

**Ravin NARAIN, B.Sc, PhD, P.Eng, FIAAM**  
Department of Chemical and Materials Engineering  
Faculty of Engineering, College of Natural and Applied Sciences  
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Canadian

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## **PROFESSIONAL EXPERIENCE**

- 2024 - Vice President Innovations, WWIKY Biosciences Inc.**  
Technology driven company focusing on cancer therapeutics for imaging and treatment of hypoxic tumors
- 2022 - Chief Executive Officer Glycobiologics Inc.**  
Technology driven company focusing on novel carbohydrate-based materials for drug/gene platform, functional surfaces, hydrogels for cell and tissue engineering
- 2022-2024 Bualuang ASEAN Chair Professor,**  
Thammasat University, Rangsit, Thailand
- 2018-2020 Visiting Research Scientist**  
CSIRO Manufacturing, Melbourne, Australia
- 2017-2018 Distinguished Visiting Research Scientist**  
CSIRO Manufacturing, Melbourne, Australia
- 2015 – Full Professor**  
(July)  
Polymer Science and Engineering, Nanotechnology. Coatings, Biomaterials, Cancer Therapeutics, Nano and Regenerative Medicine, Biomaterials, Carbohydrate Science  
Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB, Canada
- 2009 – 2015 Associate Professor (Tenure)**  
Polymer Science and Engineering, Nanotechnology. Coatings, Biomaterials, Cancer Therapeutics, Nano and Regenerative Medicine, Biomaterials, Carbohydrate Science  
Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB, Canada
- 2010 – 2013 Associate Investigator**  
Alberta Innovates Centre for Carbohydrate Science  
Edmonton, AB, Canada
- 2007-2009 Associate Professor (Tenured – July 2008)**  
Department of Chemistry and Biochemistry, Laurentian University  
Sudbury, ON, Canada
- 2004-2007 Assistant Professor**

Department of Chemistry and Biochemistry, Laurentian University  
Sudbury, ON, Canada

- 2003-2004 Senior Research Fellow** (Supported by **NIH** grant)  
University of Washington, Dept. of Bioengineering, Seattle, WA 98195, U.S.A  
Advisor: **Prof. Allan S. Hoffman** and **Prof. Patrick S. Stayton**
- 2001-2003 Research Fellow** (Synthetic Polymer Chemist, **EPSRC** grant)  
University of Sussex, School of Chemistry, Physics and Environmental Science,  
Falmer, Brighton, BN1 9QJ, U.K  
Advisor: **Prof. Steven P. Armes** (Currently at University of Sheffield)
- 1997-2001 Part-time Lecturer**  
University of Mauritius, Réduit, Mauritius.

## **EDUCATION**

### **PhD in Chemistry, University of Mauritius**

*Thesis: Synthesis of Novel Carbohydrate Derived Polymers*

Supervisor: **Prof. Dhanjay Jhurry**, University of Mauritius, Reduit, Mauritius  
(Collaboration: Prof. Guenter Wulff, Hein-rich Hein University of Duesseldorf,  
Duesseldorf, Germany)

*PhD Thesis Examiner:*

**Prof. Steven P. Armes**, University of Sussex, School of Chemistry, Physics and  
Environmental Science, Falmer, Brighton, BN1 9QJ, U.K. (current Address –  
University of Sheffield, Department of Chemistry, Sheffield, U.K)

**Prof. Robert G. Gilbert**, Director of Key Centre of Polymer Colloids, School of  
Chemistry, The University of Sydney, NSW 2006, Australia (current address –  
University of Queensland, Centre for nutrition and Food Sciences, Brisbane,  
Queensland, Australia)

## **LANGUAGES**

*Bilingual English and French:* Fluent both spoken and written

## **AWARDS**

- 2022-2024 Bualuang ASEAN Chair Professor, Thammasat University  
2018 Fellow Royal Society of Chemistry (UK)  
2017 Distinguished Visiting Scientist Award (**\$30k**) OCE Science Team, CSIRO,  
Australia (Round 2016-17) (Accepted)

## **RESEARCH ACTIVITIES**

Dr. Narain is a chemical/materials engineer with a focus on polymer science and engineering, nanotechnology, coatings, hydrogels, biomaterials and cancer therapeutics. He is interested in the use of polymeric technology for a wide range of applications. As an expert in the field, he has authored several books in biomaterials, smart polymers, and applications of advanced nanomaterials for medical uses such as drug delivery and gene therapy. He has also published over **250** papers (**H index 60**) in high impact journals. The PI has collaborated extensively with cancer research team and other clinical investigators to develop nanotechnology driven tools for

cancer imaging, detection and therapy. Through his collaborations and research focus, the PI has been able to develop a successful career on addressing medical needs via innovative design and synthesis of biomaterials. He has expertise in material synthesis, engineering of biomaterials, materials characterization as well in vitro and in vivo evaluations of biomaterials.

### **PERSONAL STATEMENT**

Energetic and dynamic problem solver, communicator, leader and entrepreneur. I am registered as a Professional Engineer in Alberta, Canada. I have lived in Mauritius, Canada, UK, US, Germany, Australia, China and Thailand. I have travelled extensively abroad. I am Fluent in both English and French (written and spoken).

### **RESEARCH EXPERTISE**

Polymer science and engineering, carbohydrate science/glyconanotechnology, biomaterials, hydrogels, nanofibers, cancer therapeutics, nanomedicine, 3D printing, cryopreservation, bio-conjugate chemistry, metallic and non-metallic nanomaterials, surface science, polymer, nanomaterials, surface characterization and biosensing.

### **SERVICE**

- *Member of the Graduate Awards Committee*
- *Member of Faculty Hiring Committee (2023)*
- *Member of the Health and Safety Committee (2009-2011)*
- *Member Faculty Evaluation Committee, Engineering (2013, 2014)*
- *Member of Alberta Glycomics Centre (2010-2013)*
- *Member of Supervisory Committee for several M.Sc. and PhD Students (2009 – present)*
- *Chair of M.Sc. and PhD Examinations for several students (2009 – present)*
- *Examiner for M.Sc and PhD theses for several students*
- *External examiner for several PhD students (China, Australia, Sweden, South Africa, Canada, Thailand)*
- *Member of the EDI committee*

### **EDITORIAL BOARD MEMBER**

- *International Journal of Biomaterials, Hindawi Publishing Press*
- *Expert Opinion on Drug Delivery, Informa Healthcare*
- *Drug Delivery Journal, Informa Healthcare*
- *Journal of Materials Science and Chemical Engineering, Scientific Research*
- *Associate Editor, World Journal of Cancer Research, American Publishers*
- *Advisory Board Member, Polymer Chemistry (RSC)*
- *Special Issue Editor, Polymers (MDPI)*
- *Editorial Board Member, Polymers, Biomacromolecules*
- *Biomacromolecules, American Chemical Society*

