

[Keywords] Dentin, pulp capping/lining methods, regenerative dentin, biomaterials for regenerative dentin

[Academics] Takashi Saito, Tomofumi Kawakami, Shuichi Ito and Yasuhiro Matsuda

[Course aims]

The recent prevalence of the concept of MI as minimally invasive caries treatment has spurred major developments in regenerative medicine within dentistry. In the field of cariology and restorative dentistry, the ultimate goal is to achieve dentin regeneration, which calls for a two-pronged approach involving “remineralization of demineralized dentin” and “induction of reparative dentin formation”.

Through lectures, this course aims to deepen your understanding of “remineralization of demineralized dentin” and “induction of reparative dentin formation” as well as the underlying importance of dentin regeneration. Practical training will enable you to acquire related fundamental techniques.

[Course objectives]

The goal of this course are for students to be able to:

1. Explain the importance of dentin regeneration.
2. Explain “remineralization of demineralized dentin”.
3. Explain “induction of reparative dentin formation”.
4. Acquire techniques for “remineralization of demineralized dentin” using adhesive restorative materials.
5. Acquire techniques for “induction of reparative dentin formation” using drugs and biomaterials.

[Course content]

Class	Theme	Content	Academics
1	Learn about underlying importance of dentin regeneration.		Takashi Saito Tomofumi Kawakami Shuichi Ito Yasuhiro Matsuda
2	Learn about “remineralization of demineralized dentin” and “induction of reparative dentin formation”.		Takashi Saito Tomofumi Kawakami Shuichi Ito Yasuhiro Matsuda
3	Learn about the practicalities of in vitro research and related analytical methods.		Takashi Saito Tomofumi Kawakami Shuichi Ito Yasuhiro Matsuda
4	Learn about the practicalities of in vivo research and related analytical methods.		Takashi Saito Tomofumi Kawakami Shuichi Ito Yasuhiro Matsuda
5	Learn about presenting at scientific conferences and writing papers.		Takashi Saito Tomofumi Kawakami Shuichi Ito Yasuhiro Matsuda
6	Hold a journal club.		Takashi Saito Tomofumi Kawakami Shuichi Ito Yasuhiro Matsuda
7	Hold a clinical conference.		Takashi Saito Tomofumi Kawakami Shuichi Ito Yasuhiro Matsuda
8	Practical training regarding “remineralization of demineralized dentin” using adhesive restorative materials		Takashi Saito Tomofumi Kawakami Shuichi Ito Yasuhiro Matsuda

Class	Theme	Content	Academics
	from in vitro/in vivo research.		
9	Practical training regarding “induction of reparative dentin formation” using drugs and biomaterials from in vitro/in vivo research.		Takashi Saito Tomofumi Kawakami Shuichi Ito Yasuhiro Matsuda

[Grading policies]

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

[Remarks]

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.