# VIJAY MORAMPUDI, PhD, M. Pharm, B. Pharm

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## CURRICULUM VITAE

## PROFESSIONAL SUMMARY

- **PhD with over 8+ years of multidisciplinary research experience in enteric pathogen infections and inflammatory bowel diseases.**
- **Independent ability to design and execute experiments, data analysis and manuscript writing.**
- **Training and supervising PhDs, research associates, technicians, graduate and undergraduate students.**
- **Literature survey, scientific writing and software skills (MS Office, Adobe Photoshop, Illustrator, Graph pad, online databases, search engines, Endnote).**
- **Excellent scientific presentation and communication skills (32 oral and poster presentations during the past 11 years).**
- **Publications in 16 peer-reviewed medical journals (7 first/co-first author and 9 co-author). Google Scholar citations 1017, h-index 14, i-16 index 14 and Total impact factor 72.**
- **Certification in NIH organized Clinical Trials course (ethical and regulatory issues) and UBC organized Project Management course.**

## EDUCATION

- **(Sep 2006-Mar 2011)** PhD in Biomedical and Pharmaceutical Sciences, Université Libre de Bruxelles, Brussels, Belgium.
- **(Sep 2003- Aug 2006)** M.S. in Medical and Pharmaceutical Research, Vrije Universiteit Brussel, Brussels, Belgium (Distinction).
- **(Aug 1997-Aug 2001)** Bachelor in Pharmacy (**US equivalence certification**), Osmania University, Hyderabad, Telangana, India.

## WORK EXPERIENCE

**(Jun 2020- Present day) [Assistant Professor], [University of Hyderabad, India]**

**Academic Teaching:**

* Courses taught to undergraduate and graduate students:
  SB251: Molecules & Information Processing (Molecular Biology)
  BC401: Intermediary Metabolism I (Carbohydrate & Lipid Metabolism)

**Syllabus design:**

* Designed syllabus and taught foundation course FN120: ‘Microbiome in Health and Disease’

**Research Grant writing:**

1) **Title:** "Studying the Probiotic Role of *Lactobacilli Johnsonii* in the Intestinal Crypt Development and Epithelial Barrier Integrity against *Enteropathogenic E. Coli* Infection"
**Granting authority:** Institute of Eminence (IoE) grant
**Status:** Approved and Sanctioned for 40 lakhs

2) **Title:** Studying the Probiotic Effects of Breast Milk Lactobacilli on Intestinal Crypt Cell Development and Function.
**Granting authority:** SRG-SERB
**Status:** Approved for 30 lakhs

3) **Title:** Studying the Role of Inflammatory Cytokines in the Intestinal Crypt Development and Barrier Integrity.
**Granting authority:** UGC start up
**Status:** Approved for 10 lakhs

**Supervision:**

* Supervised MSc student Rahul Ganta from Mar 2021 to July 2021 for his Master thesis entitled "Studying the adherence and antibiotic resistance of Breast Milk Lactobacilli strains on Intestinal Cancer Cell-line"
* Currently supervising two PhD candidates Sai Madhuri Vamisetti and Anubha Gupta

**Other Academic Activities**

* I made a collaboration with Asian Institute of Gastroenterology (AIG) and wrote a project proposal for ICMR Adhoc grant.
* To oversee maintenance and proper functioning of department cell culture lab. Equipment repairs for CO2 incubator, microscope and air-conditioning were fixed to ensure smooth function of the lab.
* Actively involved in organizing interviews for MSc-Integrated PhD and PhD candidates.
* PhD admission committee member

**(Aug 2018- Aug 2019) [Tutor/Writer], [Acematiks, Inc., QC, CANADA]**

* Academic help and professional writing assistance for PhD professionals

**(Mar 2017- Mar 2108) [Scientist/Biology Lead, Immunology], [Engene Inc, QC, CANADA]**

Technology platform: Localized gene delivery using modified oligo polymers

**Project 1:** Study the therapeutic efficacy of an immunomodulatory protein in a mouse bladder cancer.

* Designed and executed studies to screen DNA based formulations.
* First to demonstrate successful gene expression in a bladder tissue with proprietary formulations.