### **REVIEWER OF GRANT PROPOSALS**

- *Natural Sciences and Engineering Research Council of Canada (NSERC)*
- *Discovery Grant*
- *Collaborative Research and Developments*
- *Idea to Innovation*

- *Strategic Grants*
- *Global Partnership Program*
- *Early Research Award (Ministry of Research and Innovation, Canada)*
- *Member of the Interdisciplinary Committee for « Fonds Québécois de la Recherche sur la Nature et les Technologies (FQRNT) à Québec »*
- *American Chemical Society, Petroleum Research Funds*
- *Canadian Foundation for Innovation*
- *Ontario Research Funds – Large Infrastructure Panel – Advanced Health Technologies*
- *National Science Center, Poland*
- *MITACS, Canada*
- *Science Foundation Ireland*
- *Canadian Institute of Health Research – Biomedical Engineering Committee (CIHR)*

*ACTIVE REVIEWER FOR THE FOLLOWING JOURNALS (reviewed >200 articles)*

1. *Biomacromolecules, American Chemical Society*
2. *Carbohydrate Research, Elsevier*
3. *Polymer, Elsevier*
4. *Reactive and Functional Polymers, Elsevier*
5. *Macromolecules, American Chemical Society*
6. *Langmuir, American Chemical Society*
7. *Journal of Polymer Science, Part A: Polymer Chemistry, Wiley*
8. *European Polymer Journal, Elsevier*
9. *Chemistry of Materials, American Chemical Society*
10. *Journal of Physical Chemistry B, American Chemical Society*
11. *Chemical Communications, Royal Society of Chemistry*
12. *Soft Matter, Royal Society of Chemistry*
13. *New Journal of Chemistry, Royal Society of Chemistry*
14. *Bioconjugate Chemistry, American Chemical Society*
15. *Physical Chemistry Chemical Physics Royal Society of Chemistry*
16. *Macromolecular Rapid Communications, Wiley-VCH*
17. *Journal of Materials Chemistry Royal Society of Chemistry*
18. *Journal of Physical Chemistry C, American Chemical Society*
19. *Journal of Controlled Release, Elsevier*
20. *Journal of Catalysis*
21. *ACS Applied Materials and Interfaces, American Chemical Society*
22. *ACS Nano, American Chemical Society*
23. *Journal of the American Chemical Society, American Chemical Society*
24. *Nano Today, Elsevier*
25. *Expert Opinion on Drug Delivery*
26. *Journal of Biomaterials Science: Polymer Edition*
27. *Journal of Nanoparticles Research, Springer*
28. *Lab on a Chip, Royal Society of Chemistry*
29. *Accounts of Chemical Research, American Chemical Society*
30. *Annals of Biomedical Engineering*

31. *Acta Biomaterialia*, Elsevier
32. *Advanced Drug Delivery Reviews*, Elsevier
33. *Dalton Transactions*, Royal Society of Chemistry
34. *Macromolecular Bioscience*, Wiley
35. *Journal of Thoracic Diseases*
36. *RSC Advances*
37. *Glycoconjugate Journal*
38. *Scientific Reports*, Nature Publishing
39. *Advanced Healthcare Materials*, Wiley
40. *Advanced Functional Materials*, Wiley

## **RESEARCH FUNDING**

### **Provincial and Federal Funding (Over \$7 Million funding)**

Natural Sciences and Engineering Research Council, Collaborative Research and Development Grant (Co-PI, 2016 and 2017, 2 grants)

Natural Sciences and Engineering Research Council, Strategic Grant (Co-PI, 2017)

*Natural Sciences and Engineering Research Council, NSERC Discovery (2006 - Present)*

*Natural Sciences and Engineering Research Council, NSERC Engage (2014, 2016 (2), 2017)*

*Natural Sciences and Engineering Research Council, NSERC Research Tools and Instruments Nanobridge (2010, 2014, 2016)*

*Canadian Foundation for Innovation, CFI (2005 – Present)*

*Alberta Ingenuity Centre for Carbohydrate Science, AICCS (2010 - 2013)*

*Government of Alberta, SEGP (2010 - present)*

*Canadian Foundation for Innovation CFI (2010 – present)*

*Ontario Centres of Excellence, OCE (2006 - 2009)*

*- Materials and Manufacturing Ontario, MMO (2006 - 2009)*

*- Emerging Materials and Knowledge, EMK (2006 - 2009)*

*Ministry of Research and Innovation, MRI (2008-2009)*

*Laurentian University (2004-2009)*

*University of Alberta (2009 – Present)*

*Canadian Cancer Society (2021)*

*MITACS*

*Alberta Innovates*

### **Industry Projects/Funding**

1. Axela Biosensors (2006-2008)
2. Northern Nanotechnologies Inc. (currently Vive Nano Inc.) (2007-2009)
3. Hardrock Mining Products Limited (2006-2008)
4. Centre of Excellence in Mining Innovation, CEMI (2008-2009)
5. EPCOR (2014)
6. Kemira Inc. (2015)
7. *TC Scientific Inc. (2017)*
8. *Alberta-Pacific Forest Industries Inc. (2019 – 2023)*
9. *Ovensa Innovations Inc. (2019 - present)*
10. *California Medical Innovations (2019 – present)*
11. *Applied Quantum Materials (2022 – now)*

## 12. Genics Inc. (2023 - present)

### PUBLICATIONS

#### Books and Book Chapters

##### Books

- **WILEY & SONS BOOK**, Edited by Ravin Narain  
Engineered Carbohydrate Based Materials for Biomedical Applications: *Polymers, Surfaces, Dendrimers, Nanoparticles and Hydrogels* (**published 2011**)
- **WILEY & SONS BOOK**, Edited by Ravin Narain  
Title: Chemistry of Bioconjugates: Synthesis, Characterization and Biomedical Applications (**Published 2014**)
- **SPRINGER BOOK**, Edited by Mitsuhiro Ebara, Yohei Kotsuchibashi, Ravin Narain, Naokazu Idota, Young-Jin Kim, John M. Hoffman, Koichiro Uto, Takao Aoyagi  
Title: Smart Biomaterials (**Published 2014**)
- **SMITHERS & RAPRA BOOK**, Edited by Ravin Narain  
Title: Update on Glycopolymers (**Published 2015**)
- **WOODHEAD PUBLISHING**, Edited by Ravin Narain  
Title: Polymers and Nanomaterials for Gene Therapy (**Published 2016**)
- **ELSEVIER**, Edited by Ravin Narain (**Published 2020**)  
Title: Polymer Science and Nanotechnology: Fundamentals and Applications
- **ELSEVIER**, Section Editor (**published, 2021**)  
Title: Comprehensive Glycoscience 2<sup>nd</sup> Edition
- **ELSEVIER**, Editor (**published, 2024**)  
Title: Natural and Synthetic Hydrogels – Rational Design, Synthesis and Applications

