Curriculum Vitae

Personal Data

Name: Mohamad Hamad
Nationality: Canadian

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Education

Ph.D. Microbiology & Immunology, 2006, University of North Dakota, School of Medicine & Health Sciences, Grand Forks, ND USA.
Researched pathogenesis and vaccine development for the plague bacteria *Yersinia pestis.*

B.S. Medical Laboratory Technology, American University of Beirut, Beirut, Lebanon.

Honors and Awards

Two first author publications are recommended for their special significance by Faculty of a Thousand, University of Denver 2011, Western University 2012.

The Cedarlane and ATCC Award for Best Postdoctoral Presentation, Western University, 2012.

Student representative of the President's Committee on Campus Climate, University of North Dakota, 2003-2005.

American Society of Microbiology student travel award, University of North Dakota, ND, 2003.

Societies and Associations

American Society for Microbiology, USA.
Canadian Society for Microbiology, Canada.

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Professional Experience/ Career Track

Assistant Professor, Department of Medical Laboratory Sciences, University of Sharjah, UAE, Sep. 2017-Present.

Assistant Professor, Saint James School of Medicine, Saint Vincent & the Grenadines, Jan . 2017-Aug. 2017.

Part time assistant Professor, Department of life Sciences, Lebanese American University, Byblos, Lebanon, Jan 2016- June 2016.

Postdoctoral Research associate, Department of Microbiology and Immunology, School of Medicine. Western University, London, ON, Canada, Nov. 2008-Sep 2013.

Postdoctoral Fellow. Department of Microbiology and Immunology, School of Medicine, University of Colorado, Denver, CO, US, Aug 2006-Nov 2008.

Graduate Teaching Assistant. University of North Dakota, Grand Forks, ND, USA 2003-2005

Graduate Teaching Assistant. Texas Women's University, TX, USA 2000-2001.

Teaching experience

Undergraduate level courses taught to students of medical lab technology, biology, health sciences, nutrition and medicine: Courses taught: Microbiology, bacteriology, mycology, parasitology, virology, and biology.

Research experience

Hands-on expertise working with bacterial pathogens and mice
Expertise in studying DNA, RNA, proteins, carbohydrates and lipids

Researched pathogenesis and vaccine development for the plague bacteria *Yersinia pestis.*

Burkholderia cenocepacia is an opportunistic bacterial pathogen that causes lung infections in cystic fibrosis patients and is very difficult to treat. Researched the biochemical pathways that lead to intracellular survival, lipopolysaccharide modifications, and antibiotic resistance in *B. cenocepacia*.

• Developed a novel genetic screen to efficiently isolate suppressor mutants in essential genes
• Engineered the first B. cenocepacia strain suitable for intracellular survival studies
• Identified the biochemical mechanisms that lead to antimicrobial peptides and gentamicin resistance

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Research experience cont'd

Burkholderia pseudomallei and *Burkholderia mallei* cause life threatening infections in humans, are very difficult to treat, and are considered biowarfare agents. Researched the biochemical pathways that lead to anaerobic survival, pathogenesis, and antibiotic tolerance in *B. pseudomallei* and *B. mallei*.

• Developed the first anaerobic mode to studnt the dormancy and antibiotic tolerance in *B. pseudomallei*
• Created the second CDC approved genetic system for *B. pseudomallei* and *B. mallei*
• Developed RNA extraction, genome wide microarrays, and data analysis protocols for *B. pseudomallei*

Training of undergraduates, graduates students and postdocs in biomedical research.

Publications in Peer-Reviewed Journals

Fathy Mohamad Y, **Hamad M**, Ortega XP, Valvano MA.
The LpxL acyltransferase is required for normal growth and penta-acylation of lipid A in Burkholderia cenocepacia.
Molecular Microbiology. 2017 Jan 13.

