

Dr. Md. Zahir Uddin Rubel
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Date of Birth: 12 September 1992

Education

- 2021-2025** **Ph.D., Molecular Biology and Mucosal Immunology**
Hokkaido University, Japan
Supervisor: Osamu Ichii, D.V.M., Ph.D.
Dissertation Title: “Morphometric and molecular analysis of mucosal immunity in the gastrointestinal tract of animals”
- 2017-2018** **Master of Science in Poultry Science (Thesis)**
Sher-e-Bangla Agricultural University, Bangladesh
Thesis: “Effects of Spirulina as an alternative to antibiotics on broiler growth and health”
- 2012-2016** **Bachelor of Veterinary Medicine and Animal Science (DVM equivalent)**
Sher-e-Bangla Agricultural University, Bangladesh

Professional Training and Workshops

- **Translational Molecular Imaging:** Trained under **Prof. Dr. Frauke Alves** at the **Max Planck Institute and University Medical Center Göttingen**, focusing on high-resolution imaging techniques, molecular probes, and optimizing diagnostic and therapeutic strategies for cancer and lung diseases.
- **Resilience to Heat Stress: A Systems Biology Approach:** Completed training with **Prof. Dr. Cristina Lecchi** at the Laboratory of Pathology, Faculty of Veterinary Medicine, University of Milan. The training covered Peripheral Blood Mononuclear Cells, purification, exosome isolation, protein quantification, cell viability assays, and miRNA quantification via qPCR and digital PCR.

Research Experience

Ph.D. Research | Hokkaido University, Japan

- Investigated autoimmune-induced morphological changes in rectal mucosa-associated lymphoid tissues (RMALT) in MRL/MpJ-*Fas*^{lpr/lpr} mice.
- Studied age- and sex-related differences in RMALT in chickens using advanced histological and immunological techniques.
- Focused on immune cell organization and structural remodeling through confocal microscopy and 3D histology modeling.

Research Collaborations

- Conducted lipidomic analysis of kidneys in murine models of urinary obstruction.
- Investigated double-negative T cells and their immunological functions.
- Explored $\gamma\delta$ T-cell activation and its role in psoriasis pathogenesis.

Research Assistant | Hokkaido University, Japan (2021–Present)

- Performed comprehensive histological and molecular analysis on gut-associated lymphoid tissues (GALT).
- Conducted experimental surgeries and supervised animal care (mice and chickens).

Research Profile

Areas and Interests:

Mucosal Immunology, Histopathology, Molecular Biology, Microbiology

Google Scholar Profile:

Total Articles: 10, Articles published as first author: 03.

Google Scholar Link:

[Google Scholar](#)

ResearchGate Link:

[ResearchGate](#)

Research Skills

- Animal Model: Competent in the handling and surgery of experimental animals like mice and rats, and different animal experiments like Unilateral Ureteric Obstruction (UUO) mice model, autoimmune disease model in mice.
- Cell culture technique: Primary and secondary culture of immune cells, epithelial cells, and lymphoid tissue explants
- Molecular Techniques: Protein extraction, Extraction of mRNA, synthesis of cDNA, RT-PCR analysis, western blot analysis, Simple western blot, immunostaining, gel electrophoresis, biochemical assay by ELISA and flow cytometry.
- Histological Investigation (tissue processing, sectioning, slide preparation, and staining of muscle, heart, intestine, liver, and kidney tissue)
- Capable of operating phase-contrast microscope (Keyence)
- Research protocols development, research proposal and scientific articles writing, data analysis.
- Software and Data Analysis: ImageJ, QuPath, R, SPSS, Microsoft Office Suite, and Adobe Illustrator

Peer-Reviewed Publications (selected)

