IRU members

• Charles Darwin University
• Flinders University
• Griffith University
• James Cook University
• La Trobe University
• Murdoch University
• The University of Newcastle

Murdoch Team: DVC-Research Prof. David Morrison
Research Director Prof. Cassandra Berry
Associate Dean Academic and International Prof. Ian Robertson
The role of the IRU

• Advise the Australian government on higher education, research and innovation policy
• Share our knowledge and experience in teaching, research and operations – within and beyond the network
• Collaborate through domestic and international partnerships
Objectives for the IRU delegation

• Strengthen recognition of IRU members in Malaysia as internationally relevant research intensive universities
• Identify new areas for research and education collaboration between IRU members and Malaysian universities
• Strengthen existing partnerships between IRU members and Malaysian universities
## IRU and Australian research quality

<table>
<thead>
<tr>
<th>Institution</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>Fields submitted</th>
<th>Fields rated world standard or above</th>
<th>% World standard or above</th>
</tr>
</thead>
<tbody>
<tr>
<td>The University of Newcastle</td>
<td>7</td>
<td>7</td>
<td>24</td>
<td>56</td>
<td>38</td>
<td>68%</td>
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<tr>
<td>La Trobe University</td>
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<tr>
<td>Griffith University</td>
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<td>James Cook University</td>
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<tr>
<td>Murdoch University</td>
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<td>12</td>
<td>34</td>
<td>22</td>
<td>65%</td>
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<tr>
<td>Flinders University</td>
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<td>6</td>
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<td>44</td>
<td>22</td>
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<td>Charles Darwin University</td>
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<td>16</td>
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<tr>
<td><strong>IRU TOTAL</strong></td>
<td>20</td>
<td>52</td>
<td>113</td>
<td>299</td>
<td>185</td>
<td><strong>62%</strong></td>
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<tr>
<td><strong>IRU % of Sector</strong></td>
<td>8%</td>
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<td>21%</td>
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<tr>
<td><strong>SECTOR TOTAL</strong></td>
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<td>393</td>
<td>547</td>
<td>1,738</td>
<td>1,179</td>
<td><strong>68%</strong></td>
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</table>
Individual Research Strengths

All seven universities have their own individual research strengths. Across the network we have 185 fields of research which are rated ’at’, ’above’, and ’well above’ world class standard.

The diagram below depicts the 72 fields of research where we are ’above’ and ’well above’ world standard. Common links across disciplines are indicated by coloured lines.

Source ERA 2010 - 4 ’above’ and 5 ’well above’ world class standard.
The IRU Delegation’s program

• Day 1 Ministry of Higher Education and Research
  Research Leadership Roundtable

• Day 2 Australia Malaysia Research and Innovation Forum
  • Hosted by Australian High Commission

• Day 3 Meetings with UKM and UPM

• Day 4 Meetings with USM and UTM

• Day 5 Meetings with UM
Malaysia

- 3rd largest international source for Australia higher ed
- Australian and Malaysia signed MOU on education in 2011
- Australia signed a free-trade agreement with Malaysia in 2012
- Malaysia aims to transform the nation into a high income country through improved education by 2020
Research Intensive Universities

- Ministry of Higher Education strategically funds research intensive universities in Malaysia for development to be at par with world-renowned universities

Performance criteria is based on:
- Quality and quantity of researchers-25%
- Quality and quantity of research-30%
- Quantity of postgraduates-10%
- Quality of postgraduates-5%
- Innovation-10%
- Professional services and gifts-7%
- International networks and linkages-8%
- Laboratory accreditation and support facilities-5%
Malaysia Strategic Plan

• Encouragement of collaboration with foreign universities for research and development
• Fundamental research grants (RM 115 million) for international collaboration
• New Nobel Laureate program by 2020
Research: an international world

• Research and innovation lie at the heart of the successful development of countries across the world.

• No country can expect to create all the ideas it requires. We need to access the international world of research.