* Implemented strategies to increase the duration of gene expression.
* Organized project time lines, budgets and resource allocation.
* Communicated with cross functional teams, organize bi-weekly and monthly meetings to team and management respectively.
* Wrote monthly reports to industrial funding agency.

**Project 2:** Evaluate the efficacy of Engene's advanced IBD drug

* Planned and executed experiments to support pre-IND documentation.
* Introduced 3D organoid platform for *in-vitro* screening of formulations.
* Demonstrated no antibiotic resistant gene transformation in mouse microbiota.
* Analyzed data, generated figures and wrote study reports for external industry partners.

**(July 2011- Dec 2016) [Post-doctoral Fellow], [University of British Columbia, Faculty of Medicine, BC, CANADA]**

Successfully completed the following **four** research projects aiming to unravel mechanisms by which epithelial cell mediators, intestinal peptides and proteins promote mucosal homeostasis.

**Project 1:** Define the role of goblet cell secreting factors Resistin like molecule beta (RELM-β) and Mucin 2 (Muc2) in a mouse model of intestinal inflammation.

* Determined RELM-β's role in promoting *RegIII*-β lectin driven intestinal microbial dysbiosis leading to spontaneous inflammation in the colon.
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* Supervised 2 graduate students
* A 3yr PhD studentship awarded to my student who worked on this project.

**Project 2:** Study the mechanisms by which RELM-β protects the host during *Citrobacter rodentium* induced infectious colitis.

* First to demonstrate RELM-β is chemotactic to recruit CD4+ T cells that promote gut epithelial cell proliferation by secreting IL-22 cytokine.
* Established collaborations with eminent mucosal immunology scientists including Drs. David Artis and Meera Nair.
* Invited speaker for $16_{th}$ International Congress of Mucosal Immunology (ICMI, 2013)
* Publication in the high impact journal *PLoS Pathogens* (>1500 views and >200 shares within a week of publication).

**Project 3:** Evaluate the role of vasoactive intestinal peptide (VIP) on epithelial barrier functions during EPEC infections.

* VIP protects EPEC induced epithelial barrier disruption by blocking the activation of protein kinase C-epsilon pathway.

* Established *in-vitro* methods in the laboratory to measure epithelial barrier resistance and permeability.
* Publication in a peer-reviewed journal - *American Journal of Physiology and Gastrointestinal and Liver Physiology.*

**Project 4:** Study the ability of EPEC to modulate the expression and distribution of tricellular tight junction protein 'tricellulin'.

* Showed tricellulin modulation by EPEC's type III secretion factor EspG1 via the disruption of host cell microtubules.
* Supervised 2 graduate students on the project.
* Invitation to present at infectious disease seminar.
* Results published in the journal of *Infection and Immunity*.

**Other Activities:**

- Developed 3D organoid culture methods (Small intestine and colon) from mouse and human intestinal stem cells.
- Authored contributions in successfully funded 2015 Crohn's & Colitis Canada grant (CCC), and 2016 Canadian Institutes of Scientific Research (CIHR). ○ Successfully completed UBC organized 'Project Management' and 'Business Effectiveness' courses.
- Certification in NIH organized clinical trials course.
- Chaired UBC organized graduate seminar day (2013 & 2014).

**(Sept 2006-Mar 2011) [PhD student], [Université Libre de Bruxelles, Belgium]**

- 2 first author publications on thesis entitled: "Study of the modulation of innate immune responses in intestinal epithelial cells by *Toxoplasma gondii* and its correlation with parasite virulence".
- Developed *in-vitro* method to distinguish virulent from less virulent strains of *T. gondii.*
- Determined a protective role of regulatory T-cells in BALB/c mice during *T. gondii* infection.
- Co-supervised Diploma student for 8 months.
- Contributed in writing operating grant that was successfully funded for 75000 Euro from 3R research Foundation (Switzerland).