### BOOK CHAPTERS

1. MARYA AHMED, <b>RAVIN NARAIN</b> Glyconanoparticles for Gene Delivery ACS SYMPOSIUM SERIES, Edited by Ramanathan Nagarajan Title: Nanomaterials for Biomedicine (Published 2012)
2. MARYA AHMED, <b>RAVIN NARAIN</b> Cationic Glycopolymers WILEY AND SONS BOOK, “Engineered Carbohydrate Based Materials for Biomedical Applications: Polymers, Surfaces, Dendrimers, Nanoparticles and Hydrogels” (Published 2011)
3. MARYA AHMED, <b>RAVIN NARAIN</b> Glycopolymer-Protein Bioconjugates WILEY AND SONS BOOK, “Engineered Carbohydrate Based Materials for Biomedical Applications: Polymers, Surfaces, Dendrimers, Nanoparticles and Hydrogels” (Published 2011)
4. MARYA AHMED, <b>RAVIN NARAIN</b> Glycopolymer Functionalized Carbon Nanotubes

WILEY AND SONS BOOK, "Engineered Carbohydrate Based Materials for Biomedical Applications: Polymers, Surfaces, Dendrimers, Nanoparticles and Hydrogels" (Published 2011)
5. RAJESH SUNASEE, <b>RAVIN NARAIN</b> Covalent and Non-Covalent Bioconjugation Strategies Chemistry of Bioconjugates: Synthesis, Characterization and Biomedical Applications (Wiley and Sons) (Published 2014)
6. MARYA AHMED, <b>RAVIN NARAIN</b> Synthetic Polymer Systems (Linear, Star, Branched, Stimuli-Responsive) Chemistry of Bioconjugates: Synthesis, Characterization and Biomedical Applications (Wiley and Sons) (Published 2014)
7. XIANG JIANG, M. ZHU, <b>RAVIN NARAIN</b> Quantum Dots Bioconjugates Chemistry of Bioconjugates: Synthesis, Characterization and Biomedical Applications (Wiley and Sons) (Published 2014)
8. MARYA AHMED, <b>RAVIN NARAIN</b> Physico-Chemical and Biochemical Properties of Bioconjugates Chemistry of Bioconjugates: Synthesis, Characterization and Biomedical Applications (Wiley and Sons) (Published 2014)
9. MARYA AHMED, <b>RAVIN NARAIN</b> Applications of Bioconjugates Chemistry of Bioconjugates: Synthesis, Characterization and Biomedical Applications (Wiley and Sons) (Published 2014)
10. YOHEI KOTSUCHIBASHI, <b>RAVIN NARAIN</b> Silica Nanoparticles Bioconjugates Chemistry of Bioconjugates: Synthesis, Characterization and Biomedical Applications (Wiley and Sons) (Published 2014)
11. KESHWAREE BABOORAM, <b>RAVIN NARAIN</b> Carbon Nanotubes and Fullerene C60 Bioconjugates Chemistry of Bioconjugates: Synthesis, Characterization and Biomedical Applications (Wiley and Sons) (Published 2014)
12. KESHWAREE BABOORAM, <b>RAVIN NARAIN</b> Carbohydrates and their Roles in Biological Recognition Processes WILEY AND SONS BOOK, Edited by Hongbo Zeng Title: Polymer Adhesion, Friction, and Lubrication (Published 2013)
13. RAJESH SUNASEE, <b>RAVIN NARAIN</b> Glycopolymer Syntheses SMITHERS & RAPRA BOOK, Edited by Ravin Narain Title: Update on Glycopolymers (Published in 2015)
14. YOHEI KOTSUCHIBASHI, <b>RAVIN NARAIN</b> Properties of Glycopolymers SMITHERS & RAPRA BOOK, Edited by Ravin Narain Title: Update on Glycopolymers (Published in 2015)
15. YINAN WANG, YANG LIU, <b>RAVIN NARAIN</b> Glycopolymers for Biomedical Applications SMITHERS & RAPRA BOOK, Edited by Ravin Narain Title: Update on Glycopolymers (Published in 2015)
16. BINDU THAPA, <b>RAVIN NARAIN</b> Mechanism, Current Challenges and New Approaches for Non-Viral Gene Delivery WOODHEAD PUBLISHING, Edited by Ravin Narain Title: Polymers and Nanomaterials for Gene Therapy (published 2016)
17. MARYA AHMED, <b>RAVIN NARAIN</b> Synthetic Cationic Glycopolymers for Gene Therapy WOODHEAD PUBLISHING, Edited by Ravin Narain Title: Polymers and Nanomaterials for Gene Therapy (published 2016)

18. MARYA AHMED, <b>RAVIN NARAIN</b> Characterization Non-Viral Vectors WOODHEAD PUBLISHING, Edited by Ravin Narain Title: Polymers and Nanomaterials for Gene Therapy (published 2016)
19. MARYA AHMED, <b>RAVIN NARAIN</b> Biochemical Assays used for in vitro and in vivo gene expression WOODHEAD PUBLISHING, Edited by Ravin Narain Title: Polymers and Nanomaterials for Gene Therapy (published 2016)
20. KONSTANTINOS I. PAPADOPOULOS, PHANPHEN WATTANAARSAKIT, WEERAPONG PRASONGCHEAN, <b>RAVIN NARAIN</b> Gene Therapies in Clinical Trials WOODHEAD PUBLISHING, Edited by Ravin Narain Title: Polymers and Nanomaterials for Gene Therapy (published 2016)
21. STEPHEN QUAN, PIYUSH KUMAR, <b>RAVIN NARAIN</b> Engineered peptide-conjugated non-viral delivery systems for enhanced siRNA and DNA therapeutics WOODHEAD PUBLISHING, Edited by Ravin Narain Title: Polymers and Nanomaterials for Gene Therapy (published 2016)
22. ANIKA B. ASHA, SHRUTI SRINIVAS, <b>RAVIN NARAIN</b> Enzyme-Responsive Polymers: Classifications, Properties, Synthesis Strategies, and Applications (Elsevier, published 2018)
23. WENDA WANG, <b>RAVIN NARAIN</b> , HONGBO ZENG Hydrogels (Elsevier, published 2020)
<b>24. RAVIN NARAIN</b> Copolymerization (Elsevier, published 2020)
25. Anika B. Asha, RAVIN NARAIN Nanomaterials Properties (Elsevier, published 2020)
26. YI-YANG PENG, DIANA DIAZ, <b>RAVIN NARAIN</b> Thermal, Mechanical and Electrical Properties (Elsevier, published 2020)
27. YI-YANG PENG, SHRUTI SRINIVAS, <b>RAVIN NARAIN</b> Modification of Polymers (Elsevier, published 2020)
28. CAITLYN SHUM, ANIKA B. ASHA, <b>RAVIN NARAIN</b> Carbohydrate Biosensors (Elsevier, in press 2020)
29. DIANA DIAZ, PIYUSH KUMAR, <b>RAVIN NARAIN</b> Glyco-Nanomedicines and their Applications in Cancer Treatment (Elsevier, in press 2020)

