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Education:

1987-1993 MD (MBBS)
Beijing Medical University, Beijing, China
1993-1994 Diploma in Chinese Medicine
Beijing University of Chinese Medicine, China
1996-2001 PhD in Immunogenetics
National University of Singapore, Singapore
2001-2006 Postdoctoral Fellow
Thomas Jefferson University, Philadelphia, PA

Postgraduate Training and Fellowship Appointments:

1992-1993 Clinical Intern in Medicine and Surgery
Beijing Medical University, China
1994-1995 Clinical Intern in Dermatology
Beijing Medical University, China
2001-2006 Post-doctoral fellowship training in Cellular and Molecular Immunology
Mentor: Dr. Tim Manser
Department of Microbiology and Immunology
Thomas Jefferson University

Faculty Appointments:

2006-2008 Research Instructor in Microbiology and Immunology
Thomas Jefferson University
2008-2012 Research Assistant Professor in Microbiology and Immunology
Thomas Jefferson University
2012-Mar Assistant Professor in Microbiology and Immunology
Thomas Jefferson University
2012-Sep Assistant Professor in Microbiology and Immunology
Penn State Hershey Medical College
2016- Associate Professor (Tenured), Microbiology/Immunology, Pennsylvania State University
College of Medicine (Hershey, PA)
2016- Associate Professor of Medicine (Joint faculty), Division of Rheumatology, Pennsylvania
State University College of Medicine (Hershey, PA)

Awards and Other Professional Activities

1987-1995 Scholarship from the Chinese Government to study Medicine in China
1996-2001 Scholarship from the National University of Singapore to pursue PhD
2005-present Member, The American Association of Immunologists (AAI)
2007 Travel award to attend Arthritis Foundation research conference in Atlanta, GA
2007-2008 Arthritis National Research Foundation (ANRF) scholar award
2008-2009 Virginia Riddle Memorial scholar award associated with Arthritis National Research
Foundation research grant
2009-present Editorial board, *Frontiers in B Cell Biology*
2012 Travel Award from the American Association of Immunologists (AAI) to attend the annual
meeting in Boston, MA (May 4-8, 2012)

2012 May Co-chaired a session "Basic Autoimmunity Block symposium" in the American Association of Immunologists meeting in Boston, MA (May 4-8, 2012)

2013-2013-present Member of the Review Editorial Board of the journal *Frontiers in Cell Death and Survival*
Ad Hoc reviewer of the Immunology and Dermatology (IMMA) study section Department of Veterans Affairs

2014 Travel Award from the American Association of Immunologists (AAI) to attend the annual meeting in Pittsburgh, PA (May 2-6, 2014)

2014- Ad Hoc reviewer of the NIAID Special Emphasis Panel (SEP) ZAI1 TT-M S1, NIH support for Conferences and Scientific Meetings (Parent R13/U13)

2015 Feb- Ad Hoc reviewer of the NIAID Special Emphasis Panel (SEP) ZRG1 IMM-D (90) related to hypersensitivity and immune-mediated diseases

2015 Travel Award from the American Association of Immunologists (AAI) to attend the annual meeting in New Orleans, LA (May 8-12, 2015)

2015 May- Co-chaired a session "Basic Autoimmunity Block symposium" in the American Association of Immunologists meeting in New Orleans, LA (May 8-12, 2015)

2015 - Review abstracts for the B cell biology and targets in autoimmune disease section of American College of Rheumatology (ACR) annual meeting, San Francisco, CA (Nov 7-11).

2015- Ad Hoc reviewer of the NIAID ZAI1 MM-I (S1) Investigator Initiated Program Project Applications (P01) and NIAID Clinical Trial Planning Grant (R34)

2016- Ad Hoc reviewer of the Israel Science Foundation (ISF)

2016- Editorial board, *Arthritis Research and Therapy*

2017- Associate Editor of *The Journal of Immunology*

2017- Ad Hoc reviewer of the HAI study section

Teaching and Mentoring:

1996-2001 Taught medical students and supervised Master's Degree students, National University of Singapore, Singapore

2008-2012 Co-directed the Journal Club for Immunology and Microbial Pathogenesis (IMP) PhD students, Microbiology and Immunology, Thomas Jefferson University
Course title: Current literature in Immunology and Microbial Pathogenesis (IMP 712, IMP 722 and IMP 732)

2009-2012 Lectured in Immunogenetics for Immunology and Microbial Pathogenesis and Genetics PhD students
Course title: Genetics of Model Organisms (GE 612)

2010-2012 Lectured in Advanced Molecular Immunology course (IMP 632) for Immunology and Microbial Pathogenesis PhD students

2013- Guest Lecturer in Immunology Course for Pharmacology Students at Thomas Jefferson University: (1) Antibody Structure and Function; (2) Generation of antibody and T cell antigen receptor genes

