

Md. Zahir Uddin Rubel

Ph.D. Candidate

Laboratory of Anatomy, Faculty of Veterinary Medicine, Hokkaido University, Japan

Date of Birth: 12 October 1992

Bibliography: Google Scholar, LinkedIn

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Objective

Dedicated researcher with expertise in gut mucosal immunity, mucosa-associated lymphoid tissues (MALT), and advanced histological and molecular techniques. Passionate about bridging human and veterinary health through One Health approaches, with a focus on unraveling immune mechanisms and mucosal biology to contribute to translational research benefiting both human and animal health.

Education

Ph.D. in Mucosal Immunity

Hokkaido University, Japan

Dissertation: “Morphometric and molecular analysis of mucosal immunity in the gastrointestinal tract of animals”

Master of Science in Poultry Science

Sher-e-Bangla Agricultural University, Bangladesh (2018)

Thesis: “Effects of Spirulina as an alternative to antibiotics on broiler growth and health”

Bachelor of Veterinary Medicine and Animal Science (B.Sc. Vet. Sci & AH)

Sher-e-Bangla Agricultural University, Bangladesh (2016)

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).

Technical Skills:

- **Imaging and Analysis:** Confocal microscopy, advanced electron microscopy, 3D histology modeling, and image analysis.
- **Histological Techniques:** Immunohistochemistry, immunofluorescence, H&E, PAS, Alcian Blue, Masson's trichrome, toluidine blue, Gram staining, silver impregnation, Oil Red O, and Giemsa staining.
- **Molecular Biology:** qPCR, RNA/DNA extraction, gel electrophoresis, western blotting, and sequencing.
- **Cell Culture:** Primary and secondary culture of immune cells, epithelial cells, and lymphoid tissue explants.
- **Software and Data Analysis:** ImageJ, QuPath, R, SPSS, Microsoft Office Suite, and Adobe Illustrator.

Publications

- 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-*Fas^{lpr/lpr}* mice. *Cell Tissue Res.* 2025 Mar 25;. doi: 10.1007/s00441-025-03966-2.
- **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.* 2024 Dec 26;;18865. doi: 10.14670/HH-18-865. PMID: 39782498.
- 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.
- 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.
- **Rubel MZU**, Ichii O, Namba T, Masum MA, Chuluunbaatar T, Hiraishi M, Nakamura T, Kon Y. Systemic autoimmune abnormalities alter the morphology of mucosa-associated lymphoid tissues in the rectum of MRL/MpJ-*Fas^{lpr/lpr}* mice. *Exp Anim.* 2024 Jul 9;73(3):270-285. doi: 10.1538/expanim.23-0129.
- 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.

Conference Presentations

- *Age and sex-related morphological differences of RMALT in chickens.* 9th Congress of Asian Association of Veterinary Anatomists 2024 (Oral).
- *Sex-related differences in RMALT in mice.* 4th Joint Meeting of Veterinary Science in East Asia 2024 (Oral).

Awards and Scholarships

MEXT Research Fellowship, Japan (2021–Present)

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 (Deputation)

- 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–Present)
 - Assisted in anatomy, histology, and immunology courses, mentoring undergraduate and master’s students.
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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

1. Prof. Osamu Ichii, D.V.M., Ph.D.
Laboratory of Anatomy, Faculty of
Veterinary Medicine, Hokkaido
University, Japan
Email: ichi-o@vetmed.hokudai.ac.jp
2. Prof. Md. Abdul Masum, D.V.M., Ph.D.
Faculty of Animal Science & Veterinary
Medicine, Sher-e-Bangla Agricultural
University, Bangladesh
Email: masum@sau.edu.bd
3. Assist Prof. Takashi Namba, D.V.M., Ph.D.
Laboratory of Anatomy, Faculty of Veterinary
Medicine, Hokkaido University, Japan
Email: t-namba@vetmed.hokudai.ac.jp

Complete List of Published Work in My Bibliography:

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