trojan Horse Inhibition of Glycosyltransferases in Cells: Controlling the Cell-surface Expression of Glycans. Gordon Conference on Carbohydrates, West Dover, VT, USA. June 16-21, 2013.

174. Kerry, P., S. Mohan, R.J. Russell, N. Bance, M. Niikura, B.M. Pinto. Structural Basis for a class of nanomolar Group-1 and Group-2 Neuraminidase Inhibitors. Gordon Conference on Carbohydrates, West Dover, VT, USA. June 16-21, 2013.

175. Mohan, S., A.J. Bennet, B.M. Pinto. A versatile synthetic route to carba-sialic acid and its derivatives.
27th International Carbohydrate Symposium, Bangalore, India. January 12, 2014.

176. Mohan, S., P.S. Kerry, N. Bance*, M. Niikura, B.M. Pinto. New Inhibitors of Influenza Virus A Neuraminidases. 10th National Carbohydrate Symposium, Canmore, AB. May 7, 2014.

177. Auzanneau F-I., S. Borrelli, B.M. Pinto. Synthesis and Immunological Activity of an Oligosaccharide conjugate as a Vaccine Candidate Against Group A Streptococcus. 97th Canadian Chemistry Conference and Exhibition, Vancouver, B.C. May 31, June 5, 2014.

178. LeGresley, E.B.*, P.J.P. Adabala, M. Niikura, N. Bance *, B.M. Pinto. Exploitation of the Catalytic Site and 150 Cavity for Design of Influenza A Neuraminidase Inhibitors With Novel Triazole Containing Compounds. 97th Canadian Chemistry Conference and Exhibition, Vancouver, B.C. May 31, June 5, 2014.
179. Mohan, S., A.J. Bennet, B.M. Pinto. A Versatile Synthesis of Carba-sialic Acid and its Derivatives. 97th Canadian Chemistry Conference and Exhibition, Vancouver, B.C. May 31, June 5, 2014.
180. Shi, Y.*, V. Winton*, L.L. Kiessling, B.M. Pinto. Binding Models for Non-substrate-like Inhibitors of UDP-galactopyranose Mutase. 97th Canadian Chemistry Conference and Exhibition, Vancouver, B.C. May 31, June 5, 2014.
181. Colombo, C., A. Bernardi, B.M. Pinto. Design and Synthesis of Potential Group-1 and Group-2 Neuraminidase Inhibitors. 97th Canadian Chemistry Conference and Exhibition, Vancouver, B.C. May 31, June 5, 2014.
182. Challa, V.R.*, B.R. Hossany*, B.M. Pinto. Synthesis of a Chimeric Glycopeptide Corresponding to the Shigella flexneri Y O-polysaccharide and its Peptide Mimic MDWNMHAA. 97th Canadian Chemistry Conference and Exhibition, Vancouver, B.C. May 31, June 5, 2014.
183. Reddy, K.R., B.M. Pinto. Inhibiting the Individual Enzyme Activities of Starch-DigestingMaltase-Glucoamylase and Sucrase-Isomaltase by α- and β-Maltose ExtendedPonkoranol Analogues. 97th Canadian Chemistry Conference and Exhibition, Vancouver, B.C. May 31, June 5, 2014.
184. Mahdavi-Amiri, Y.*, B.M. Pinto. Potential Uridine Diphosphate Galactopyranose Mutase (UGM) Inhibitors as Therapeutic agents for the Treatment of Mycobacterium tuberculosis Infections. 97th Canadian Chemistry Conference and Exhibition, Vancouver, B.C. May 31, June 5, 2014.
185. Mohan, S., B.M. Pinto. New Inhibitors of Influenza Virus A Neuraminidase. The Future of Chemistry Symposium, 97th Canadian Chemistry Conference and Exhibition, Vancouver, B.C. May 31, June 5, 2014.
186. Bennet, A.J., N. Sannikova, S. Mohan, J. Drapper, B.M. Pinto, R. Britton. Synthesis of Carbocyclic Sugar Analogues. 97th Canadian Chemistry Conference and Exhibition, Vancouver, B.C. June 5, 2014.
187. Colombo, C., C. Aupic, S. Mohan, A. Lewis, B. M. Pinto. Measuring sugar content in beverages by ^{13}C- NMR spectroscopy. 8th Annual VIVA NMR Symposium. St. John's College, UBC, Vancouver. August 8, 2014.
188. Aupic, C., C. Colombo, A. Lewis, B. M. Pinto. Quantitative determination of fructose structural isomers in wine by 13C NMR spectroscopy. 8th Annual VIVA NMR Symposium. St. John's College, UBC, Vancouver. August 8, 2014. (Winner of poster competition)

SPECIAL LECTURESHIPS

1. Pinto, B.M. (2015). Ramblings of a Chimeric Researcher/Administrator (Audience: University academics and General Public) and Serendipity and Nature's Guide to Therapeutic Interventions (Audience: University academics). *Peter Gallagher Memorial Glycomics Lecturer*. Griffith University, Gold Coast, Australia. October 12, 2015.
2. Pinto, B.M. (2015). Serendipity and Nature's Guide to Therapeutic Interventions (Audience: University academics). *J.K.N. Jones Lecturer*. Queen's University, Kingston, Ontario. October 23, 2015.
3. Pinto, B.M. (2015). The Innovation Continuum. How can we do Better? (Audience: University academics, business and industrial workers). Queen's University, Kingston, Ontario. October 22, 2015.

PATENTS (2009 – Present)

PROVISIONAL PATENTS

9. Jayakanthan, K., B.M. Pinto (2009). Novel Seven-Carbon Chain-Extended Homologues of the Glycosidase Inhibitor Salacinol and Method for Synthesizing Same. US 61/146531, filed, January 22.

10. Jayakanthan, K., S. Mohan, B.M. Pinto (2009). Novel Seven-Carbon Chain-Extended Homologues of the Glycosidase Inhibitor Salacinol and Method for Synthesizing Same. 61/150672, filed, February 6.

11. Pinto, B.M., K. Jayakanthan, S. Mohan, R. Eskandari, R. Nasi (2009). Salacinol Homologues, Derivatives Thereof, and Methods of Synthesizing Same. US 61/265695, filed December 1, 2009.

PATENTS ISSUED/GRANTED

6. Pinto, B.M., K. Jayakanthan, S. Mohan, R. Nasi (2009). Methods for Synthesizing Kotalanol and Stereoisomers and Analogues Thereof, and Novel Compounds Produced Thereby, PCT /CA2009/000397, filed, March 25, 2009. Australia Granted Patent 31043840[IS1], August 12, 2013. (CIHR)

PATENTS PENDING

4. Pinto, B.M., K. Jayakanthan, S. Mohan, R. Nasi (2009). Methods for Synthesizing Kotalanol and Stereoisomers and Analogues Thereof, and Novel Compounds Produced Thereby, PCT /CA2009/000397, filed, March 25, 2009. (CIHR). USA, EUROPE, CANADA, AND INDIA.

5. Pinto, B.M., S. Mohan (2009). Compounds and Methods for Treatment of Influenza. PCT/CA 2009/001907, filed December 30, 2009. (NSERC Disc). USA.

6. Pinto, B.M., S. Mohan, R. Nasi, K. Jayakanthan, R. Eskandari (2010). Salacinol and Ponkoranol Homologues, Derivatives Thereof, and Methods of Synthesizing Same. PCT/CA2010/001921, filed December 1, 2010. (CIHR). USA, EUROPE, INDIA, AND CANADA.

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