

Research in Medical School:

From Individuals to Multidisciplinary Research Teams

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Goal

To achieve excellence and to
produce results relevant to the
community



Departments

VS

Functional Groups / Research Centres

- Academic discipline
 - Teaching programs
- Cognate research
 - Common interest topics, focus & coherence
 - Building on existing strengths & expertise
 - Critical mass
 - Resource utilization

Development of Research Teams

Strength

- Institutional mission & policy
- Infrastructure support
- Recognition of excellence
- Accountability

Weakness

- 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

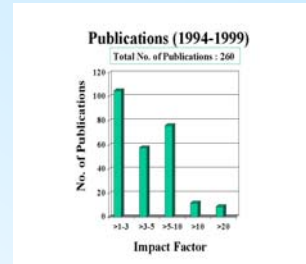
Cancer (lymphoid, lung, liver, nasopharynx)
Common Disorders: **diabetes & complications** **scoliosis**, **degenerative vertebral disc disease**, **infertility**

Genomic Research Technology

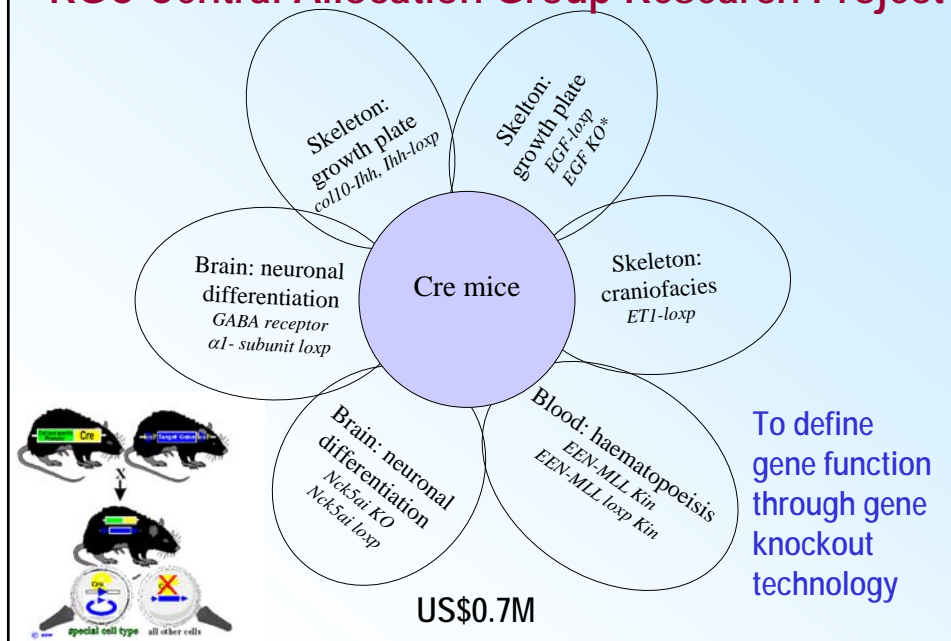
*Short-listed by UGC for development as Area of Excellence

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

