

トロント大学歯学部 Neil Alles

2月9日 ポスター貼付けとトロント大学学生と会合

2月10日 自分の研究内容の発表と、ポスター発表会

2月11日 トロント大学歯学部教授 Aubin と会合

研究内容：骨芽細胞、軟骨細胞、脂肪細胞、筋細胞の培養

骨異常マウスを伴った遺伝子導入マウス、欠損マウスを用いた研究

幹細胞を用いた研究、エナメル質の新しいタンパク質の特定など。

Aubin 研の研究テーマについて話を伺った後、研究室の学生と教育システムについて討論した。

そのラボでは、2つの論文を書くように義務付けられている。

夕方には、物質動力学の Bernhard Ganss 助教授と会合を行った。

研究内容 歯、骨、軟骨などの硬組織の発生学、組織再生

その後、同じ研究室の Dr.Boris Hinz と会合

研究内容 平滑筋の機能、筋平滑細胞収縮性、瘢痕形成

2月12日 トロント大学の Morris Manolson 教授と会合

彼の最近の論文の内容について説明をうけ、逆に自分の研究を発表して討論を行った。

その後、彼らの研究室の医局会に参加した。

Siew Ging Gong 矯正科助教授と会合。

研究内容：マウスやヒトでの唇顎口蓋裂の基礎研究、臨床研究

Sean A.F.peel 口腔外科助教授と会合。

BMP の効果を高める bio-implant とそれに関する実験について討論を行った。

以上、様々な研究室、先生とお話をする事ができ、とても有意義な時間を過ごすことができたとともに、今後の研究に役立てたいと思う。

Research Day 2009
Faculty of Dentistry
University of Toronto

Neil Alles



Monday, 09th February, 2009

Poster Set up and informal meetings with students.

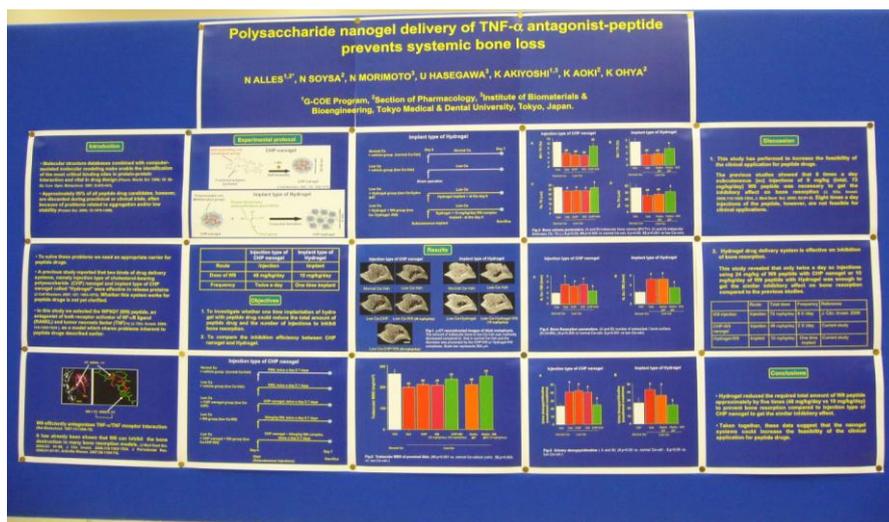
Tuesday, 10th February, 2009

Participated in research day and poster presentation.

Photo with Professor Jane E. Aubin



My poster



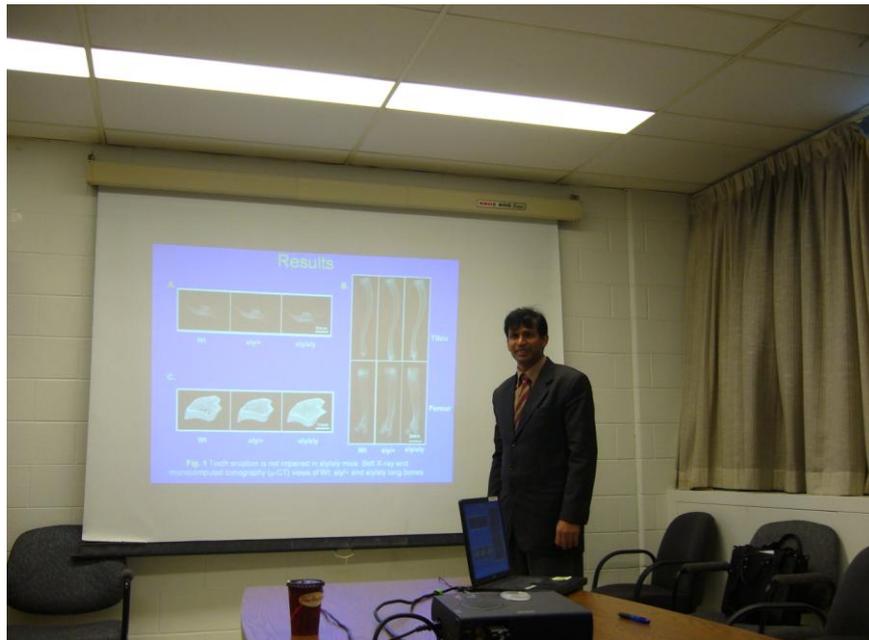
Wednesday, 11th February, 2009

Met Prof. Aubin at Faculty of Medicine Room 6230 Medical Sciences Building 1
King's College Circle, Toronto, Ontario M5S 1A8.