SELECTED PEER-REVIEWED ARTICLES (> 250 articles & Book Chapters, H Index – 64, > 11000 citations)

(Please check full list at [https://scholar.google.ca/citations?user=vCR\\_IV8AAAAJ&hl=en](https://scholar.google.ca/citations?user=vCR_IV8AAAAJ&hl=en))

1. Leslie Vanessa Sanchez-Castillo\*, Fabiola Guareschi, Eleni Tsekoura\*, Virginia Patterlini, Andrea Delledonne, Ilaria Ferraboschi, Cristina Sisa, Julie Suman, Fabio Sonvico, Ravin Narain. (2025). Formulation of siRNA nanoparticles, transfection and enhanced adhesion - penetration in nasal mucosal tissue. **Journal of Controlled Release**. 383: 113790.
2. Zhihao Wang, Qiuli Cheng\*, Binzhong Lu, Panpan Zhang, Leitao Zhang, Wenlan Wu, Junbo Li, Ravin Narain. (2025). Fabrication of antimicrobial cationic hydrogels driven by physically and chemically crosslinking for wound healing. **International Journal of Biological Macromolecules**. In Press
3. Adel S Imbia\*, Artjima Ounkaew\*, Hongbo Zeng, Yang Liu, Ravin Narain. (2025). Stable Antifouling and Antibacterial Coating Based on Assembly of Copper-Phenolic Networks. **ACS Applied Bio Materials**. 8: 525-534.

4. Chunwen Tao\*, Liyuan Peng, Qiuyun Shao, Kaihui Nan, Ravin Narain, Yangjun Chen. (2025). Self-healing and anti-oxidative mucus-inspired hydrogel. **Polymer Chemistry**. 16: 549-559.
5. Artjima Ounkaew\*, David Antoniuk, Jonathan G. C. Veinot, Melissa Bouvier, Iren Constantinescu, William Tees-DeBeyer, Selina Hung, Jayachandran N. Kizhakkedathu, Ravin Narain\*. (2025). Biocompatible bWater-Soluble Silicon Quantum Dots for Photodynamic Cancer Therapy. **ACS Applied Nano Materials**. In Press
6. Z. Zhao, W. Yu, W. Yang, G. Zhang, C. Huang, J. Han, R. Narain\*, H. Zeng\*, Dual-Protection Inorganic-Protein Coating on Mg-Based Biomaterials through Tooth-Enamel-Inspired Biom mineralization, **Advanced Materials**, 2024, in press
7. M Liu, J Chen, L Li, J Zhou, R Narain, K Nan, Y Chen, Anti-Oxidative tannic Acid-Based nanogels formed via dynamic benzoxaborolate Cross-Linking at physiological pH, **Journal of Molecular Liquids**, 2024, in press
8. Z Wang, Q Cheng, B Lu, P Zhang, L Zhang, W Wu, J Li, R Narain, Fabrication of antimicrobial cationic hydrogels driven by physically and chemically crosslinking for wound healing, **Journal of Biological Macromolecules**, 2024, 259, 129213.
9. AS Imbia, A Ounkaew, X Mao, H Zeng, Y Liu, R Narain, Tannic Acid-Based Coatings Containing Zwitterionic Copolymers for Improved Antifouling and Antibacterial Properties, **Langmuir**, 2024, in press
10. D Diaz-Dussan, YY Peng, FB Rashed, D Macdonald, M Weinfeld, Optimized Carbohydrate-Based Nanogel Formulation to Sensitize Hypoxic Tumors, **Molecular Pharmaceutics**, 2023, 20, 3100.
11. Faisal Bin Rashed, Diana Diaz-Dussan, Fatemeh Mashayekhi, Dawn Macdonald, Patrick Nicholas Nation, Xiao-Hong Yang, Sargun Sokhi, Alexandru Cezar Stoica, Hassan El-Saidi, Carolynne Ricardo, Ravin Narain, Ismail Hassan Ismail, Leonard Irving Wiebe, Piyush Kumar, Michael Weinfeld, Cellular mechanism of action of 2-nitroimidazoles as hypoxia-selective therapeutic agents, **Redox Biology**, 2022, 52, 102300
12. Jianyang Zhao, Yi-Yang Peng, Jinqun Wang, Diana Diaz-Dussan, Wendy Tian, Wei Duan, Lingxue Kong, Xiaojuan Hao, Ravin Narain, Temperature-Responsive Aldehyde Hydrogels with Injectable, Self-Healing, and Tunable Mechanical Properties, **Biomacromolecules**, 2022, in press
13. Deepak Dinakaran, Ronald Moore, John Lewis, Ravin Narain, Piyush Kumar, Nawaid Usmani, Theranostic Radiophotodynamic Therapy Nanoparticles, US Patent, 2022,
14. Liao Zhang, Shumin Hu, Leitang Zhang, Qiuli Cheng, Junbo Li, Ravin Narain, Synergistic Size and Charge Conversions of Functionalized PAMAM Dendrimers under Acidic Tumor Microenvironment, **Biomaterials Science**, 2022, in press
15. Pengtao Gao, Pengrui Jin, Ruben Dumas, Jianjun Huang, Anika Benozir Asha, Ravin Narain, Bart Van der Bruggen, Xing Yang, A prebiotic chemistry inspired one-step functionalization of zwitterionic nanofiltration membranes for efficient molecular separation, , **Journal of Membrane Science Letters**, 2022, 2, 100013.
16. Yi-Yang Peng, Haimei Hu, Diana Diaz-Dussan, Jianyang Zhao, Xiaojuan Hao, Ravin Narain, Glycopolymer–Cell-Penetrating Peptide (CPP) Conjugates for Efficient Epidermal Growth Factor Receptor (EGFR) Silencing, **ACS Macro Letters**, 2022, 11, 580-587
17. Anika B. Asha, Yangjun Chen, R. Narain, Bioinspired dopamine and zwitterionic polymers for non-fouling surface engineering, **Chemical Society Reviews**, (2021), DOI: [10.1039/D1CS00658D](https://doi.org/10.1039/D1CS00658D)
18. J. Zhao, Y.-Y. Peng, D. Diaz-Dussan, J. White, W. Duan, L. Kong, R. Narain, X. Hao Zwitterionic Block Copolymer Prodrug Micelles for pH Responsive Drug Delivery and Hypoxia-Specific Chemotherapy, **Molecular Pharmaceutics**, (2021), <https://doi.org/10.1021/acs.molpharmaceut.1c00518>