**(Sept 2003-Aug 2006) [Master student], [Vrije Universiteit Brussel, Brussels, Belgium]**

- Evaluated immunoprophylactic potential of plasmid DNA vaccines on thesis project entitled "Evaluation of plasmid DNA vaccines against *Mycobacterium ulcerans* based on proteins implicated in mycolactone synthesis".
- Purified recombinant proteins by using Immobilized metal affinity chromatography (IMAC).
- Plasmid DNA vaccine preparation.

## CLINICAL RESEARCH EXPERIENCE

- Cultured and maintained 3D organoid bank grown from human IBD patient biopsies.
- Analyzed blood and stool samples from Crohn's, Colitis and celiac patients for biomarker studies.
- Certification by NIH and Coursera on Clinical Trials: Good understanding on design and interpretation of clinical trials, ethical and regulatory issues.

## TECHNICAL SKILLS

- Proficient with IVIS, RT-qPCR, FACS, ELISA, SiRNA, MACS immune cell separation, FISH hybridization, Western blotting, immunoprecipitation, SiRNA gene silencing, reporter gene assays, microinjections, immunohistological staining, fluorescence and confocal microscopy.
- *In-vivo* skills: Mouse models of intestinal inflammation (*Citrobacter rodentium* and *Salmonella typhimurium*, *Toxoplasma gondii*, DSS and DNBS), intra-rectal drug administration and organoid transplantation into the inflamed intestine. Recently, became expert in intra-vesicular delivery of bladder formulations
- *In-vitro* skills: Expert in cell culture (handled >10 different cell lines). Infections with microbes and testing with recombinant proteins and peptides. Proficient in transfecting cells and performing proliferation, migration and cytotoxicity assays.
- *Ex-vivo* expertise: 3D organoid cultures (small intestine, cecum and colon), spleen, mesentriclymph node and lamina propria T-cell purification and crypt cell isolation.
- Human samples: Translational work experience with human patient biopsies, blood and stool samples for organoid cultures and biomarker studies.
- Microbiological skills: Culturing of human and mouse commensal and pathogenic bacteria, genotyping and sequencing analysis, antibiotic microbial screening, crypt killing assays and bacterial transformations. Plasmid amplification and purification grown from bacterial cultures.

## LEADERSHIP SKILLS

- Lead a team of 5 research associates for bladder cancer and EG-12 projects ○ Managed 4 research projects to completion within 5 years
- Supervised 4 graduate students and mentored 3 PhDs and 2 technicians ○ Chaired UBC organized graduate seminar day (2013 & 2015) ○ Reviewed 16 medical journal articles
- Led a cricket team as captain consisting 11 players and won the inter-University cricket championship held at Hyderabad, India (2001)

## AWARDS AND HONORS

Awards:

1. Michael Smith Foundation Health Research Fellowship (MSFHR) $150,000 funded for 3 years (2013-2016).
2. Child and Family Research Fellowship (CFRI) $50,000 for 1 year (2012).
3. 3R Research Foundation (Switzerland) PhD salary €52000 for 2 years (2008-2010).
4. Van Buuren Scholarship €5000 for 3 months (2011).
5. Pasteur Institute of Brussels Fellowship €15000 for 1 year (2007).
6. Belgium Immunological Society Travel Award €400 (2009).

Honours:

7. Invited to Chair UBC organized graduate seminar day (2012 & 2015).
8. Invited poster judge on UBC organized Experimental Medicine day (2012, 2013, 2014 & 2015).
9. Invited speaker in International Congress of Mucosal Immunology, held in Vancouver, 2013.

## LICENCES AND CERTIFICATIONS

- Licenced Pharmacist in India
- National Institute of Health (NIH) certificate in Clinical Research Training course (2016)
- Canadian Council of Animal Care (CCAC)
- Rodent Biology and Husbandry
- Rodent Anaesthesia and Surgery
- Project management
- Scientific Writing
- Professional and Business Effectiveness.

## PUBLICATIONS

1. Kalakonda P, Dabbeta NK, Kathi R, Manduri GK, Bathula NK, Jadi B, Naidu SR, Merlinsheeba GL, Mandal P, Banne S, Aitipamula D, Morampudi V, Banavoth M, Sudarsanam ENV, Vasudeva Y, Podila BB, Facile Synthesis of Silver Nanoparticles Using Green Tea Leaf Extract and Evolution of Antibacterial Activity. Plasmonics (2023). https://doi.org/10.1007/s11468-023-01899-6.

