

Research in Medical School:

From Individuals to Multidisciplinary Research Teams

Professor YS Chan
Associate Dean (Research)
Faculty of Medicine
The University of Hong Kong



Goal

To achieve excellence and to
produce results relevant to the
community



<u>Departments</u>	VS	<u>Functional Groups / Research Centres</u>
<ul style="list-style-type: none"> • Academic discipline • Teaching programs 		<ul style="list-style-type: none"> • Cognate research • Common interest topics, focus & coherence • Building on existing strengths & expertise • Critical mass • Resource utilization

<u>Development of Research Teams</u>	
<u>Strength</u>	<u>Weakness</u>
<ul style="list-style-type: none"> • Institutional mission & policy • Infrastructure support • Recognition of excellence • Accountability 	<ul style="list-style-type: none"> • Emerging culture • Critical mass • Fragmented excellence • Competition of Co-I • Role of team members • Fueling innovation within research

Competitive Funding

HK Research Grants Council

- Annual competitive round:
 - ~30% success rate; world-wide assessment
 - US\$90K for 2 yrs — US\$250K for 3 yrs
- Central Allocation Fund: US\$500K
- Area of Excellence: US\$4M

HK Government (Innovation Technology Fund)

- US\$100K - 1M

Private Foundations

Efforts at University level

- Area of Fundamentals:
 - Genome Research:
Cancer, Medicine & Life Sciences
- Area of Focus:
 - Neuroscience
- Areas of Distinction:
 - Cardiovascular Sciences
 - Liver Diseases

Efforts at Faculty level

- Research Centres/Institutes
- Functional Groups



Research Centres/Institutes

- Centre of Alimentary Research & Education
- Cancer Research Centre
- Institute of Cardiovascular Science & Medicine
- Clinical Trials Centre
- Centre of Endocrinology & Diabetes
- Centre of Human Development & Defects
- Centre of Human Reproduction
- Centre of Infection
- HKU-Pasteur Research Centre

Functional Groups in Pre-Clinical Departments

- Cardiovascular Research
- Cell and Cancer Biology
- Mechanisms of Diseases
- Molecular Interactions and Development
- Neuroscience

Molecular Medicine

Genetics & Functional Genomics

Developmental processes (***skeletal**, **neural**, blood)
*Skeletal disorders: bone tumours, disc disease
*Chinese SNPs

Molecular Medicine & Genetics

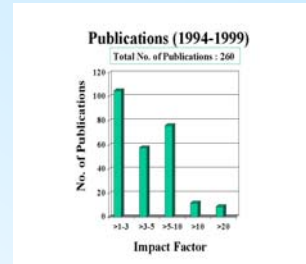
Cancer (lymphoid, lung, liver, nasopharynx)
Common Disorders: **diabetes & complications** **scoliosis**, **degenerative vertebral disc disease**, **infertility**

Genomic Research Technology

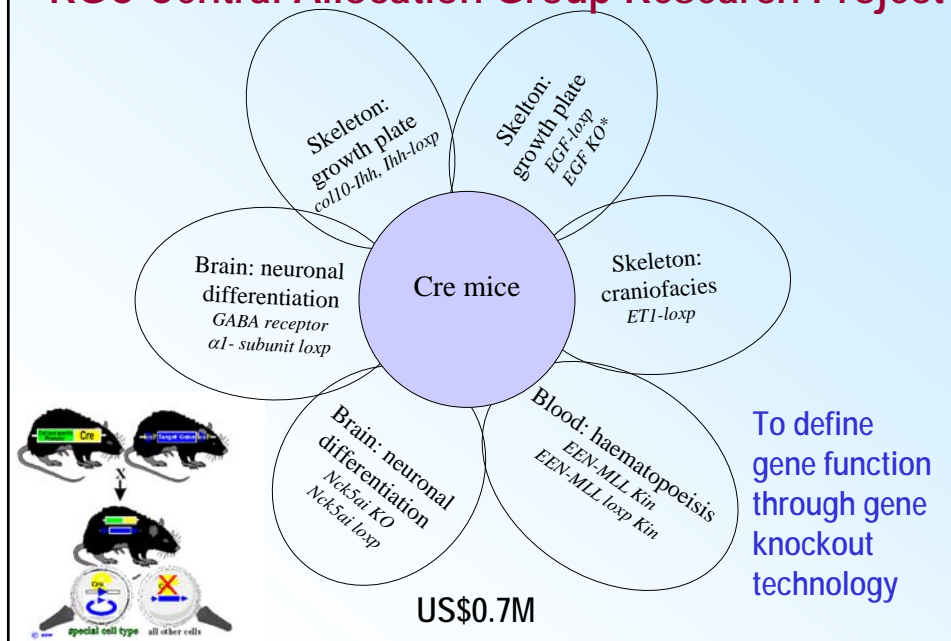
*Short-listed by UGC for development as Area of Excellence

Track record in Molecular Medicine

- Publications in international journals
- External grants >US\$22M to date
- Patents
- Regional leaders in
 - developmental genetics & transgenic research
 - molecular diagnostics for public health



RGC Central Allocation Group Research Project



Microbial Genomics

- HKU-Pasteur Research Centre
- Functional genomics of pathogenic fungus, e.g. *Penicillium marneffeii*
 - discovered in Chinese bamboo rats
 - third indicator of AIDS in SE Asia
- Genetic targets for new antibiotics, diagnostics and vaccination

Research in Gastroenterology

Helicobacter pylori and stomach cancer

- Collaboration with Institut Pasteur
- New vaccination strategies
- Disease transmission
- Genomic studies
- Immunology
- Intervention and biomarkers in gastric carcinogenesis

Liver Diseases

- **Liver Transplantation**
Pioneered living donor liver transplantation for adult patients
- **Hepatitis B**
Led the world's largest randomized trial of lamivudine against hepatitis B
- **Hepatocellular Carcinoma**
- **Biliary Stones and Pancreatitis**

Cardiovascular Science & Medicine

- Cardiac arrhythmias
- Coronary heart disease
- Heart & vascular smooth muscle
- Paracrine and neural control
- Traditional Chinese Medicine

Neuroscience & Neurological Disease

Development

- patterning of neural crest derivatives
- inner ear & sense of direction

Regeneration


- spinal cord injury (PN graft)
- peripheral / optic nerve trauma

Degeneration

- diabetic neuropathy
- Parkinson's & Alzheimer's diseases

Translational Research

Biomedical / Clinical research  Biotech.  Patients / Community

- Research training for medical students (Special module vs MRes[Med])
- Clinical investigators: PhD, MD, MS (Training  Career path)
- Clinical Research Centre (Incl. Clinical trials, Epidemiology)

Future Position

- Integrate new technologies into established systems (cross discipline)
- Foster synergy of local expertise
- Facilitate collaboration with internationally renowned research institutions
- Address community needs