19. W. Wang, Z. Zeng, L. Xiang, C. Liu, D. Diaz-Dussan, Z. Du, A. B. Asha, W. Yang, Y.-Y. Peng, M. Pan, R. Narain, J. Liu, H. Zeng, Injectable Self-Healing Hydrogel via Biological Environment-Adaptive Supramolecular Assembly for Gastric Perforation Healing, **ACS Nano** (2021), 15, 6, 9913–9923
20. Q. Cheng, S. Ding, Y. Zheng, M. Wu, Y.-Y. Peng, D. Diaz-Dussan, Z. Shi, Y. Liu, H. Zeng, Z. Cui, R. Narain, Dual Cross-Linked Hydrogels with Injectable, Self-Healing, and Antibacterial Properties Based on the Chemical and Physical Cross-Linking, **Biomacromolecules**, (2021), 22, 1685–1694.
21. Q. Cheng, A. B. Asha, Y. Liu, Y.-Y. Peng, D. Diaz-Dussan, Z. Shi, Z. Cui, R. Narain, Antifouling and Antibacterial Polymer-Coated Surfaces Based on the Combined Effect of Zwitterions and the Natural Borneol, **ACS Applied Materials & Interfaces**, (2021), 13, 7, 9006–9014.
22. L. Dan, Q. Cheng, R. Narain, B. Krause, P. Pötschke, A. Elias, Three-Dimensional Printed and Biocompatible Conductive Composites Comprised of Polyhydroxybutyrate and Multiwalled Carbon Nanotubes, **Industrial & Engineering Chemistry Research**, (2021), 60, 2, 885–897.
23. Y.-Y. Peng, Q. Cheng, W. Wang, M. Wu, D. Diaz Dussan, P. Kumar, R. Narain, Multi-responsive, Injectable, and Self-Healing Hydrogel based on Benzoxaborole-Tannic Acid Complexation, **Polymer Chemistry**, (2021), DOI: [10.1039/D1PY00692D](https://doi.org/10.1039/D1PY00692D)
24. C. Afacan, R. Narain, J. B.P. Soares, Flocculating and dewatering of kaolin suspensions with different forms of poly (acrylamide-co-diallyl dimethylammonium chloride), **Canadian Journal of Chemical Engineering**, (2021), 99, 489–501.
25. W. Wang, L. Xiang, D. Diaz-Dussan, J. Zhang, W. Yang, L. Gong, J. Chen, R. Narain, H. Zeng, Dynamic Flexible Hydrogel Network with Biological Tissue-like Self-Protective Functions, **Chemistry of Materials**, (2020), 32, 10545-10555.
26. J. Zhao, D. Diaz-Dussan, M. Wu, Y.-Y. Peng, J. Wang, H. Zeng, W. Duan, L. Kong, Xiaojuan Hao, R. Narain, Dual-Cross-Linked Network Hydrogels with Multiresponsive, Self-Healing, and Shear Strengthening Properties, **Biomacromolecules** (2020), 22, 800-810.
27. J. Zhao, D. Diaz-Dussan, Z. Jiang, Y.-Y. Peng, J. White, W. Duan, R. Narain, X. Hao, L. Kong, Facile Preparation of Macromolecular Prodrugs for Hypoxia-Specific Chemotherapy, **ACS Macro Letters**, (2020), 9, 1687-1692.
28. D. Dinakaran, J. Sengupta, D. Pink, A. Raturi, H. Chen, N. Usmani, P. Kumar, J. Lewis, R. Narain, R. B. Moore PEG-PLGA nanospheres loaded with nanoscintillators and photosensitizers for radiation-activated photodynamic therapy, **Acta Biomaterialia**, (2020), <https://doi.org/10.1016/j.actbio.2020.09.029>
29. T. Li, F. Huang, D. Diaz-Dussan, J. Zhao, S. Srinivas, R. Narain, Wendy Tian, Xiaojuan Hao, Preparation and Characterization of Thermoresponsive PEG-Based Injectable Hydrogels and Their Application for 3D Cell Culture, **Biomacromolecules**, (2020), 21, 1254-1263
30. D. Diaz-Dussan, Y.-Y. Peng, J. Sengupta, R. Zabludowski, M. K. Adam, J. P. Acker, R. N. Ben, P. Kumar, R. Narain, Trehalose-Based Polyethers for Cryopreservation and Three-Dimensional Cell Scaffolds, **Biomacromolecules**, (2020), 21, 1264-1273

31. D. Wu, W. Wang, D. Diaz-Dussan, Y.-Y. Peng, Y. Chen, R. Narain, D. G. Hall, In Situ Forming, Dual-Crosslink Network, Self-Healing Hydrogel Enabled by a Bioorthogonal Nopoldiol–enzoxaborolate Click Reaction with a Wide pH Range, **Chemistry of Materials**, (2019), ASAP
32. Y. Chen, D. Diaz-Dussan, Y.-Y. Peng, and R. Narain Hydroxyl-Rich PGMA-Based Cationic Glycopolymers for Intracellular siRNA Delivery: Biocompatibility and Effect of Sugar Decoration Degree, **Biomacromolecules**, (2019), 20, 2068-2074.
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#### SELECTED RECENT CONFERENCES AND INVITED TALKS

## **2025**

- Advanced Polymers and Hydrogels for Biomedical Uses. Chinese Academy of Sciences, Institute of Process Engineering, Beijing, China ([Invited Lecture](#))
- Advanced Glycopolymers and Nanoparticles for Biomedical Uses. Henan University of Science and Technology, Luoyang, China ([Invited Lecture](#))
- Polymer, Hydrogels and Nanoparticles for Biomedical Applications. Donghua University, State Key Laboratory of Advanced Fiber Materials, Shanghai, China ([Invited Lecture](#))
- Enhancing Nucleic Acids Stability and Delivery using Biopolymer based Nanoparticles. The 23rd Conference on International Exchange of Professionals International Forum on Frontiers in Chemistry and Materials Science October 19-25, 2025, Shanghai, China ([Invited Keynote Lecture](#))
- Rational Design of Polymers and Nanoparticles for Biomedical Applications. South China University of Technology, Guangzhou, China ([Invited Lecture](#))
- Polymer Nanosystems and Nanoparticles for Biomedical Uses. Department of Macromolecular Engineering, Fudan University, Shanghai, China ([Invited Lecture](#))
- Advanced Polymers and Hydrogels for Biomedical Applications. Wenzhou Medical University, Wenzhou, China ([Invited Lecture](#))
- Polymer Based Nanosystems and Hydrogels for Biomedical Applications. Beijing Normal University, Zhuhai Campus, Zhuhai, China ([Invited Lecture](#))
- Rational Design of Nanoparticles and Hydrogels for Biomedical Applications. TiCHE 2025 Conference, Pattaya, Thailand, Pattaya, Thailand ([Invited Keynote Lecture](#))
- Nanosystems and Hydrogels for Biomedical Engineering Applications. Xi'an Jiantong University, Xi'an, Xi'an, China ([Invited Lecture](#))
- 11. Rational Design of Polymers and Nanoparticles for Biomedical Applications. Shenzhen Technology University, Shenzhen, China ([Invited Lecture](#))
- Polymer Based Nanosystems and Hydrogels. Central South University, Changsha, Changsha, China ([Invited Lecture](#))
- Rational Design of Polymers and Nanoformulations as Nucleic Acid and Drug Delivery Systems. Canadian Society for Pharmaceutic Sciences - Controlled Release Society Symposium, Edmonton, Canada ([Invited Lecture](#))

