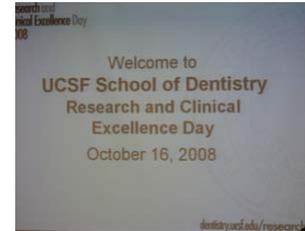


Dept. of Molecular Cytogenetics Begum Asma



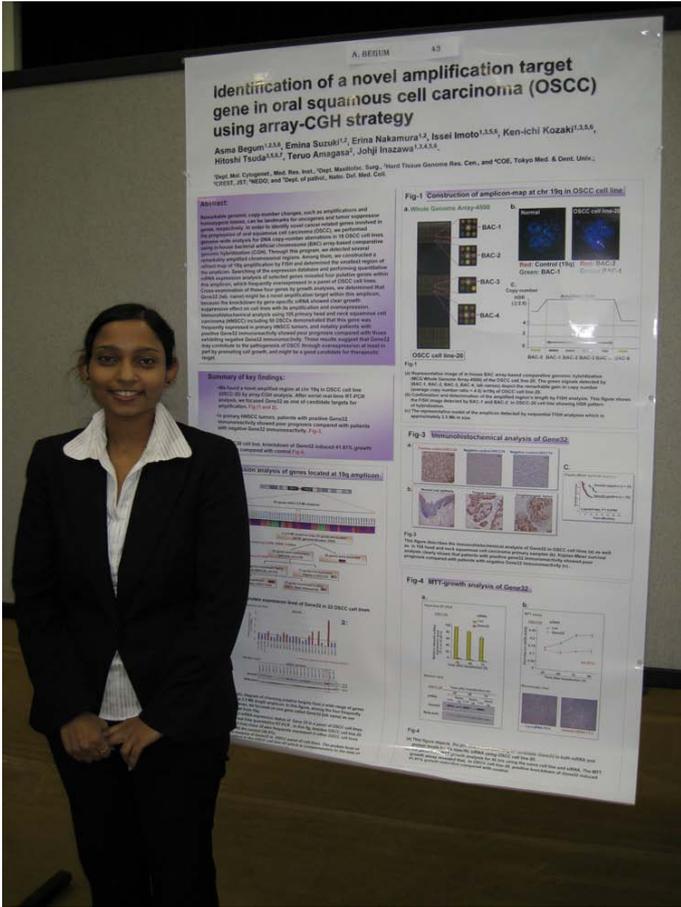
### **Research Day in UCSF-16<sup>th</sup> October-2008**

**The Research and Clinical Excellence Day** was held on 16<sup>th</sup> of October in the old campus of UCSF in Cole Hall. It was the day where the DDS students of UCSF had their competition both in oral and poster base and occurred once per year to show their excellent performances in both research and clinical fields. Besides these newcomers, we enjoyed also special lectures from guest lecturers. Such as, the special keynote speech on stem cell utilization in Dentistry by Professor Lyndon Cooper, lecture on health management by Professor Barbara Gerbert, and also about role of clinicians and their responsibilities by Professor Raymond Braham. Professor Gerbert was awarded for best faculty research award and Professor Braham for outstanding clinician award. Among the student the best speaker research was about role of Sonic hedgehog signaling pathway in the development of mouse Incisor.

The keynote speaker speech was very interesting for me as he shows the possible way of Haemopoietic stem cell utilization and tried to bridge the gap between bench side researches to the bed side application. He said that the bone regeneration is occurred due to the osteoinductive, osteoconductive and osteoregenerative manner of the pluripotent adult stem cells and showed few examples of tremendous post-surgical good prognosis of his clinical life. He also mentioned about some signaling pathway and function of several genes in bone regeneration like BMP2, NF $\kappa$ B pathway in bone regeneration and their different expression in respects of inflammation. He also showed allogeneic bone transformation and its effect of surrounding recipient sites.

The most fascinating things that I came to know which is quite related with my topics that DG Albertson group also working with Bac-array based research on oral dysplasia. I got a lot of information by speaking with the poster presentator which was very beneficial for my research.

So, the message I really want to give to my colleagues of GCOE that by attending such kind of meeting will really help to expand your knowledge. Besides I came to know much about San Francisco, a new city I had never been before, will also increase your outside knowledge. I'd really like to thank the committee of GCOE, Professor Mark Ryder and my fellows to give me this magnificent opportunity to visit UCSF.