• We need to link our researchers with researchers across the world to the benefit of all involved.
International Collaboration

• Generosity of spirit to collaborate
• Cross national research grants, linkages and engagement of staff with international networks
• Co-supervision of PhD students
• Staff exchanges
• Close proximity to Australia (Perth time zone)
• English language-speaking
• Shared problems and research areas of focus
Funding in High Impact Research Areas

• Infectious disease
• Tropical medicine
• Food security
• Global warming
• Water and energy security
• ICT
• Energy and energy saving
• Advanced and value added manufacturing
## Academic Rankings

World Uni 2012/QS World 2011

<table>
<thead>
<tr>
<th>University</th>
<th>Rank</th>
<th>QS Rank</th>
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</thead>
<tbody>
<tr>
<td>University of Malaysia (UM)</td>
<td>401-500</td>
<td>167</td>
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<tr>
<td>National University of Malaysia (UKM)</td>
<td>279</td>
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<tr>
<td>Science University Malaysia (USM)</td>
<td>335</td>
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<tr>
<td>Putra University Malaysia (UPM)</td>
<td>358</td>
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</tr>
<tr>
<td>University Technology Malaysia (UTM)</td>
<td>401-500</td>
<td></td>
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</tbody>
</table>
Prof Tan
Sri Dato’Wira Dr. VC

Prof. Dato’Dr. Rahmah Mohamed
DVC Research & Innovation Affairs
Universiti Kebangsaan Malaysia
Inspiring Futures, Nurturing Possibilities

The only national university, 42 years old
Comprehensive, 12 faculties, 1 Graduate School of Business, 16 Research Institutes
Research intensive
3 campuses – Bangi, Cheras, Kuala Lumpur
Subcampus & research stations
14,368 undergrads, 9,488 postgrad
2,254 academic staff
non academic 9,664 staff
138,139 alumni
16 RESEARCH INSTITUTES

- ATMA – Malay World & Civilization
- IKMAS – Malaysian & International Studies
- KITA – Ethnic Studies
- IKON – Occidental Studies
- HADHARI – Islam Hadhari
- IKRAB – West Asian Region Studies
- (SEADPRI-UKM) – Disaster Prevention
- LESTARI – Environment & Sustainable Development
- Fuel Cell
- IMEN – Microengineering & Nanoelectronics
- ANGKASA – Space Science
- UMBI – Medical Molecular Biology
- SERI – Solar Energy
- INBIOSIS – Systems Biology
- MGI – Genome
- (UNU-IIGH) – Global Health
8 NICHE AREAS OF RESEARCH - 24 CLUSTERS - 189 RESEARCH GROUPS - 2000 RESEARCHERS

Nanotech & Advanced Materials

Renewable Energy

Biodiversity for Biotech Development

Health Technology & Medicine

Regional Sustainable Development

Climate Change

Content Informatic

Building Nation State
International Collaborations with Universities

- UK LMB
- Germany Max-Planck Institute
- KSA KAUST
- South Korea KRIIBB Seoul National University
- Bangladesh Yunus Center
- Japan Riken
- USA SRI
- USA MIT Stevens Inst of Tech John Hopkins
- Cuba Finlay
- New Zealand University of Wellington
- Australia Universities
Potential Collaborations identified in breakout session for Medical and Health Science

• Medical Centre: all specialists to undertake PhD programs - N=6,000 healthy cohort and still recruiting 96,000 - 6 monthly urine and blood samples - 26 genomic sequences Malays, found 300,000 novel SNPs

• Goal to reach 1,000 genomes fully sequenced - Need people and linkages as currently contracting out sequencing (possible IIID linkage)
Dato’ Ir. Dr. Radin Umar Radin Sohadi VC

Prof. Ir. Dr. Mohd Saleh Jaafa DVC Research & Innovation
Universiti Putra Malaysia (UPM) is one of Malaysia’s premier public universities with an array of disciplines.

Located strategically within the Multimedia Super Corridor, only 10 minutes drive to Putrajaya and 30 minutes drive to the Kuala Lumpur City Centre.

Accorded the status of ‘Research University’ by the Ministry of Higher Education, Malaysia in 2006.
16 Faculties
- Faculty of Agriculture
- Faculty of Forestry
- Faculty of Veterinary Medicine
- Faculty of Economics & Management
- Faculty of Engineering
- Faculty of Educational Studies
- Faculty of Science
- Faculty of Food Science & Technology
- Faculty of Human Ecology
- Faculty of Modern Languages & Communication
- Faculty of Design & Architecture
- Faculty of Medicine and Health Sciences
- Faculty of Computer Science & Information Technology
- Faculty of Biotechnology & Biomolecular Sciences
- Faculty of Environmental Studies
- Faculty of Agriculture & Food Science (Bintulu Campus)

9 Institutes
- Institute of Bioscience
- Institute of Advance Technology
- Institute of Gerontology
- Institute of Mathematical Research
- Halal Product Research Institute
- Institute of Agricultural and Food Policy Studies
- Institute of Tropical Forestry & Forest Product
- Institute for Social Sciences Studies
- Institute of Tropical Agriculture