2. Kalakonda P, Chinmayee S, Preethi B, Swetha A, Maruthi G, Pritam M, Sreenivas B, Ramu Naidu S, Merlinsheeba GL, Murali B, Morampudi V, Moses K, Chinni Krishna D, Bala Bhaskar P, Green Synthesis of Silver Nanoparticles Using Argyreia nervosa Leaf Extract and Their Antimicrobial Activity. Plasmonics 18, 1075–1081 (2023). https://doi.org/10.1007/s11468-023-01835-8.

3. Sham HP, Bazett M, Bosiljcic M, Yang H, Luk B, Law HT, **Morampudi V**, Yu HB, Pankovich J, Simon Sutcliffe S, Bressler B, Marshall JK, Fedorak RN, Chen J, Jones M, Gunn H, Kalyan S, and Vallance BA, Immune stimulation using a gut microbe-based immunotherapy reduces disease pathology and improves barrier function in ulcerative colitis (*Fron. Immunol. 2018 Sept* , doi: 10.3389/fimmu.2018.02275) (Impact Factor = 6.4).

4. Allaire JM, **Morampudi V**, Crowley SM, Stahl M, Yu H, Bhullar K, Knodler LA, Bressler B, Jacobson K and Vallance BA. Frontline defenders: goblet cell mediators dictate host-microbe interactions in the intestinal tract during health and disease. (*Physiol Gastrointest Liver Physiol*. 2018 Mar 1;314(3):G360-G377. doi: 10.1152/ajpgi.00181.2017) (Impact Factor= 3.5)

5. Patanakar JV, Wong CK, **Morampudi V**, Gibson WT, Vallance B, Ioannou GN and Hayden M. Genetic ablation of Cyp8b1 preserves host metabolic function by repressing steatohepatitis and altering gut microbiota composition. (*Am J Physiol Endocrinol Metab,* 2018 May 1;314(5):E418-E432 doi: 10.1152/ajpendo.00172.2017) (Impact Factor=4.1)

6. Chung H, Vilaysane A, Lau A, Stahl M, **Morampudi V**, Bondzi-Simpson A, Platnich MJ, Bracey NA, French MC, Beck PL, Chun J, Vallance BA and Muruve D. NLRP3 regulates a non-canonical platform for caspase-8 activation during epithelial cell apoptosis. (*Cell Death Differ*. 2016 Aug;23(8):1331-46 doi: 10.1038/cdd.2016.14) (Impact Factor = 8.2)

7. **Morampudi V**, Graef FA, Stahl M, Dalwadi U, Conlin VS, Huang T, Vallance BA, Yu HB and Jacobson K. Tricellular Tight Junction Protein Tricellulin Is Targeted by the Enteropathogenic Escherichia coli Effector EspG1, Leading to Epithelial Barrier Disruption. (*Infect Immun.* 2016 Dec 29;85(1). pii: e00700-16. doi: 10.1128/IAI.00700-16) (Impact Factor=4.1)

8. **Morampudi V**, Dalwadi U, Bhinder G, Sham HP, Gill SK, Bergstrom KS, Huang T, Ma C, Gibson DL, Jacobson K and Vallance BA. The goblet cell-derived mediator RELM-β accelerates spontaneous colitis in Muc2-deficient mice by promoting commensal microbial dysbiosis. (*Mucosal Immunol*, 2016 Jan 27; doi: 10.1038/mi.2015.140) (Impact Factor = 7.4)

9. **Morampudi V**, Bergstrom KS, Chan JM, Bhinder G, Lau J, Yang H, Ma C, Huang T, Ryz N, Sham HP, Zarepour M, Zaph C, Artis D, Nair M and Vallance BA. Goblet cell derived RELM-β recruits CD4+T cells during infectious colitis to promote protective epithelial cell proliferation. (*PLoS Pathog*. 2015 Aug 18; 11 (8):e1005108) (Impact Factor = 8.1)