2001-2007 Supervised post-doctoral fellow (Raja Vuyyuru), PhD (Francis Coffey) and Master's Degree (Yeremi Canizales) students during post-doctoral and junior faculty training in Tim Manser's laboratory, Microbiology and Immunology, Thomas Jefferson University

2008-2012 Served as a judge for annual Sigma Xi students research day

2008-2013 Supervised and mentored Tahsin Khan, a Master's Degree student in my laboratory

2010-2012 Served on several Master's Degree (Yeremi Canizales, Anthony Gatt, Kerstin Hooper) and PhD students (Amber Gerske, Andrew Lytle and Emily Bongiorno) thesis committee

2011-2012 Participated in the preliminary examination for PhD students at Thomas Jefferson University

2011-2014 Supervised and mentored Eric Wong, a PhD student recently graduated from my laboratory

2013-present Supervising and mentoring Phil Domeier and Stephanie Schell, PhD students in my laboratory

2012-present Supervising and mentoring Chetna Soni and Sathi Babu Chodiseti, two post-doctoral fellows in my laboratory

2013- Serving on PhD students (Phil Domeier, Saumya Marus, Nick Parekh and Taryn Mockus) thesis committee

2013- Teaching in PBL courses for Medical Students at Hershey Medical College

2013- Teaching in the "Concepts in Immunology" course for PhD and MD/PhD Students
2015- Course director of the immunology course- Principles of Immunology -part B for PhD and MD/PhD Students

Membership in Professional and Scientific Societies:

2005-present The American Association of Immunologists (AAI)
2015- American College of Rheumatology (ACR)

Extramural Recognition:

2007-present Serving as an ad-hoc reviewer of the following journals: The Journal of Immunology, European Journal of Immunology, Blood, Immunology and Cell Biology, Cellular and Molecular Life Sciences, Cellular and Molecular Immunology, Journal of Leukocyte Biology
2010-present Member of the Review Editorial Board of the journal Frontiers in B cell Biology
2013- Member of the Review Editorial Board of the journal Frontiers in Cell Death and Survival
2012 May Co-chaired a session "Basic Autoimmunity Block symposium" in the American Association of Immunologists meeting in Boston, MA (May 4-8, 2012)
2013-present Ad Hoc reviewer of the Immunology and Dermatology (IMMA) study section Department of Veterans Affairs (served two sessions already)
2014- Ad Hoc reviewer of the NIAID special emphasis panel ZAI1 TT-M S1, NIH support for Conferences and Scientific Meetings (Parent R13/U13)
2015- Ad Hoc reviewer of the NIAID Special Emphasis Panel (SEP) ZRG1 IMM-D (90) related to hypersensitivity and immune-mediated diseases
2015 May- Co-chaired a session "Basic Autoimmunity Block symposium" in the American Association of Immunologists meeting in New Orleans, LA (May 8-12, 2015)
2015 - Review abstracts for the B cell biology and targets in autoimmune disease section of American College of Rheumatology (ACR) annual meeting, San Francisco, CA (Nov 7-11, 2015).

Lectures by invitation/Conference Presentations:

Nov, 1998 "Genetic study of murine lupus in NZB x (NZW x PL/J) mice". 10th International Congress of Immunology, New Delhi, India
Sep, 2000 "The New Zealand White contribution to murine lupus in (NZW x PL/J) x NZB backcross mice". Meeting of the European Federation of Immunology Society, Poznan, Poland
Jun, 2003 "Normal Induction but Attenuated Progression of Germinal Center Responses in BAFF and BAFF-R Signaling-Deficient Mice". FASEB summer research conference (Lymphocytes and the Immune System), Tucson, Arizona
April, 2008 "B cell Tolerance and lupus/SLE". Rheumatology Department, Thomas Jefferson University, Philadelphia
May, 2008 "B cell tolerance and Germinal centers". Drexel Institute for Biotechnology and Virology Research (DIBVR) and Pennsylvania Biotechnology Center
Mar, 2009 "B cell tolerance and immune-mediated nephritis in systemic lupus erythematosus". Microbiology and Immunology, Temple University, Philadelphia
Sep, 2009 "B cell tolerance and immune-mediated nephritis in systemic lupus erythematosus". Rheumatology, Albert Einstein College of Medicine, New York
July, 2010 "Peripheral B cell responses, tolerance and autoimmunity". Immunology, University of Texas Southwestern Medical Center, Dallas, TX
May, 2011 "The regulation of the germinal center tolerance pathway by the receptor tyrosine kinase Mer". Temple University Autoimmunity Center annual retreat
May, 2011 "The role of the germinal center tolerance pathway in systemic autoimmunity" Immunotherapy Center, Georgia Health Sciences University, Augusta, GA.
July, 2011 "The role and mechanisms of loss of peripheral B cell tolerance in lupus". Columbia Center for Translational Immunology (CCTI), Columbia University Medical Center
Mar, 2012 "Loss of peripheral B cell tolerance in lupus" Microbiology and Immunology, Penn State Hershey Medical College