Di Lorenzo F, Kubik Ł, Oblak A, Lorè NI, Cigana C, Lanzetta R, Parrilli M, **Hamad MA**, De Soyza A, Silipo A, Jerala R, Bragonzi A, Valvano MA, Martín-Santamaría S, Molinaro A.
Activation of Human Toll-like Receptor 4 (TLR4)•Myeloid Differentiation Factor 2 (MD-2) by Hypoacylated Lipopolysaccharide from a Clinical Isolate of Burkholderia cenocepacia.
Journal of Biological Chemistry. 2015 Aug 28;290(35):21305-21319.

Schmerk CL, Welander PV, **Hamad MA**, Bain KL, Bernards MA, Summons RE, Valvano MA
Elucidation of the Burkholderia cenocepacia hopanoid biosynthesis pathway uncovers functions for conserved proteins in hopanoid-producing bacteria.
Environmental Microbiology. 2015 Mar 17:735-750.

Aubert DF, **Hamad MA**, Valvano MA.
A markerless deletion method for genetic manipulation of Burkholderia cenocepacia and other multidrug-resistant gram-negative bacteria.
Methods Molecular Biology 2014;1197:311-327.

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Publications in Peer-Reviewed Journals Cont'd

Lee TW, Verhey TB, Antiperovitch PA, Atamanyuk D, Desroy N, Oliveira C, Denis A, Gerusz V, Drocourt E, Loutet SA, **Hamad MA**, Stanetty C, Andres SN,Sugiman-Marangos S, Kosma P, Valvano MA, Moreau F, Junop MS.
Structural-functional Studies of B. cenocepacia D-glycero-β-D-manno-heptose 7-phosphate Kinase (HldA) and Characterization of Inhibitors with Antibiotic Adjuvant and Antivirulence Properties.
Journal of Medical Chemistry. 2013 Dec 20:1405-1417.

Aubert DF, O'Grady EP, **Hamad MA**, Sokol PA, Valvano MA.
The Burkholderia cenocepacia sensor kinase hybrid AtsR is a global regulator modulating quorum-sensing signalling.
Environmental Microbiology. 2013 Feb;15:372-385.

Hamad MA, Di Lorenzo F, Molinaro A, Valvano MA.
Aminoarabinose is essential for lipopolysaccharide export and intrinsic antimicrobial peptide resistance in Burkholderia cenocepacia.
Molecular Microbiology. 2012 Sep;85(5):962-974.*
*Recommended at Faculty of 1000 for its special significance by Dr. Victor DiRita and Dr. Jyl Matson, University of Michigan, MI, USA. F1000 Microbiology.

Hamad MA, Austin CR, Stewart AL, Higgins M, Vázquez-Torres A, Voskuil MI.
Adaptation and antibiotic tolerance of anaerobic Burkholderia pseudomallei.
Antimicrobial Agents and Chemotherapy. 2011 Jul; 55(7):3313-2323.*
*Recommended at Faculty of 1000 for its special significance by Dr. Kim Lewis and Dr. Lawrence Mulcahy, Northeastern University, MA, USA. F1000 Pharmacology & Drug Discovery.

Hamad MA, Skeldon AM, Valvano MA.
Construction of aminoglycoside-sensitive Burkholderia cenocepacia strains that are suitable to study intracellular bacteria by the gentamicin protection assay.
Applied & Environmental Microbiology.
2010 May;76(10):3170-3176.

Hamad MA, Zajdowicz SL, Holmes RK, Voskuil MI.
An Allelic Exchange System for Compliant Genetic Manipulation of the Select Agents Burkholderia pseudomallei and Burkholderia mallei.
Gene, 2009 Feb 1;430(1-2):123-131.

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Publications in Peer-Reviewed Journals Cont'd

Jones-Carson J, Laughlin J, **Hamad MA**, Stewart Al., Voskuil MI, Andres Vazquez-Torres A.
Inactivation of [Fe-S] metalloproteins mediates nitric oxide-dependent killing of Burkholderia mallei.
PLoS ONE. 2008 Apr 9;3(4):e1976.

Hamad MA, Nilles ML.
Roles of YopN, LcrG and LcrV in controlling Yops secretion by Yersinia pestis.
Advanced Experimental Medical Biology. 2007;603:225-234.

