

Mohammed S. Razzaque, MBBS, PhD

Professor of Pathology
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Contact Information

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Education & Training

MBBS (Medicine), Chittagong Medical College, Chittagong, Bangladesh

PhD (Pathology), Nagasaki University School of Medicine, Nagasaki, Japan

Work Experience

- Instructor, Department of Oral Medicine & Diagnostic Sciences, Harvard School of Dental Medicine, Boston, Massachusetts, USA
- Assistant Professor, Department of Oral Medicine, Harvard School of Dental Medicine, Boston, Massachusetts, USA
- Visiting Professor, Department of Oral Health Policy & Epidemiology, Harvard School of Dental Medicine, Boston, Massachusetts, USA
- Professor, Department of Pathology, Saba University School of Medicine, Saba, Dutch Caribbean
- Professor, Department of Pathology, Lake Erie College of Osteopathic Medicine, Erie, Pennsylvania, USA

Professional Memberships

- American Society of Nephrology
- International Society of Nephrology

Honors & Awards

Recipient of “Excellence in Tutoring Award” from Academy Center for Teaching and Learning by Harvard Medical School (2011-12) & (2014-15). The award is given by the Harvard Medical School, based on the evaluations provided by the participating Medical and Dental Students.

Research Focus

Dr. Razzaque's research primarily focuses on two areas: 1) exploring the fundamental mechanisms of mineral ion metabolism in health and disease, including conditions that cause premature aging, and 2) investigating the role of subcellular signaling in the development of tumors and associated complications, such as cachexia. Dr. Razzaque has established collaborative research relationships with various institutes in the U.S., Europe, and Japan. His research findings have been published in peer-reviewed scientific journals, including 'Cancer Cell', 'PNAS', 'Journal of Cell Biology', 'FASEB Journal', 'Cell Reports', 'JBC', 'Nature Review Endocrinology', 'MCB', 'Developmental Cell', 'American Journal of Pathology', 'Trends in Endocrinology & Metabolism', and 'Trends in Molecular Medicine'. Dr. Razzaque has also been awarded an R01 grant from the National Institute of Health (NIH) as a Principal Investigator.

Publications

Dr. Razzaque has made significant contributions to the fields of mineral ion metabolism and cancer biology research, as evidenced by his extensive publication record. He has authored over **100** peer-reviewed manuscripts in top-ranking journals, with the active involvement of students in many of his publications. His expertise and research have had a substantial impact on the scientific community. Selected representative publications are listed below.

1. Hurwitz E, Parajuli P, Ozkan S, Prunier C, Nguyen TL, Campbell D, Friend C, Bryan AA, Lu TX, Smith SC, **Razzaque MS**, Xu K, Atfi A. Antagonism between Prdm16 and Smad4 specifies the trajectory and progression of pancreatic cancer. *J Cell Biol*. 2023; 222(4):e202203036. doi: 10.1083/jcb.202203036.

2. Ramakrishnan G, Parajuli P, Singh P, Friend C, Hurwitz E, Prunier C, **Razzaque MS**, Xu K, Atfi A. NF1 loss of function as an alternative initiating event in pancreatic ductal adenocarcinoma. *Cell Report*. 2022; 41(6):111623. doi: 10.1016/j.celrep.2022.111623.
3. He P, Mann-Collura O, Fling J, Edara N, Hetz R, **Razzaque MS**. High phosphate actively induces cytotoxicity by rewiring pro-survival and pro-apoptotic signaling networks in HEK293 and HeLa cells. *FASEB J*. 2021; 35(1):e20997. doi: 10.1096/fj.202000799RR.
4. Parajuli P, Singh P, Wang Z, Li L, Eragamreddi S, Ozkan S, Ferrigno O, Prunier C, **Razzaque MS**, Xu K, Atfi A. TGIF1 functions as a tumor suppressor in pancreatic ductal adenocarcinoma. *EMBO J*. 2019; 38(13):e101067. doi: 10.15252/emj.2018101067.
5. Parajuli P, Kumar S, Loumaye A, Singh P, Eragamreddy S, Nguyen TL, Ozkan S, **Razzaque MS**, Prunier C, Thissen JP, Atfi A. Twist1 Activation in Muscle Progenitor Cells Causes Muscle Loss Akin to Cancer Cachexia. *Dev Cell*. 2018; 45(6):712-725.e6. doi: 10.1016/j.devcel.2018.05.026.
6. Zhang MZ, Ferrigno O, Wang Z, Ohnishi M, Prunier C, Levy L, **Razzaque MS**, Horne WC, Romero D, Tzivion G, Colland F, Baron R, Atfi A. TGIF governs a feed-forward network that empowers Wnt signaling to drive mammary tumorigenesis. *Cancer Cell*. 2015; 27(4):547-60. doi: 10.1016/j.ccell.2015.03.002.
7. Goetz R, Ohnishi M, Kir S, Kurosu H, Wang L, Pastor J, Ma J, Gai W, Kuro-o M, **Razzaque MS**, Mohammadi M. Conversion of a paracrine fibroblast growth factor into an endocrine fibroblast growth factor. *J Biol Chem*. 2012; 287(34):29134-46. doi: 10.1074/jbc.M112.342980.
8. Goetz R, Nakada Y, Hu MC, Kurosu H, Wang L, Nakatani T, Shi M, Eliseenkova AV, **Razzaque MS**, Moe OW, Kuro-o M, Mohammadi M. Isolated C-terminal tail of FGF23 alleviates hypophosphatemia by inhibiting FGF23-FGFR-Klotho complex formation. *Proc Natl Acad Sci USA*. 2010; 107(1):407-12. doi: 10.1073/pnas.0902006107.
9. Ohnishi M, **Razzaque MS**. Dietary and genetic evidence for phosphate toxicity accelerating mammalian aging. *FASEB J*. 2010; 24(9):3562-71. doi:10.1096/fj.09-152488.

10. **Razzaque MS**. The FGF23-Klotho axis: endocrine regulation of phosphate homeostasis. *Nature Rev Endocrinol*. 2009; 5(11):611-9. doi: 10.1038/nrendo.2009.196.