

# Advanced Biomaterials

## 1. Staffs and Students (April, 2010)

Associate Professor	Hidekazu TAKAHASHI
Assistant Professor	Hideo NAKAMURA
Research Associate	Naohiko IWASAKI
Graduate Student	Natthavoot KOOTTATHAPE
Graduate Student	Yuuya ASAKAWA
Graduate Student	Miho SHIOZAWA
Research Student	Mitsufumi ASAKURA
Research Student	Ken-ichi BABASONO
Research Student	Purevtsembe ZOLJARGAL

## 2. Purpose of Education

Dental material science is not only one of basic medical and dental science but also one of clinical dental science. In our department, we will educate students to obtain practical knowledge of the dental materials and devices used in dentistry and to improve skill how to deal with these materials and devices. Our goals of education is to achieve high quality of dental practice with well-understanding dental material and devices.

The aim for undergraduate education is to obtain the basic knowledge of dental material science and technology. The lecture is simultaneously provided with the laboratory instructions within the limit of the possible.

The main program for graduate student is composed of the lecture and laboratory instructions for understanding physical and chemical properties of new materials and technology for dental use. Recent researches in our department will be also introduced.

## 3. Research subjects:

1. Evaluation of various factors on mechanical properties of teeth substance.
2. Evaluation of fatigue properties of dentin and dental materials using miniature testing pieces.
3. Measurement of characteristics of dental ceramic materials and establishment of new testing methods for dental ceramics.
4. Measurement of precise deformation using non-contact methods.
5. Development of new composite resin with similar machinability of dentin.
6. Study on dental root fracture mechanism.
7. Application of various types of fiberglass for dentistry.
8. Evaluation of composite resin mechanical properties and improvement their bonding efficiency to various materials.
9. Evaluation of impact force absorption of mouthguard and face protect materials.

## 4. Publications

### Original Articles

1. Hanada T, Quevedo CG, Okitsu M, Yoshioka T, Iwasaki N, Takahashi H, Suda H. Effects of new adhesive resin root canal filling materials on vertical root fracture. *Aust J Endodont* 2010; 36(1): 19-23.
2. Ona M, Takahashi H, Sato M, Igarashi Y, Wakabayashi N. Effect of reactive adhesives on the tensile bond strength of vinyl polysiloxane impression materials to methylmethacrylate tray material. *Dent Mater J* 2010; 29(2): 336-340.
3. Takahashi H, Finger WJ, Kurokawa R, Furukawa R, Komatsu M. Sulcus depth reproduction with vinyl polysiloxane impression material: Effects of hydrophilicity and impression temperature. *Quintessence Int* 2010; 41(3): e43-e50.
4. Reza F, Takahashi H, Iwasaki N, Tamaki Y. Effects of investment type and casting system on permeability and castability of CP titanium. *J Prosthet Dent* 2010; 104(2): 114-21.
5. Takahashi H, Finger WJ, Wegner K, Utterodt A, Komatsu M, Wöstmann B, Balkenhol M. Factors influencing marginal cavity adaptation of nanofiller containing resin composite restorations. *Dent Mater* 2010; 26(12): 1166-1175.