## Report of UCSF Reserch Day

2008/10/22

Tokyo Medical and Dental University  
Oral Implantology and Regenerative Dental Medicine  
Ph-D Candidate  
2nd Year  
Kanakano Noritake

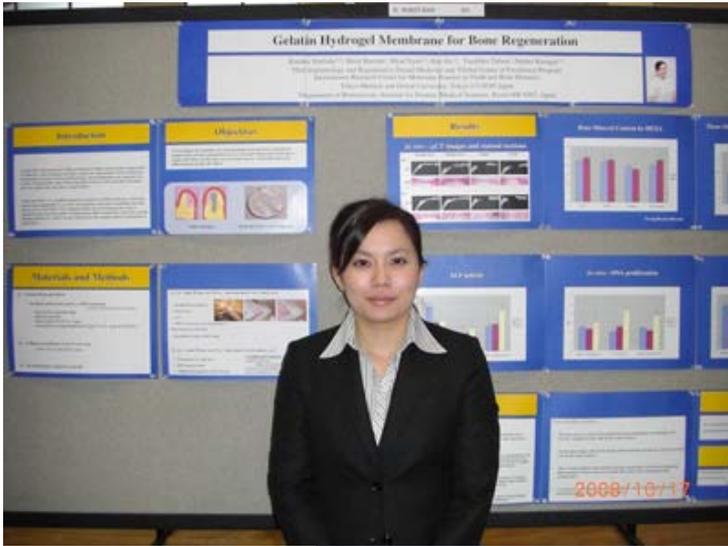
Noritake, Chalida and Asma, who are the members of G-COE AISS, attended UCSF School of Dentistry Research and Clinical Excellence Day, on October 16, 2008 at Cole Hall, UCSF. The aim of this day is to promote and skill up both undergraduate and Ph-D students on research. I also felt that to be aware of relationship between research and clinic is also important message of this day, too. At the Welcome and Opening Remarks, we were introduced to the audience, that was a great honor for us.

Subsequently, the Keynote Speaker, Prof. Lyndon Cooper from University of North Carolina gave us a lecture. As his major is Prosthodontics, he tried to tie up dental treatment like dental implant and tissue regeneration. His lecture was quite easy to understand and of course worthful not only to me but also to undergraduate students.

The poster presentation was held at 12:30-13:30. I am honored to be presenting poster presentation as an inviting/visiting pre-doctoral poster section. As this was the first opportunity for me to do poster presentation about my Ph-D study, I got strongly impressed that many students/teachers stayed their step and were interested in my work. And also from the discussion with them I could get quite precious hints for my ongoing study. That experience serve as powerful encouragement.

Not only attending research Day but also we had a wonderful chance to visit UCSF laboratory and dental treatment room for young clinician.

I would like to express my gratitude to Professor Ryder, who was an excellent host during our trip to San Francisco, Professor Morita, Professor Noda and all TMDU and GCOE staffs for providing us this excellence exchange program.



Chalida Nakalekha  
Department of Cellular Physiological Chemistry  
Graduate School of Dentistry  
Tokyo Medical and Dental University

The UCSF School of Dentistry Research and Clinical Excellence Day was held at main campus of UCSF School of Dentistry, University of California in San Francisco on the 16<sup>th</sup> of October 2008. The aim of the research day is to promote and advise both undergraduate and post graduate dental students on research. There was no other clinical activity or class on research day, in order to encourage the staffs and students to join the research day activity. Undergraduate students are also required to attend the lecture for their curriculum credits. The research day's schedule was divided into two parts, the lectures given by both well-known professors and some outstanding students' research presentation and the poster presentation of students in both under and post graduated section. The lectures were given in the main auditorium. Keynote speaker, Prof. Lyndon Cooper from University of North Carolina (UNC) gave an excellent talk of research in dental profession on both clinical and research. The students were very enthusiastic and interactive during questions and discussion. We were introduced to the Dean of the Faculty, the Chairman of Research programs and other corresponding staffs. Professor Mark Ryder kindly showed us the Dental campus of UCSF, both main campus and research campus. We visited research laboratories and other faculty facilities.

The poster presentations started at 12.00am -13.30pm. The event was warmly visited by professors, staffs and students. I am honored to be presenting poster presentation as an inviting/visiting pre-doctoral poster section among the three selected Global COE students from Tokyo Medical and Dental University. My poster presentation received warm attention from both students and professors, including the UCSF's Dean of Faculty of Dentistry. I acquired some interesting discussion and comment from person who worked in the related field of my study, which will surely contribute to my going on experiment and writing my dissertation thesis.