2 Schools
- School of Graduate Studies
- Graduate School of Management

1 Academy
- Sports Academy
6 Research Clusters

Cluster

- Agriculture
- Food
- Social Science
- Health
- Forestry & Environment
- Science, Technology & Engineering
H-Index: 62

Total times cited: 48,849

Average Citation: 3.87

As of January 2012
Potential Research Collaboration

- Control and eradication of Foot-and-mouth disease to enhance ruminant industry in Malaysia
- Multidrug-resistance of zoonotic foodborne pathogens, VRE and MRSA in food animals
- Control and eradication of leptospirosis: an infectious disease that threatens the animal industries and the health in the region
- Elucidation of the molecular epidemiology and pathogenesis of reemerging zoonotic diseases related to ruminant reproductive failure
- Emerging and reemerging diseases of animals and public health important
**Impacts of Climate Change on Tropical Forest Ecosystem**

**INTRODUCTION**
- Climate change and its predicted impact is threatening the world ecosystem.
- Response of tropical ecosystem to the climate is difficult to predict due to uncertainties in anticipated carbon dioxide increment and global temperature.
- Future climate scenarios may affect carbon and hydrological cycle of the tropical forest ecosystem and will influence flora and fauna distribution.

**JUSTIFICATION**
- To predict the impact of climate change, basic processes of the tropical ecosystem must be studied, monitored and understood.
- Carbon and hydrological cycle is one of the important process in tropical ecosystem.
- Increasing in temperature will increase the forest respiration which leading to less growth and lower productivity.
- Conflict responses of tropical forest open opportunities for exploration of response of these functions to different climatic scenarios and also expected increase in extreme events or disturbances.

**POSSIBLE RESEARCH TOPICS**
- Carbon cycling in intact and disturbed tropical forest ecosystem
- Impact of fragmentation tropical forest biodiversity
- Impact of climate change to tropical forest flora and fauna
- Forest ecosystem service provisioning in future climate
- Role of agroecosystem in carbon sequestration
- Hydrological modeling in future climate
- Biogeochemical cycling in future climate
- Modelling of carbon cycle in different forest ecosystem
- Water transport in tropical trees
UPM NICHE AREAS MAPPED TO LRGS TOP DOWN NICHE AREAS

FOOD SECURITY
- Agriculture & Food Policy Studies
- Food Safety & Food Processing
- Food Tourism: Most Promising Tourism Products
- Poultry Production & Health
- Smart Farming
- Sustainable Agricultural Resources
- Sustainable Aquaculture Production
- Sustainable Soil Management

ADVANCED MANUFACTURING & ADDED VALUE MATERIALS
- Advanced Materials Nanotechnology
- Bio-renewable Composite
- Catalysis & Green Reactions
- Fats & Oils Technology
- Enzyme & Microbial Technology
- Lightning Protection & Electromagnetic Compatibility

TROPICAL MEDICINE & INFECTIOUS DISEASES
- Drug Discovery
- Cancer Research
- Biomedical Engineering
- Functional Food & Nutrition-related Diseases
- Natural Bio-resource Based Medicine
- Animal Vaccines, Diagnostics & Therapeutics
- Animal Infectious Disease
Potential Collaborations identified in breakout session MHS

• Prof. Norlijah Othman UPM
  Clinical Science/Medical Microbiology
  -Allergy and Dengue in children with Dr Michaela Lucas

• Dr Othman Omar UPM
  Medical Microbiology/Immunology
  -Avian influenza oral DNA vaccines for poultry with Profs Cassie Berry/Stan Fenwick/Ian Robertson
Prof Dato’ Omar Osman
VC

Prof Asma Ismail
DVC Research & Innovation
About

- USM – 2nd oldest university in Malaysia
- Main emphasis is in the sciences
- Established in 1969 (43 years)
- Also known as University in a garden
APEC Vision & Mission

Vision
Transforming Higher Education for a Sustainable Tomorrow

Mission
USM is a pioneering, trans-disciplinary research intensive university that empowers future talents and enables the bottom billions to transform their socio-economic well-being

Values
Quality, Equity, Availability, Accessibility, Appropriateness

Thrusts
Future-oriented, Unique, Sustainability, Humanity, Universality, Change, Sacrifice
MAJOR RESEARCH PROGRAMMES

- Biotechnology – Medical, Pharmaceutical,
- Food Processing/Tech, Life science
- Environmental & Ecological Sciences
- Aquaculture & Marine Sciences
- Nanotechnology
- Membrane technology
- Rapid Diagnostics
- Mobile Teleradiology
- Waste management
- Public policy and sustainability science

- Information & Communication Technology
- Women and Gender studies
- Archaeological Research
- Brain Science
- Vaccinology
- Alternative Energy Solar Energy
- Sustainable Tourism
- Local Knowledge
- Hajj Management
The gap between rich and poor is becoming wider and more visible. Almost 60% of humanity lives on less than $2 a day. Nearly 30% of the world's population suffers some form of malnutrition.