## **2023-2024**

- Versatile Polymer Based Nanomedicines and Hydrogels. The 5th Virtual European Polymer Conference, United Kingdom ([Invited Keynote Lecture](#))
- 15. Versatile Polymer Based Nanomedicines, Hydrogels and Surfaces. Monash University, Materials Engineering, Melbourne, Australia
- 16. Polymers, Hydrogels and Surfaces. Khon Kaen University, Department of Chemical Engineering, Thailand

## **2022**

- Glycomics Institute of Alberta opening symposium, Oct. 13-14, 2022  
*Versatile Glycopolymer Based Nanomedicines*
- Chulalongkorn University, Department of Chemistry, Bangkok, Thailand, November 2022, "Nanoformulations and Hydrogels for Biomedical Applications" ([Invited Lecture](#))
- Thammasat University, Faculty of Science, Pathum Thani, Thailand, November 2022 "Nanomedicines, Hydrogels and Surfaces for Biomedical Applications" ([Invited Lecture](#))
- Prince Songkla University, Pharmaceutical Sciences Department, December 2022 "Versatile Polymer based Nanomedicines, Hydrogels and Surfaces for Biomedical Applications" ([Invited Lecture](#))

- Khon Kaen University, Department of Chemical Engineering, Thailand, May 2022 “Nucleic Acid Therapeutics and Hydrogels as Biomaterials” ([Invited Lecture](#))
- Chulalongkorn University, Department of Petroleum and Petrochemical Engineering, Bangkok, Thailand, June 2022, “Nanoformulations and Hydrogels for Biomedical Applications”

## 2021

- National Institute of Health and Food and Drug Administration, Glycoscience Research Day, June 2021, “Versatile Glycopolymer-based Nanomedicines and Hydrogels for Biomedical Applications” ([Invited Lecture](#))
- Canadian Society of Pharmaceutical Sciences, Controlled Release Society, June 2021, “Versatile Nanomedicines and Hydrogels for Biomedical Uses” ([Invited Lecture](#))

## 2019

- Monash University, Materials Engineering Department, August 29, 2019  
Advanced Self-Healing Hydrogels based on a Unique Bioorthogonal Click Reaction between Diol and Benzoxaborole Components ([Invited Lecture](#))
- Emerging Polymer Technologies Summit, Melbourne, Nov. 6-8, 2019  
Self-Healing Hydrogels based Dynamic Covalent Interactions ([Invited Keynote Lecture](#))
- Department of Chemistry, University of Sheffield, UK, July 31-Aug 2, 2019  
Self Healing Hydrogels via Dynamic Covalent Bonds for Biomedical Applications ([Invited Lecture](#))
- European Polymer Congress, Crete, Greece June 9-12, 2019  
Advanced Self-Healing Hydrogels and Biomedical Applications ([Invited Keynote Lecture](#))
- University of Crete, Greece, June 7, 2019  
*Advanced Polymers and Biomaterials* ([Invited Lecture](#))
- Institute for Frontier Materials, Deakin University, Geelong, Australia, April 17, 2019  
*Advanced Hydrogels as Biomaterials for Cell and Tissue Engineering application* ([Invited Lecture](#))

## 2018

- Mini Symposium on Biomaterials, Monash University – Organized by Prof. Neil Cameron, Oct. 29, 2018  
Molecular Engineering of Polymers and Hydrogels for Biomedical Applications ([Invited Lecture](#))
- Active Integrated Matter, Annual Conference CSIRO, Melbourne, February 2018  
Polymer-Based formulations for 3D Cell Culture, Cryopreservation and Radiosensitizer Delivery ([Invited Lecture](#))
- International Conference on Advanced Polymers, Biomaterials and Nanomedicine, Mauritius, August 2018  
Hydrogels Formulations for Biomedical Applications ([Invited Lecture](#))
- Molecular Engineering of Polymers Conference, Fudan University, Shanghai, September 2018  
Bio-Inspired Hydrogels based on Boronic Esters and Diols Interactions ([Invited Keynote Lecture](#))
- Center for Soft Condensed Matter Physics and Interdisciplinary Research, Soochow University, Suzhuo, China, September 2018

Bio-Inspired Materials Formulation for Biomedical Applications (*Invited Lecture*)

- Department of Polymeric Materials, School of Materials Science and Engineering, Tongji University, Shanghai, China, September 2018  
Novel Biomaterials Formulations (*Invited Lecture*)

## 2017

- Emerging Polymer Technologies, RMIT, Melbourne, November 2017  
*New Strategies in the Development of Polymer-Based Nanoformulations for Therapeutics Delivery* (*Invited Talk*)
- The Petroleum and Petrochemical College, Chulalongkorn University, November 2017  
*Novel Polymer Systems for Bioengineering Applications* (*Invited Lecture*)
- ACS National Meeting in San Francisco, April 2017  
(Carbohydrate Division – Organizer, Chair and Invited Speaker)  
*Carbohydrate based Nanomedicine: Gene and Clinical Radiosensitizer Delivery* (*Invited Speaker*)
- CSIRO Melbourne, Australia, May 2017  
*Carbohydrate as a Key and Integral Part of the Building Blocks of Novel Biomaterials* (*Invited Distinguished Lecture*)
- RACI Conference, Melbourne, Australia, July 2017  
*Novel Carbohydrate Based Biomaterials* (*Keynote Lecture*)
- European Biomaterials Society Meeting, Athens, Greece, September 2017  
*Carbohydrate based Nanomedicine: Radiosensitizer Delivery Systems* (*Keynote Lecture*)
- Chulalongkorn University, Petroleum Institute, November 2017  
*Carbohydrate Based Nanomedicine* (*Invited Lecture*)
- Emerging Polymer Technologies, RMIT, Melbourne, Australia, November 2017  
*New Strategies in the Development of Polymer-Based Nanoformulations for Therapeutics Delivery* (*Invited Lecture*)

