

[Keywords] Pulp tissue, pulpitis, periapical periodontitis, pathogenic bacteria, immune response, endodontic treatment, regenerative endodontic therapy

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[Course aims]

An advanced caries lesion often progresses when untreated to various stages of pulpitis and subsequent periapical periodontitis. Root canals show three-dimensionally diverse anatomic forms and there is a marked difference between a single-rooted and multi-rooted tooth, with secondary canals as well as side canals presenting on some occasions. This anatomic diversity in canals make most diagnosis and treatment of most patients presenting with an endodontic disorder difficult to carry out effectively. This has encouraged development of de novo minimally invasive diagnostic and treatment tools. The aims of the present course are for students to understand the pathogenesis and etiology of various stages of endodontic problems, to understand and undertake diagnosis and treatment appropriately at each stage of pulpitis/periapical periodontitis, and to study about how to plan and perform basic as well as clinical research for developing new treatment modalities in endodontics.

[Course objectives]

The goal of this course are for the student to understand:

- (1) Histopathologic and molecular biology approaches for investigating the pathogenesis of pulpitis.
- (2) Microbiologic and immunologic approaches for investigating the etiology of pulpitis.
- (3) Histopathologic and molecular biology approaches for investigating the pathogenesis of periapical periodontitis.
- (4) Microbiologic and immunologic approaches for investigating the etiology of periapical periodontitis.
- (5) Examination methods for diagnosing pulpitis and periapical periodontitis.
- (6) How to carry out clinical studies for evaluating the efficacy of a given endodontic treatment modality.
- (7) How to plan in vitro studies for development of a new endodontic treatment.
- (8) How to plan in vivo (animal) studies for development of a new endodontic treatment.
- (9) How to plan clinical studies for development of a new endodontic treatment.

[Course content]

Class	Theme	Content	Academics
1	Classroom lectures	1) Anatomy and histology of pulp. 2) Diagnosis, etiology, pathogenesis and treatment of pulpitis. 3) Diagnosis, etiology, pathogenesis and treatment of periapical periodontitis. 4) Experimental techniques for basic investigations of the pathogenesis of pulpitis/periapical periodontitis. 5) Protocols for clinical studies to develop treatment modalities for pulpitis/periapical periodontitis. 6) How to deliver a scientific presentation and how to write a scientific paper.	Yasushi Furuichi Toshiyuki Nagasawa Mari Mori Satsuki Kato
2	Seminars	1) Clinical cases and related treatment planning 2) Literature related to periodontology/periodontics	Yasushi Furuichi Toshiyuki Nagasawa Mari Mori Satsuki Kato

[Grading policies]

Your overall grade in class will be decided based on class attendance and reports.

[Textbook]

Students will be informed of which textbook to use.

[Reference book]

Students will be informed of which reference book to use.

[Preparation for course]

Students must understand the course objectives and prepare appropriately for classes.