10. Wu X, Conlin VS, **Morampudi V**, Ryz N, Nasser Y, Bhinder G, Bergstrom KS, Waterhouse CM, Buchnan MA, William P, Gibson Tm Waschek JA, Vallance BA and Jacobson K. Vasoactive intestinal polypeptide promotes intestinal barrier homeostasis and protection against colitis in mice (*PLoS one*, 2015 May 1; 10(5)e0125225)
(Impact Factor = 4.2)

11. **Morampudi V**, Conlin VS, Dalwadi U, Wu X, Marshall KC, Nguyen C, Vallance BA, Jacobson K. Vasoactive intestinal peptide prevents PKCε-induced intestinal epithelial barrier disruption during EPEC infection. (*Am J Physiol Gastrointest Liver Physiol*. 2015 Mar 1;308(5):G389-402) (Impact Factor = 3.7)

12. Bhinder G, Stahl M, Sham HP, Crowley SM, **Morampudi V**, Dalwadi U, Ma C, Jacobson K, Vallance BA. Intestinal epithelium-specific MyD88 signaling impacts host susceptibility to infectious colitis by promoting protective goblet cell and antimicrobial responses. (*Infect Immun*. 2014 Sep;82(9):375363) (Impact Factor = 4.2)

13. **Morampudi V**, Bhinder G, Wu X, Dai C, Sham HP, Vallance BA, Jacobson K. DNBS/TNBS colitis models: providing insights into inflammatory bowel disease and effects of dietary fat. (*J Vis Exp*. 2014 Feb 27;(84):e51297) (Impact Factor = 1.2)

14. Sham HP, Yu EY, Gulen MF, Bhinder G, Stahl M, Chan JM, Brewster L, **Morampudi V**, Gibson DL, Hughes MR, McNagny KM, Li X, Vallance BA. SIGIRR, a negative regulator of TLR/IL-1R signalling promotes Microbiota dependent resistance to colonization by enteric bacterial pathogens. (*PLoS Pathog*. 2013;9(8):e1003539) (Impact Factor = 8.1)

15. Hekmatdoost A, Wu X, **Morampudi V**, Innis SM, Jacobson K. Dietary oils modify the host immune response and colonic tissue damage following *Citrobacter rodentium* infection in mice.(*Am J Physiol Gastrointest Liver Physiol*. 2013 May 15;304(10):G917-28) (Impact Factor = 3.7)

16. Bhinder G, Sham HP, Chan JM, **Morampudi V**, Jacobson K, Vallance BA. The *Citrobacter rodentium* mouse model: studying pathogen and host contributions to infectious colitis. (*J Vis Exp*. 2013 Feb
19;(72):e50222) (Impact Factor = 1.2)

17. **Morampudi V**, Braun MY, D'Souza S. Modulation of early β-defensin-2 production as a mechanism developed by type I *Toxoplasma gondii* to evade human intestinal immunity. (*Infect Immun*. 2011 May;79(5):2043-50) (Impact Factor = 4.2)

18. **Morampudi V**, De Craeye S, Le Moine A, Detienne S, Braun MY, D'Souza S. Partial depletion of

CD4(+)CD25(+)Foxp3(+) T regulatory cells significantly increases morbidity during acute phase *Toxoplasma gondii* infection in resistant BALB/c mice. (*Microbes Infect*. 2011 Apr;13(4):394-404) (Impact Factor = 2.9).

## SELECTED ORAL PRESENTATIONS

1. **Morampudi V**. Enteropathogenic *E. coli* effector EspG1 targets tricellulin to induce epithelial barrier disruption" invited speaker at Diabetes, Infectious Diseases & Immunology (DIDI) seminar organized at Child and Family Research Institute (CFRI), Vancouver, Canada, Dt: 09-12-2015 Audience: 150.

2. **Morampudi V**. "Resistin Like Molecule-β promotes spontaneous colitis in Muc2 deficient mice by driving commensal microbe dysbiosis" invited speaker at Diabetes, Infectious Diseases & Immunology (DIDI) seminar organized at Child and Family Research Institute (CFRI), Vancouver, Canada, Dt: 08-05-2015 Audience: 150.