## 2016

- National Institute of Materials Science, Tsukuba, Japan, January 2016  
*Carbohydrate based Polymers and Nanogels for Drug and Nucleic Acid Delivery* (*Keynote Lecture*)
- ICYS Workshop, Karuizawa, Nagano, Japan, January 2016  
*Carbohydrate based Nanomedicine for Liver Cancer Targeting and Therapy* (*Keynote Lecture*)
- 2016 International Nanomedicine Conference, Mauritius, August 2016 (*Organizer and Chair*)  
*Carbohydrate based Nanomedicine: Gene and Clinical Radiosensitizer Delivery*
- World Biomaterials Congress, Montreal Canada, May 2016, (*Organized a symposium on Glyconanotechnology*)  
*Carbohydrate Based Nanomedicine*

## 2015

- University of Sheffield, Sheffield, UK, July 2015  
*Carbohydrate Based Materials: From Gene Therapy to Self-Healing Materials* (*Invited Lecture*)

- Department of Chemistry, KTH, Sweden, September 2015  
*Carbohydrate Based Materials: From Gene Therapy to Self-Healing Materials (Keynote Lecture)*
- Drug Delivery Meeting, Tucson, AZ, USA, October 2015  
*Carbohydrate Based Nanomedicine for Liver Cancer Targeting and Therapy (Invited Lecture)*
- University of Science and Technology of China, Hefei, China, November 2015  
*Nanomedicine for Liver Cancer Targeting and Therapy (Plenary Lecture)*
- PACIFICHEM, Hawaii, USA, December 2015 (Organizer, Chair and Invited Speaker)  
*Carbohydrate based Nanomedicine for Liver Cancer Targeting and Therapy (Invited Lecture)*

## 2014

- Department of Chemistry, University of Toronto  
*Ravin Narain Glycopolymers Based Nanomedicines (Invited Lecture)*
- International and Union Materials Research Society (IUMRS), Fukuoka, Japan, August 2014  
*Ravin Narain, Glycomaterials for Nanomedicines (Keynote Speaker)*
- American Chemical Society, National Meeting, San Francisco, U.S.A, August 2014  
*Ravin Narain, Building Safer Delivery Systems for Drugs and Genes (Symposium Organizer and Chair, Invited Speaker)*
- IUPAC MACRO 2014, Chiang Mai, Thailand, July 2014  
*Ravin Narain, Glycopolymer Based Nanomedicine (Invited Talk)*
- Chulalongkorn University, Faculty of Pharmaceutical Sciences, Bangkok, Thailand, July 2014  
*Ravin Narain, Polymers as Biotherapeutics (Keynote Speaker)*
- 5<sup>th</sup> ACN Nanomedicine Conference, Coogee Beach, Australia, July 2014  
*Ravin Narain, Carbohydrate Based Macromolecular and Nanostructured Materials for Gene Therapy (Invited Speaker)*
- Canadian Society for Pharmaceutical Sciences and Canadian Chapter Controlled Release Society, Montreal, Canada, June 2014  
*Ravin Narain, Therapeutic Potentials of Carbohydrate Based Nanomedicine (Invited Speaker)*
- School of Chemistry, The University of Sydney, Sydney, Australia, May 2014  
*Ravin Narain, Engineered Macromolecular and Nanostructured Materials for Biomedical Relevance (Invited Speaker)*
- International Symposium on Smart Biomaterials, National Institute of Materials Science, Tsukuba, Japan, March 2014  
*Ravin Narain, Nucleic Acid Delivery Using 'Smart Biomaterials' for Liver Cancer Therapy (Invited Speaker)*

## 2013

- American Chemical Society, National Meeting, Indianapolis, U.S.A, September 2013  
*Ravin Narain, Engineered Glycopolymers and Degradable Glyco-Nanogels as Efficient Gene Delivery Systems (Symposium Organizer and Chair)*
- University College London, London, U.K, July 2013

*Ravin Narain, Biomaterials and Tissue Engineering (Invited Speaker)*

- ACN Nanomedicine Conference, Sydney, Australia, July 2013  
*Ravin Narain, Cationic Glycopolymers and Glyco-Nanogels as Efficient Gene Delivery Systems (Invited Speaker)*
- University of Johannesburg, Johannesburg, South Africa, June 2013  
*Ravin Narain, Efficient Gene Delivery Systems (Invited Speaker)*
- International Conference on Biomaterials Science, Tsukuba, Japan, March 2013  
*Ravin Narain, Carbohydrate based Systems for Gene Therapy (Invited Lecture)*

2012

- American Chemical Society, National Meeting, San Diego, March 2012  
*Ravin Narain - Hyperbranched Glycopolymers for Gene Delivery*
- Monash University, Sunway Campus, Malaysia, May 2012  
*Ravin Narain - Carbohydrate Based Materials for Biomedical Relevance (Invited)*
- University of Leeds, School of Chemistry, Leeds, June 2012  
*Ravin Narain – Engineered Carbohydrate Based Materials for Biomedical Applications (Invited Lecture)*
- New Innovations in Polymers and Biomaterials (in celebration of Allan S. Hoffman 80<sup>th</sup> Birthday) December 2012, Hawaii, USA  
*Ravin Narain – Glycopolymers and Glyco-Nanogels for Gene Delivery (Invited Speaker)*
- Chulalongkorn University, Faculty of Pharmaceutical Sciences, Bangkok, Thailand, December 2012  
*Keynote Speaker: Ravin Narain, Linear and Hyperbranched Glycopolymers for Gene Therapy (Annual Research Symposium)*  
*Four Lectures to Graduate students and Faculty on Polymers and Nanoparticles for Biomedical Applications*

2011

- Massachusetts Institute of Technology (MIT), Boston, June 2011  
*Chemical Engineering (Prof. Alan T. Hatton and Prof Maria Vamvakaki (sabbatical at MIT))*  
*Ravin Narain - Glyco-Nanomaterials for Gene Delivery (Invited Talk)*
- Chemical Society of Canada, Montreal, June 2011  
*Division of Macromolecules (Prof Françoise Winnik and Prof Elizabeth Gillies)*  
*Ravin Narain - Glycopolymers and Glyconanoparticles for Gene Delivery (Invited Talk)*
- Canadian Biomaterials Society, Vancouver, June 2011  
*Ravin Narain - Glycopolymers for Gene Delivery*
- American Chemical Society, Anaheim CA March 2011  
*Marya Ahmed, Ravin Narain “Facile Synthesis of Gold Nanorods via a Photochemical Approach”*  
*Marya Ahmed, Ravin Narain “Glyconanoparticles for Gene Delivery”*  
*Marya Ahmed, Ravin Narain “Cationic Glycopolymers for Gene Delivery”*  
*Jui Tse Chen, Marya Ahmed, Xioaze Jiang, Quixia Liu, Ravin Narain “Magnetic Glyconanoparticles for Gene Delivery”*  
*Guillaume Gody, Xioaze Jiang, Abdelghani Housni, Arnaud Favier, Paul Boullanger, Marie-Hélène Charles, Thierry Delair, Ravin Narain, Marie-Thérèse Charreyre, “Well-*