Hamad MA, Nilles ML.
Structure-function analysis of the C-terminal domain of LcrV from Yersinia pestis.
Journal of Bacteriology. 2007 Sep;189(18):6734-6739.

Oral Presentations

Hamad MA, Di Lorenzo F, Molinaro A, Valvano MA. Oral Presentation 2012. Aminoarabinose is essential for lipopolysaccharide export and intrinsic antimicrobial peptide resistance in Burkholderia cenocepacia. International Burkholderia cepacia working group, Montreal, QC, Canada.

Hamad MA, Valvano MA. Oral presentation 2011. The role of Aminoarabinose in the survival and antimicrobial peptide resistance in *Burkholderia cenocepacia*. Postdoctoral Research Forum, University of Western Ontario, London, ON, Canada.

Hamad MA, Voskuil MI. Oral Presentation 2007. Anaerobic survival and antibiotics tolerance of *Burkholderia pseudomallei*. Invited speaker at the University of North Dakota, Microbiology and Immunology Departmental seminar series. Grand Forks, ND, US.

Hamad MA, Voskuil MI. Poster Presentation 2006. Genetic tools for the manipulation of *Burkholderia pseudomallei* and *Burkholderia mallei*. University of Colorado, Microbiology and Immunology Departmental seminar, Denver, CO, US.

Hamad MA, Nilles ML. Oral Presentation 2005. LcrV interacts with LcrG through a second C-terminal domain to regulate toxin secretion in Yersinia pestis. 25th Annual Frank N. Low Research Day, UNDSMHS, Grand Forks, ND, US.
Poster Presentations

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Poster Presentations

Hamad MA, Di Lorenzo F, Molinaro A, Valvano MA. Poster Presentation 2012. Aminoarabinose is essential for lipopolysaccharide export and intrinsic antimicrobial peptide resistance in *Burkholderia cenocepacia*. Banff infectious disease conference, Banff, AB, Canada.

Hamad MA, Di Lorenzo F, Molinaro A, Valvano MA. Poster Presentation 2011. Aminoarabinose is essential for lipopolysaccharide export and intrinsic antimicrobial peptide resistance in *Burkholderia cenocepacia*. Infection and Immunity Research Forum, Western, London, ON, Canada.

Hamad MA, Skeldon AM, Valvano MA. Poster Presentation 2010. Construction of aminoglycoside-sensitive *Burkholderia cenocepacia* strains that are suitable to study intracellular bacteria by the gentamicin protection assay. Banff infectious disease conference, Banff, AB, Canada.

Hamad MA, Voskuil MI. Poster Presentation 2006. Tools for the genetic manipulation of *Burkholderia pseudomallei* . RMCE meeting, Fort Collins, CO, US.

Hamad MA, Nilles ML. Poster Presentation 2004. LcrV interacts with LcrG through a second C-terminal domain. 2004 ASM general meeting, New Orleans, IL, US.

Hamad MA, Nilles ML. Poster Presentation 2004. Role of LcrV in the regulation of TTSS of *Yersinia pestis*. Great Plains Infectious Disease Conference, University of Kansas, Lawrence, KS, US.

Hamad MA, Nilles ML. Poster Presentation 2003. The C-terminal Domain of LcrV is involved in its secretion regulation and translocation ability. Abstract (poster), 23rd Annual Frank N. Low Research Day, UNDSMHS, Grand Forks, ND, US.

Thomas Henderson, **Hamad MA**, Sun J, Wei J , Green B, Kimmel B, Nilles ML. Poster Presentation 2003. In-vitro proteomic analysis of the plague. Abstract (poster), 23rd Annual Frank N. Low Research Day, UNDSMHS, Grand Forks, ND, US.

Hamad MA, Nilles ML. Poster Presentation 2002. Structure function analysis of the C-terminal domain of LcrV. Abstract (poster), 22nd Annual Frank N. Low Research Day, UNDSMHS, Grand Forks, ND, US.