I would like to express my gratitude to Professor Ryder, who was an excellent host during our trip to San Francisco, Professor Morita, Professor Noda and all TMDU and GCOE staffs for providing us this excellence exchange program. I believed that this exchanging program will definitely encourage both UCSF and TMDU students in pursuing both research and clinical careers.

Respectfully submit,

## Altered Bone Metabolism in Prostacyclin Deficient Mice

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3. Dept. of Fixed Prosthodontics, 4. Dept. of Hard Tissue Engineering Pharmacology  
Tokyo Medical & Dental University, Graduate School, Japan

### Introduction

Bone metabolism is regulated by some hormones, autocrine and cytokines. Among them, prostaglandins, especially prostaglandin<sub>2</sub>(PGI<sub>2</sub>), have critical roles in bone formation and resorption. It has been reported that cyclooxygenase(COX-2) gene deletion produced negative effects on bone formation by reducing osteoblastogenesis, but no bone abnormality was found in mPGES synthase gene deletion. Therefore, we focused on the effects of prostacyclin(PGI<sub>2</sub>), a product of endothelinic acid by COX and prostacyclin synthase (PGIS) found in endothelial, on bone metabolism.

### Materials and Methods

We used mice with alteration of one PGI<sub>2</sub> (heterozygous) or both PGI<sub>2</sub> (knockout) and PGI<sub>2</sub> (Tg transgenic) mice. We measured to compare bone morphology with wild type (PGIS<sup>+/+</sup>). Trabecular and cortical regions of long bones were studied for:  
-radiographic examination  
-histomorphometry analysis and histology  
Bone marrow cells are collected for osteoblast and osteoclast differentiation assays.

### Summary

At 8-12 weeks of age, mice analysis shows that PGI<sub>2</sub> mice displayed a decrease in trabecular and cortical density when compared with wild type, but increase in trabecular density in adult age. Micro-CT analysis in adult age PGI<sub>2</sub> mice displayed the increase in bone mineralization density (BMD) of trabecular bone in the metaphysis.  
Histological sections showed the increase in both osteoblast and osteoclast cells in metaphysis area of long bone in adult age PGI<sub>2</sub> mice.  
Conversely, the increase of trabecular bone in adult age is maintained by PGI<sub>2</sub> receptor mice.

### Objective

- To determine whether PGI<sub>2</sub> gene-deficient mice and transgenic mice expressing PGI<sub>2</sub> gene display a change in bone mass phenotype compared with PGI<sub>2</sub> wild type mice.
- To identify the molecular mechanisms of PGI<sub>2</sub> for better understanding the relationship between PGI<sub>2</sub> and bone metabolism.

### Experimental Plan

Three experimental animals:  
1. PGI<sub>2</sub> heterozygous mice  
2. PGI<sub>2</sub> knockout mice  
3. PGI<sub>2</sub> transgenic mice

Analysis:  
-radiographic examination  
-histomorphometry analysis and histology  
-bone marrow cells for osteoblast and osteoclast differentiation assays

### Results

Micro-CT analysis of trabecular bone density (BMD) in metaphysis area of long bone in adult age PGI<sub>2</sub> mice displayed the increase in bone mineralization density (BMD) of trabecular bone in the metaphysis.

### Conclusion

Knock out gene manipulating in mice process displayed clinical implications. From our current results, PGI<sub>2</sub> mice displayed overall reduction in the levels of parameters in bone mass at 7 weeks of age.  
In addition, regional trabecular bone density increased in adult age PGI<sub>2</sub> mice as a result from the increase in both osteoblast and osteoclast cells.  
These data indicated that PGI<sub>2</sub> may contribute to bone mass only in maintaining normal bone mass and micro-architecture.



**KEYNOTE SPEAKER**  
Lyndon Cooper, DDS, MS, PhD  
Principal and Chair, UIC, Department of Prosthodontics

**FACULTY RESEARCH LECTURER**  
Barbara Gerber, PhD  
Professor, Division of Behavioral Science, Prosthodontics, and Ethics

**OUTSTANDING CLINICIAN AWARD**  
Raymond Braham, BDS, LDSRCS, MScD  
Clinical Professor Emeritus, Pediatric Dentistry

**UCSF School of Dentistry**

# Research and Clinical Excellence Day

Thursday, October 16, 2008  
Cole Hall - Medical Sciences Building  
dentistry.ucsf.edu/research

University of California  
San Francisco

**UCSF**  
School of Dentistry

# 2008