1. **Rubel MZU**, Namba T, Hiraishi M, Ichii O. Age- and sex-dependent morphological alterations of rectal mucosa-associated lymphoid tissue in chickens (*Gallus gallus domesticus*). 2025. *Poult. Sci.* 104(11):105846.
2. **Rubel MZU**, Masum MA, Namba T, Hiraishi M, Kon Y, Ichii O. Sex-related differences in the morphology of rectal mucosa-associated lymphoid tissues in C57BL/6NCrSlc mice. *Histol Histopathol.* 2025 Aug;40(8):1195-1208. doi: 10.14670/HH-18-865.
3. **Rubel MZU**, Ichii O, Namba T, Masum MA, Chuluunbaatar T, Hiraishi M, Nakamura T, Kon Y. Exp Anim. Systemic autoimmune abnormalities alter the morphology of mucosa-associated lymphoid tissues in the rectum of MRL/MpJ-Faslpr/lpr mice. 2024 Jul 9;73(3):270-285. doi: 10.1538/expanim.23-0129.
4. Akter R, Masum MA, Biswas S, **Rubel MZU**, Sarkar SK, Islam MS, Golbar HM, Alam ME, Rakib MA, Isalm Khan MZ. Clarification of a unique mucosal vaccination route for improved systemic and mucosal immune response in broiler. *Heliyon.* 2024 Oct 30;10(20):e39621. doi: 10.1016/j.heliyon.2024.e39621.
5. Gowda D, Masum MA, B Gowda SG, Shekhar C, **Rubel MZU**, Kira S, Ichii O, Kon Y, Chiba H, Hui SP. Lipidomic study of kidney in a mouse model with urine flow obstruction. *Sci Rep.* 2024 Aug 5;14(1):18042. doi: 10.1038/s41598-024-68270-5.
6. Wang S, Kozai M, Hiraishi M, **Rubel MZU**, Ichii O, Inaba M, Matsuo K, Takada K. Roles of tumor necrosis factor-like ligand 1A in $\gamma\delta$ T-cell activation and psoriasis pathogenesis. *Front Immunol.* 2024;15:1340467. doi: 10.3389/fimmu.2024.1340467.
7. Hiraishi M, Namba T, Nakamura T, **Rubel MZU**, Kon Y, Ichii O. Altered morphology of mucosa-associated lymphoid tissues and epithelium in the nasal cavity and lacrimal apparatus in autoimmune disease-prone MRL/MpJ-Faslpr/lpr mice. *Cell Tissue Res.* 2025 Mar 25;. doi: 10.1007/s00441-025-03966-2.
8. **Rubel MZU**, Beg MAH, Maksuda B, Mahfuj UM. Effect of dietary supplement of algae (*Spirulina platensis*) as an alternative to antibiotics on growth performance and health status of broiler chickens. *J. Poult. Sci.* 2019;18:576-84. DOI: 10.3923/ijps.2019.576.584

Conference Presentations (Oral)

1. The 166th Annual Meeting of the Japanese Society of Veterinary Science — September 5–8, 2023, Tokyo University of Agriculture and Technology, Tokyo, Japan.
2. The Joint Symposium of the 21st Annual Meeting of AAVS and the 11th SaSSOH — September 13–14, 2023, Hokkaido University, Sapporo, Japan.
3. The 4th Joint Meeting of Veterinary Science in East Asia — September 8–9, 2024, Obihiro University of Agriculture and Veterinary Medicine, Hokkaido, Japan.
4. The 9th Congress of the Asian Association of Veterinary Anatomists (Asian AVA), in association with the Philippine Association of Veterinary Anatomists (PAVA) — October 24–25, 2024, Los Baños, Laguna, Philippines.

Awards and Scholarships

- **MEXT Research Fellowship**, Japan (2021–2025)
- **Visting research Grant**, Max Planck Institute and University Medical Center Göttingen, Germany (2025)
- **WISE Grant**, Hokkaido University, Japan (2022–2023)
- **Prime Minister Gold Medal**, Government of Bangladesh (2016)
- **Five Consecutive Dean's Awards**, Sher-e-Bangla Agricultural University (2012–2015)

Professional Experience

Assistant Professor

- Sher-e-Bangla Agricultural University, Bangladesh (2018–Present)
- Taught courses on avian nutrition, poultry pathology, and immunology.
- Supervised undergraduate research projects and organized workshops on histological and molecular techniques.

Teaching Assistant

- Hokkaido University, Japan (2021–2025)
- Assisted in anatomy, histology, and immunology courses, mentoring undergraduate and master's students.

Professional Membership

- Asian Association of Veterinary Anatomists (AAVA)
- Bangladesh Veterinary Council (BVC)
- **English Proficiency:** IELTS Band 6.5 (Proficient in academic writing and communication)

References

Osamu Ichii, D.V.M., Ph.D.

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Assist Prof. Takashi Namba, D.V.M., Ph.D.

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