*defined glycopolymer architectures and glyconanoparticles for biomolecular interactions”*  
(Invited Talk)

## 2010

- Allan Hoffman Family Symposium, Tsukuba, Japan, September 2010  
Invited Speaker - Ravin Narain  
*Carbohydrate-Based Materials for Biomolecular Recognition Processes and Gene Delivery*
- American Chemical Society, Colloids Division, Boston, August 2010  
*Ravin Narain Glyconanoparticles for Gene Delivery*
- American Chemical Society, Colloids Division, San Francisco, March 2010  
*Marya Ahmed, Xiaoze Jiang, Zhicheng Deng, Ravin Narain Glyconanoparticles for Gene Delivery*

## 2009

- American Chemical Society, Polymer Chemistry Division, Polymers for Medicine and Biology, June 2009  
Marya Ahmed, Xiaoze Jiang, Zhicheng Deng, Ravin Narain “*Cationic Carbohydrate-Functionalized Single Walled Carbon Nanotubes: Synthesis, Characterization and Transfection Studies*”
- American Chemical Society, Polymer Chemistry Division, Salt Lake City, March 2009  
Ravin Narain “*Glyconanoparticles for Biomedical Relevance*”

## 2008

- American Chemical Society, Polymer Chemistry Division, Philadelphia, August 2008  
*Xiaoze Jiang and Ravin Narain “Surface Functionalization of Quantum Dots with Well-Defined Biotinylated Glycopolymers”*

## 2007

- Controlled/Living Polymerization, Antalya, Turkey, October 2007  
Ravin Narain “*Functionalized Nano-Materials*”
- UKPCF2007 International Conference on Polymer Colloids, University of Warwick, Coventry, U.K, September 2007  
Ravin Narain “*Functionalized Nano-Materials: Biotinylated Glyconanoparticles and Magnetic Nanoparticles and their Bioconjugation to Streptavidin*”.
- American Chemical Society, Polymer Chemistry Division, Boston, August 2007  
Hassen Boucekif, Ravin Narain “*Reversible Addition fragmentation Chain Transfer Polymerization of N- isopropylacrylamide: A Comparison between a slow and a fast initiator*”  
Keshwaree Babooram, Ravin Narain “*Incorporation of Amide-Functionalized SWNT in Silica Network through Sol-Gel Processing*”
- American Chemical Society, Polymer Chemistry Division, Chicago, March 2007  
Keshwaree Babooram, Ravin Narain “*Synthesis of Novel (Amide-imide)-Silica Composites by the Sol-gel process*”

Ravin Narain *et al.* "Carbohydrates Functionalized Materials: Glyconanoparticles and their Bioconjugation to Streptavidin"

Ravin Narain *et al.* "Carbohydrate Functionalized Materials: Acid Labile Hydrogels and Microgels"

- Ontario Centres of Excellence - Emerging Materials and Knowledge Conference on Nanotechnology and Biomaterials, Sudbury, Canada March 2007

Ravin Narain "Carbohydrate Functionalized Materials: Nanorods, Bioconjugates and Hydrogels"

## **OVERVIEW OF Highly QUALIFIED PERONNEL (HQP) TRAINING IN MY LAB**

Over past 5 years, I has supervised/co-supervised over 40 highly qualified personnel PhD, MSc graduate students and postdoctoral fellows (PDFs), research associates, visiting professors and undergraduate students. The HQPs who has completed their tenure in my lab have found jobs in industry or academia. The former HQPs who have found academic positions and established independent research groups as follows: Dr. Marya Ahmed (UPEI), Dr. Rajesh Sunasee (State University of New York), Dr. Yangjun Chen (Wenzhou University Hospital), Dr. Xiaoze Jiang (Donghua University), Dr. Qiuli Cheng (Henan University of Science and Technology).

## **CURRENT RESEARCH COLLABORATORS**

### **Canada**

- Prof. Thomas Thundat, University of Alberta, Edmonton, AB, Canada
- Prof. Nat Kav, University of Alberta, Edmonton, AB, Canada
- Prof Hongbo Zeng, University of Alberta, Edmonton, AB, Canada
- Prof. Mike Deyholos, University of Alberta, Edmonton, AB, Canada
- Prof. Aseem Kumar, Laurentian University, Sudbury, ON, Canada
- Prof. Glen Armstrong, University of Calgary, Calgary, AB, Canada
- Prof. Mary Hitt, University of Alberta, Edmonton, AB, Canada
- Prof. Piyush Kumar, University of Alberta, Edmonton, AB, Canada
- Prof. Jay Kizhakkedathu, University of British Columbia, BC, Canada
- Prof. Dennis Hall, University of Alberta, AB, Canada
- Prof. Yang Liu, University of Alberta, AB, Canada
- Dr. Philippe Tremblay, Ovensa Innovations Inc., Laval, Canada
- Prof. Michael Weinfeld, University of Alberta, Canada
- Prof. Michael Chu, University of Alberta, Canada

### **International**

- Prof. Shiyong Liu, University of Science and Technology of China, Hefei, China
- Prof. Aoyagi Takao, National Institute of Material Science, Tsukuba, Japan
- Dr. Mitsuhiro Ebara, National Institute of Material Science, Tsukuba, Japan
- Prof. Kazuhiko Ishihara, University of Tokyo, Tokyo, Japan
- Prof. Maria Vamvakaki, University of Crete, Greece
- Prof. Michael Kumke, University of Potsdam, Potsdam, Germany

- Dr. Xiaojuan Hao, CSIRO, Melbourne, Australia
- Dr. Peter Duggan, CSIRO, Melbourne, Australia
- Dr. Thilak Gunatillake, CSIRO, Melbourne, Australia
- Dr. Lingxue Kong, Frontiers Materials Institute, Deakin University
- Dr. Peter Eu, Peter MacCallum Cancer Centre, Melbourne, Australia (new collaboration)
- Dr. Thierry Jarde, Monash University, Clayton, Australia
- Dr. Jess Frith, Monash University, Clayton, Australia
- Dr. Ali Dabiri, California Medical Innovation Institute, San Diego, CA, USA
- Dr. Steve Armes, University of Sheffield, Sheffield, UK
- Prof. Junbo Li and Dr. Qiuli Cheng, Henan University of Science and Technology, China
- Dr. Yangjun Chen, Wenzhou Medical University, China