3. **Morampudi V**. "RELMβ contributes to host defense during *Citrobacter rodentium* Infection by Recruiting CD4+ve T cells" Invited speaker for $16_{th}$ International Congress of Mucosal Immunology (ICMI 2013) held in Vancouver on 20-07-2013. Audience: 200.

4. **Morampudi V**. RELM-β contributes to host defense during Citrobacter rodentium infection by recruiting CD4+ve T-cells (TGIF seminar organized by Centre for Molecular Medicine and Therapeutics, 25-01-2013) Audience: 100.

5. **Morampudi V**. Modulation of innate immunity in intestinal epithelium discriminates high and low virulent *Toxoplasma gondii* infections", selected for oral presentation on PhD day organized by Université Libre de Bruxelles on 17-12-09 Audience: 200

6. **Morampudi V**. "The capacity to modulate innate immunity of intestinal epithelium discriminates high and low virulence in *Toxoplasma gondii* infections", invited guest to give seminar at Institute of Medical Immunology, Charleroi-Gosselies, Belgium on 24-11-2009 Audience: 30

7. **Morampudi V**. "A study on the modulation of host innate immune responses by *Toxoplasma gondii* strains and its correlation with virulence" seminar at Scientific Institute of Public Health, Brussels, Belgium on16-06-09. Audience: 40

## CONFERENCE PUBLICATIONS

1. Bhinder G, Stahl M, Sham HP, Crowley SM, **Morampudi V**, Dalwadi U, Ma C, Jacobson K, Vallance BA Intestinal Endothelial MyD88 Signalling is Protective During Salmonella-induced Colitis (Abstract and poster International Congress of Mucosal Immunology 2015, Berlin, Germany).

2. **Morampudi V,** Conlin VS, Dalwadi U, Marshall, KC, Nguyen C, Wu X, Buchan AMJ, Vallance B, Jacobson K. Vasoactive Intestinal Peptide Ameliorates EPEC Induced Intestinal Barrier Disruption by Inhibiting PKC-epsilon Activation (Abstract, Digestive Disease Week, Chicago, USA, 06-05-2014).

3. Sham HP, Yu E, Gulen M, Chan J, Bhinder G, Brewster L, **Morampudi V**, Gibson D, Hughes M, Li X, Vallance B**.** SIGIRR limits colitic and epithelial homeostatic responses, but promotes microbiota dependent colonization resistance to enteric bacterial pathogens. (Abstract, Immunology, Honolulu, USA, 05-05-2013).

4. **Morampudi V,** RELM-beta contributes to host defense during *Citrobacter rodentium* Infection by Recruiting CD4+ve T cells (Abstract, International Congress of Mucosal Immunology, Vancouver on 20-07-2013).

5. **Morampudi V**, D'Souza S, A study of the interaction between human intestinal epithelial cells and *Toxoplasma gondii* in order to identify host correlates of virulence associated with distinct parasite genotypes" (Abstract and poster, 2nd European Congress of Immunology, Berlin, Germany Ref: PA02/25, 16-09-2009).

6. Xiujuan Wu, Hekmatdoost A, **Morampudi V**, Innis S, K. Jacosbon K. The effect of dietary oils on Citrobacter rodentium induced colitis Milan (Abstract, $15_{th}$ International Congress of Immunology, 22-08-2013 Ref: P4.04.66)

7. **Morampudi V**. D'Souza S, 'Intestinal epithelium discriminates high and low virulence in *Toxoplasma gondii*" (Abstract and poster, Annual meeting of the Belgian Society of Microbiology on 11-12-2009).

8. Jongert E, De Craeye S, Verhelst D, **Morampudi V**, D'Souza S. Toxoplasmosis - a multidisciplinary approach towards an underestimated zoonotic disease. (Scientific report 2005-2007, Scientific Institute of Beligum Public Health, 25-05-2008)

9. **Morampudi V**. D'Souza S, Evaluation of *Toxoplasma gondii* replication and STAT-3 activation in human intestinal epithelial cells" (Abstract and poster, Annual meeting of the Belgian Immunological Society on 16-11-2007).