- Jan, 2012 "The role and mechanisms of loss of peripheral B cell tolerance in lupus" University of South Carolina School of Medicine, Columbia, SC
- Jan, 2013 "Loss of peripheral B cell tolerance in lupus" Department of Cellular and Molecular Physiology, Penn State Hershey Medical College
- Jan, 2013 "Loss of peripheral B cell tolerance in lupus" Department of Pharmacology, Penn State Hershey Medical College
- Sep, 2014 "Toll-like receptors in the development of germinal centers and autoimmunity", 3rd International Conference and Exhibition on Clinical and Cellular Immunology, Sep 29-Oct 1, 2014, Baltimore, MD
- Oct, 2014 "Toll-like receptors in the development of spontaneous germinal centers and autoimmunity", 17th Annual Upstate New York Immunology Conference
- April, 2015 "Toll-like receptors and SLAM molecules in the development of spontaneous germinal centers and autoimmunity", The University of Texas Health Science Center at San Antonio, TX
- Sept, 2015 "Spontaneous germinal centers and lupus-like autoimmunity". Virginia Tech Fralin Life Science Institute, VA.
- Jan, 2016 "Toll-like receptor and interferon receptor signaling in the development of spontaneous germinal center and autoimmunity". Indiana University School of Medicine, Indiana.
- Aug, 2016 Invited Speaker "Toll-like receptor and interferon signaling in the development of spontaneous germinal centers and autoimmunity". *The Sixth International Conference on B cells and autoimmunity, Nantou, Taiwan.*
- Aug, 2016 "Interferon-g receptor and STAT1 signaling in B cells are central to spontaneous germinal formation and autoimmunity"- *presented in the International Congress of Immunology, Melbourne, Australia.*
- April, 2017 Invited Speaker "Mechanisms of the dysregulated germinal center response in SLE autoimmunity". Bortree Seminar Series at the University Park of Penn State University.
- April, 2017 Invited Speaker "Mechanisms of the dysregulated germinal center response in SLE autoimmunity". Institute of Biophysics, Academia Sinica, Beijing, China.

Publications-Peer-Reviewed:

1. **Ziaur S.M. Rahman**, Soe-Kyaw Tin, Buenaventura PNL, Ho CH, Yap EP, Yong RY and Koh DR: A Novel susceptibility locus on chromosome 2 in the (New Zealand Black x New Zealand White) F1 hybrid mouse model of systemic lupus erythematosus. *The Journal of Immunology*, 2002, 168: 3042-49.
2. **Ziaur S.M. Rahman**, Sambasiva P. Rao, Susan Kalled and Tim Manser: Normal Induction but Attenuated Progression of Germinal Center Responses in BAFF and BAFF-R Signaling-Deficient Mice. *The Journal of Experimental Medicine*, 2003, 198: 1157-69.
3. **Ziaur S.M. Rahman** and Tim Manser: B cells expressing Bcl-2 and a signaling-impaired BAFF (B Cell Activating Factor Belonging to the TNF Family)-specific receptor fail to mature and are deficient in the formation of lymphoid follicles and germinal centers: *The Journal of Immunology*, 2004, 173: 6179-88.
4. **Ziaur S.M. Rahman** and Tim Manser: Failed upregulation of the inhibitory IgG Fc receptor FcγRIIB on germinal center B cells in autoimmune-prone mice is not associated with deletion polymorphisms in the promoter region of the FcγRIIB gene: *The Journal of Immunology*, 2005, 175: 1440-9.
5. Hongxia Z. Imtiyaz, Steven Rosenberg, Yuheng Zhang, **Ziaur S.M. Rahman**, Ying J. Hou, Tim Manser and Jianke Zhang: The Fas-Associated Death Domain Protein (FADD) is required in B cell development, apoptosis, and TLR-induced proliferative responses: *The Journal of Immunology*, 2006, 176: 6852-61.
6. **Ziaur S.M. Rahman***, Boris Alabyev and Tim Manser: FcγRIIB regulates autoreactive primary antibody-forming cell, but not germinal center B cell, activity: *The Journal of Immunology*, 2007, 178: 897-907. *Corresponding author.

