NOCERAL
(National Orthopaedic Centre for Research and Learning)

Department of Orthopaedic Surgery,
Faculty of Medicine,
University of Malaya.
National Orthopaedic Centre of Excellence for Research and Learning [NOCERAL]

- The project involved the expansion of the present Department of Orthopaedic Surgery. This centre aims to provide various facilities which support research, clinical and educational activities. In line with the department’s high output and achievements, progress and future development is inevitable. It is hoped that this centre will meet current demands and cope with future needs.

**DESIGN AIM**

Centre of Excellence - our aim is to build a centre of excellence providing the highest quality possible in research and learning.

**DESIGN OBJECTIVE**

Increase output - specific and high level training for undergraduate and postgraduate students.

- research and services of international standards

Efficient - to further enhance efficient administration of all facilities

**COMPONENTS**

a) Research
   - Cadaveric wet laboratory
   - Experimental laboratory
   - Orthopaedic biomechanical workshop
   - Mechanical testing laboratory

b) Services
   - Cell & Tissue Transplant Laboratory

c) Training
   - Library and Audiovisual teaching room
   - Seminar room and Lecture Hall

d) Administration
   - Research Assistant and PHD Students
   - Academic Staff Office
   - Secretarial Office
   - Yayasan ORG Office
   - Visiting Professor’s room
NOCERAL is as a centre of research and learning involves academic staff whom the majority of them are from the Department of Orthopaedic Surgery.

The organization of NOCERAL is coordinated by a Centre of Excellence Director.

It is divided into the research section and learning section. The learning section consists of undergraduate, house officer, postgraduate and subspecialty, practical and clinical skills.

Regarding research section, with the possibility of each academic staff having more than one research interest, the organization of NOCERAL allows the development of sub-groups under the umbrella of its current research groups.

At present there are 4 major research groups (refer to slide 4). Tissue Engineering & Fundamental Research Group (TEG) will be highlighted as a representative of the workings of a research group.

TEG was created in 2004 with the aim to find solutions to improve the health care of patients suffering from orthopaedic related disease. The group is divided into 4 disciplines: Fundamental of mesencymal stem cell, articular cartilage regeneration, bone regeneration and tendon regeneration. The group is led by Assoc. Prof Dr Tunku Kamarul Zaman (refer to slide 7). The research in the group is conducted by physicians, scientists and engineers spanning the Departments of Medicine, Anesthesia, Pathology, Surgery, Radiology and Bioengineering in University of Malaya.

Currently we managed to get approval from TNC (Research & Innovation) for NOCERAL operation budget although the NOCERAL building will not be completed until June 2010 (refer slide 6).
NOCERAL ORGANIZATION CHART 2009

Head of Orthopaedic Surgery Department
Prof. Saw Aik

Director of National Orthopaedic Centre of Excellence for Research and Learning (NOCERAL)
Prof. Dato’ Tunku Sara Tunku Ahmad

RESEARCH
- Tissue Engineering & Fundamental Research
- Biomechanical Implant & Devices Research
- Bioproducts & Biological Aids Research
- Subspecialty Clinical Orthopaedic Research

LEARNING
- Undergraduate
- House Officer
- Postgraduate & Subspecialty
- Practical & Clinical Skills
- Staff Knowledge Update
ORGANIZATION CHART OF RESEARCH SECTION UNDER NOCERAL 2009

Tissue Engineering & Fundamental Research
- Division of Fundamental Mesenchymal Stem Cell
- Division of Articular Cartilage Regeneration
- Division of Bone Regeneration
- Division of Tendon Regeneration

Biomechanical Implant & Devices Research
- Prof. Saw Aik
- Prof. Dato’ Tunku Sara Tunku Ahmad
- Dr. Rukmanikanthan A/L Shanmugam

Bioproducts & Biological Aids Research
- Prof. Dato’ Tunku Sara Tunku Ahmad
- Assoc. Prof. Kwan Mun Keong
- Dr. Chua Yeok Pin

Subspecialty Clinical Orthopaedic Research
- Spine Surgery
- Upper Limb and Reconstructive Microsurgery (ULRMS)
- Trauma
- Paediatric Orthopaedic and Limb Lengthening and Reconstructive Surgery (LLRS)
- Orthopaedic Oncology
- Foot and Ankle
- Arthroplasty
- Sports Orthopaedics
### One Time Allocation for Animal Housing

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit's Cages (RM 3,000/cage X 15)</td>
<td>RM 45,000</td>
</tr>
<tr>
<td>Portacabin's Necessity (Equipment, Water Supply, Electricity etc)</td>
<td>RM 100,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>RM 145,000</strong></td>
</tr>
</tbody>
</table>
At present, TEG has won at least 18 prestige awards including a Gold Medal and a Silver medal in PECIPTA 2009. One of TEG student has won LORÉAL Scientist award 2008, Best Oral Presentation award (TERMIS 2008), Best Poster Presentation at ISCOM 2009 (The International Student Congress of Medical Sciences) and special awards, Best of Biosciences and Technology Exhibition at University of Malaya (Ekspo Penyelidikan, Rekacipta & Inovasi UM 2009). Recently we have winning Best Posters Presentation for Molecular Biology Section and Biotechnology Section at Biological Sciences Graduate Congress 2009 (BSGC).

At present also three Science fund grants, one Techno fund grants, 14 Vote- F grants, 15 UMRG grants, 14 PPP grants and 2 FRGS grants have been awarded to Orthopaedic Research Group since 2008. Total amount estimated at RM 4.88 million.

Currently there are 14 ISI publication from NOCERAL research groups in 2009 whilst there have 24 ISI publications in 2008.

One copyright had been granted. Seven patent applications have been granted as patent pendings. one service mark (ACTUM) had been granted and another patent had been successfully filed. Agreements had been accorded between two private companies in view of product commercialization.

We have produced at least 88 abstracts for both poster and oral presentation in various internationally recognized scientific conferences. These included 4 posters presentation in BSGC 2009, 17 poster presentations in POA/AOA 2009, 24 poster presentations in MOA 2009, 9 poster presentations in MOA 2008, and 3 poster presentations in ORS 2010 (Orthopaedic Research Society) from TEG alone.

In future, we look forward to enhance the current research output by emphasizing the need to increase ISI WOS Indexed publications.
THANK YOU

PREPARED BY

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- SUHAILI BINTI MOHD MOHD

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