This lab is specialized for:

- Osteogenic, chondrogenic, adipogenic and myogenic cells develop from a pool of mesenchymal stem cells and primitive progenitor populations in bone and bone marrow.
- Develop many transgenic and knockout mouse models with skeletal anomalies (eg. estrogen receptor-related receptor-alpha (ERR-alpha), an orphan nuclear receptor, has been found to be involved in activation of macrophages and dysregulation of ERR-alpha expression may precede and contribute to the destruction of cartilage and bone accompanying inflammatory arthritis.)
- Develop primary cell culture models for mesenchymal cell differentiation
- They identified a new proteins in the dental enamel, produced KO mice for this protein and now check for any effects on growth of enamel mineralization from this protein by using KO mice

Prof. Aubin requested me to give an informal presentation to her lab group.



Then I had a discussion with her students about their educational system

- They have oral examinations in first 2 years
- Seminar courses
- Workshops for manuscript writing
- Thesis with 2 publications

In the evening I met Prof. Bernhard Ganss, Associate Professor, CIHR Group in Matrix Dynamics University of Toronto, Faculty of Dentistry, 150 College Street, room 234

Toronto, Ontario M5S 3E2,



Their lab is specialized for

- Molecular biology / regulation of gene transcription
- Developmental biology of mineralized connective tissue (tooth, bone, cartilage)
- Molecular genetic strategies for tissue regeneration

Then I met Dr. Boris Hinz in the same lab

His specialty is related to “myofibroblasts”.

In his experiments he deals with

- The function of smooth muscles features of fibroblasts.
- High contractile activity of myofibroblasts
- Scar formation
- Fibrosis
- How to prevent myofibroblasts differentiation by using TGF β 1 blockers. (Active transforming growth factor beta1 (TGF-beta1) is essential to convert fibroblasts into contractile myofibroblasts, which cause tissue contractures in fibrotic diseases.)
- Future direction; to find out anti fibrotic agents which can prevent fibrosis in implant surfaces.

With Dr. Boris Hinz



Thursday, 12th February, 2009

Met Professor Morris Manolson, Dental Institute, Faculty of Dentistry, Room 400 124 Edward St.

Major publications

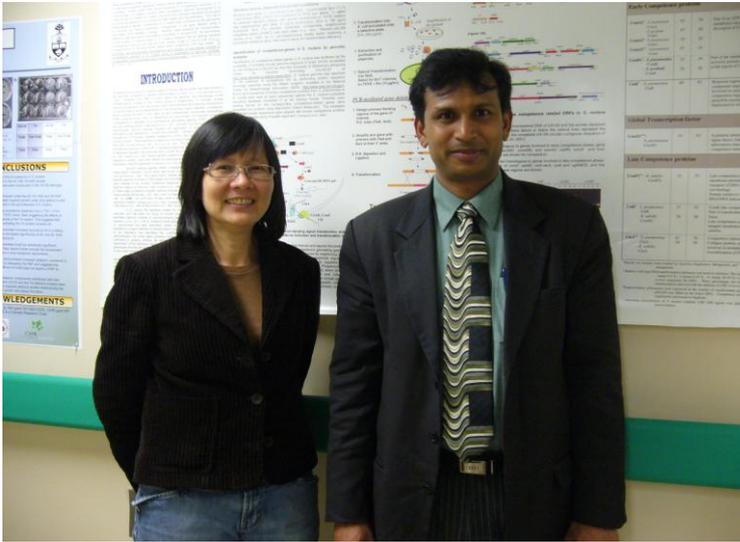
- Effects of human a3 (isoforms of the "a" subunit) and a4 mutations that result in osteopetrosis and distal renal tubular acidosis on yeast V-ATPase expression and activity
(Eukaryotic cells contain an evolutionarily conserved enzyme, the vacuolar proton pump, V-ATPase that couples the energy of ATP hydrolysis to proton transport across membranes. Intracellular V-ATPases are found in compartments such as clathrin-coated vesicles, Golgi, endosomes, lysosomes, secretory vesicles, and the central vacuoles of yeast as reviewed previously. V-ATPases are also present in the plasma membranes of specialized cells such as osteoclasts, renal intercalated cells, spermatids, neutrophils, and macrophages, where they function in such processes as bone resorption, renal acidification, pH homeostasis, and coupled transport).
- Inhibition of osteoclast differentiation by polycyclic aryl hydrocarbons is dependent on cell density and RANKL concentration
(Cigarette smoking is a risk factor for periodontal disease, dental implant failure, bone healing and, and osteoporosis. They found a effect of representative polycyclic aryl hydrocarbons (PAHs), benzo[*a*]pyrene (BaP), and 7,12-dimethylbenz[*a*]anthracene (DMBA) on osteoclast differentiation, function and have ability of RANKL to reverse BaP-mediated inhibition.)

- In this lab I'm asked to do an oral presentation.
- Then I participated in their department meeting





Then I went to meet Dr. Siew Ging Gong, Associate Professor Orthodontics
Faculty of Dentistry 124 Edward St. Toronto , ON M5G 1G6



Their research interests as follows

- Molecular Aspects of Clefts of the lip with or without clefts of the palate in mouse models and in humans.
- Cranio-facial birth defects
- Cranio-facial development

Finally I met Dr. Sean A. F. Peel, Assistant Professor Oral and Maxillofacial Surgery, Faculty of Dentistry, 124 Edward St. Toronto

Mainly they deal with implants, reconstruction of bones of the face, BMP bio-implants and experiments related to enhancing production of recombinant BMP.

BMP bio-implants



With Dr. Sean A. F. Peel