7. Boris Alabyev, **Ziaur S.M. Rahman** and Tim Manser: Quantitatively reduced participation of anti-nuclear antigen B cells that down-regulate B cell receptor during primary development in the germinal center/Memory B cell response to foreign antigen: *Journal of Immunology*, 2007, 178: 5623-34.
8. **Ziaur S.M. Rahman**, Haitao Niu, Daniel Perry, Edward Wakeland, Tim Manser, and Laurence Morel: Expression of the autoimmune *Fcgr2b* NZW allele fails to be up-regulated in germinal center B cells and is associated with increased IgG production: *Genes and Immunity*, 2007, 1-9.
9. Chun Xie, **Ziaur S. M. Rahman**, Shangkui Xie, Jiankun Zhu, Yong Du, Xiangmei Qin, Hui Zhou, Xin J. Zhou, and Chandra Mohan: Strain distribution pattern of immune nephritis—a follow-up study: *International Immunology*, 2008, 20: 719-28.
10. Raja Vuyyuru, Chandra Mohan, Tim Manser, and **Ziaur S. M. Rahman**: The lupus susceptibility locus *Sle1* breaches peripheral B cell tolerance at the antibody-forming cell and germinal center checkpoints. *Journal of Immunology*, 2009, 183: 5716-27.
11. **Ziaur S.M. Rahman***, Wen-Hai Shao, Tahsin N. Khan, Yuxuan Zhen, Philip L. Cohen. Impaired apoptotic cell clearance in the germinal center by Mer-deficient tingible body macrophages leads to enhanced antibody-forming cell and germinal center responses. *Journal of Immunology*, 2010, 185:5859-68. ***Corresponding author.**
12. **Ziaur S.M. Rahman**: Impaired clearance of apoptotic cells in germinal centers: implications for loss of B cell tolerance and induction of autoimmunity. *Immunol Res.* 2011 Oct 30 (e-publication).
13. Eric B. Wong, Tahsin N. Khan and **Ziaur S.M. Rahman**. The lupus-prone NZM2410/NZW strain derived *Sle1b* sub-locus alters the germinal center checkpoint in female mice in a B cell intrinsic manner. *Journal of Immunology*, 2012, 189(12):5667-81.
14. Tahsin N. Khan, Eric B. Wong, Chetna Soni and **Ziaur S.M. Rahman**. Prolonged apoptotic cell accumulation in germinal centers of Mer-deficient mice causes elevated B cell and CD4⁺ Th cell responses leading to autoantibody production. *Journal of Immunology*, Feb 15, 2013; 190(4).
15. Chetna Soni, Eric B. Wong, Phillip P. Domeier, Tahsin N. Khan, Takashi Satoh, Shizuo Akira and **Ziaur S.M. Rahman**. B cell-intrinsic TLR7 signaling is essential for the development of spontaneous germinal centers. *Journal of Immunology*, 2014, 193: e-published on Sep 24th.
16. Eric B. Wong, Chetna Soni, Alice Y. Chan, Phillip P. Domeier, Shwetank, Thomas Abraham⁴, Nisha Limaye, Tahsin N. Khan, Melinda J. Elias, Sathi Babu Chodiseti, Edward K. Wakeland and **Ziaur S.M. Rahman**. B cell-intrinsic CD84 and Ly108 maintain germinal center B cell tolerance. *Journal of Immunology*, 2015, published ahead of print March 23, 2015, doi:10.4049/jimmunol.1403023.
17. Chetna Soni, Phillip P. Domeier, Eric B. Wong, Shwetank, Tahsin N. Khan, Melinda J. Elias, Stephanie L. Schell, Aron E. Lukacher, Timothy K. Cooper, and **Ziaur S.M. Rahman**. Distinct and synergistic roles of FcγRIIB deficiency and 129 strain-derived SLAM family proteins in the development of spontaneous germinal centers and autoimmunity. *Journal of Autoimmunity* (2015), <http://dx.doi.org/10.1016/j.jaut.2015.06.011>.
18. Domeier PD, Chodiseti SB, Soni C*, Schell SL, Elias MJ, Wong EB, Cooper T, Kitamura D, and **Rahman ZS**. Interferon-γ receptor and STAT1 signaling in B cells are central to spontaneous germinal center formation and autoimmunity. *J. Exp. Med.*, e-published ahead of print, April 11, 2016, doi:10.1084/jem.20151722. (* Equal second authorship).
19. Spontaneous germinal centers and autoimmunity. Domeier PP, Schell SL, **Rahman ZS**. *Autoimmunity*. 2017 Feb;50(1):4-18. doi: 10.1080/08916934.2017.1280671.
20. A systemic macrophage response is required to contain a peripheral poxvirus infection. Davies ML, Parekh NJ, Kaminsky LW, Soni C, Reider IE, Krouse TE, Fischer MA, van Rooijen N, **Rahman ZSM**, Norbury CC. *PLoS Pathog.* 2017 Jun 14;13(6):e1006435. doi: 10.1371/journal.ppat.1006435. eCollection 2017 Jun.