Division of Histology
Department of Oral Growth and Development

Outline
Besides soft tissue such as dental pulp, periodontal ligament, and gum, the object of dental treatment includes enamel, dentin, cementum, and teeth surrounding alveolar bone. These tissues are mineralized under the cellular control, so that the process is called “biomineralization”. Thus, the understanding of biomineralization would be a key to make progress in dental treatment including tissue engineering. In the Division of Histology, we are concerned to elucidate the process of biomineralization and cellular involvements during development, remodeling, and regeneration of hard tissues (mainly in dentin and alveolar bone) as well as the process of periodontal tissue regeneration, using the morphological approach such as fine structural examination and immunohistochemistry with a light and an electron microscope. Our ongoing research is shown below.

Faculty members
Professor; Kazuharu IRIE, D.D.S., Ph.D.
Associate professor; Akihiro HOSOYA, D.D.S., Ph.D.
Assistant professor/research associate; Hiroaki TAKEBE, D.D.S., Ph.D.
Assistant professor/research associate (International Education and Exchange Center); Md Riasat HASAN; B.D.S., M.P.H., Ph.D.

Postgraduate students
Nazmus SHALEHIN; B.D.S. (Histology)

Comments from the postgraduate student
I am Nazmus Shalehin from Bangladesh. I was always keen to do my post-graduation in Histology; as this was my subject of interest. I am working on the analysis of osteogenic potential of Gli1-positive cells in periodontal ligament. The aim of my study is a development of new periodontal regeneration therapy using undifferentiated cells. I am extremely hopeful that I will be able to find facilitative results from my research work; thus it will be beneficial for the society and mankind.
Main research in progress
Hard tissue biology including
1) The role of osteocyte in bone remodeling
2) The role of non-collagenous proteins in dentin and bone mineralization
3) Regeneration of periodontal tissue during dental implant and dental transplant
4) The molecular basis of tooth morphogenesis

Current publications