<table>
<thead>
<tr>
<th>Distribution of world income</th>
<th>Each band represents an equal fifth of the world population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richest</td>
<td>82.7%</td>
</tr>
<tr>
<td>11.7%</td>
<td></td>
</tr>
<tr>
<td>2.3%</td>
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<tr>
<td>1.9%</td>
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<tr>
<td>Poorest</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

Source: UNDP, 1989

There is a need to reduce the inequity divide.

The world's richest 50 million people consume as much as the 2.7 billion poorest people on the planet.
• Address the needs of the 5 billion people on the planet living below poverty line including those below poverty line in Malaysia
• Concentrate on research outcomes and technology development that will reduce inequity and enhance sustainability that includes availability, affordability, accessibility, appropriateness and quality of our innovations to those who need it most
• Undergo real world experiences via community engagement to transfer solutions and know-how that ensure sustainability of change
R&I Achievements

- **Training of human resource**
  - Graduated 880 PhDs
  - Trained 432 Post Docs (since 2007)

- **Active Grants (2012)**
  - 3700 active grants
  - Over USD 24 million

- **Publications**
  - Published over 2800 papers/year in citation-indexed journals
  - 18% of Malaysia’s ISI
  - 14% of Malaysia’s Scopus

- **QS Asian ranking 2011**
  - Top 40 in Natural sciences
  - Top 20 in Life science and Medicine

- **IP and innovations**
  - Filed 248 patents with 42 granted
  - Commercialised 83 products
USM Publications in Web of Science (1973 – 2010)

Source: Web of Science (Thomson Reuters), as of Oct 9, 2011

Published Items in Each Year

Citations in Each Year

The latest 20 years are displayed.

Total Times Cited : 51,639
Average Citation : 5.61
h-index : 63
Citations (in 5-year intervals) for MRU

Source: Essential Science Indicators (Thomson Reuters), as of Sept 1, 2011

Note: No UTM data in Thomson ISI
Strategy: Creating landmarks in the international arena

- **Knowledge acquisition**
  - Collaborate *strength to strength* with strategic partners so that there is mutual respect among partners
  - Ability to attract international grants
  - Attract world renowned universities and research institutes to have joint research collaborations, joint-degrees and joint-labs
  - Attract multinationals to relocate in USM or establish corporate space in USM due to our technology platforms

- **Knowledge transfer**
  - Enhance concept of global classroom or mirror labs so that we can reach out to bottom billion countries

*To be the best we have to work with the best*
USM moving to the global market (25 countries)

- Total Income Generation: RM 36.8 million in 2007
- Total Income Generation: RM 41.2 million in 2008
- Total Income Generation: RM 45.2 million in 2009

- Commercialised product
- Books & Journal Subscription
- Endowment, Gift, Consultancy

Countries:
- Pakistan
- India
- Philippines
- South Africa
- Guam
- Papua New Guinea
- Thailand
- Vietnam
- Egypt
- Turkey
- United Arab Republic
- Indonesia
- Bangladesh
- China
- Sudan
- Cameroon
- Nigeria
- USA
- South Korea
- Japan
- Canada
- Singapore
Molecular Diagnostics for low resource settings

Rapid protein or DNA-based diagnostics for the following diseases

- Typhoid
- Cholera
- Campylobacteriosis
- Filariasis
- Tuberculosis
- Dysentery
- Paratyphoid
- Nosocomial infection
- Drug response

Focus on diseases relevant to S.E. Asia
## USM vs IRU Research Discipline Area

<table>
<thead>
<tr>
<th>No</th>
<th>World Class Research Discipline Area</th>
<th>Charles Darwin</th>
<th>Flinders</th>
<th>Griffith</th>
<th>James Cook</th>
<th>La Trobe</th>
<th>Murdoch</th>
<th>Newcastle</th>
<th>USM</th>
</tr>
</thead>
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<td>Biological Sciences</td>
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<td>Built Environment and Design</td>
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<td>Chemical Sciences</td>
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<tr>
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<td>Commerce, Management, Tourism and Services</td>
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<th>USM</th>
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<th>Competencies</th>
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<td>-</td>
</tr>
<tr>
<td></td>
<td>180</td>
<td>122</td>
<td>348</td>
</tr>
</tbody>
</table>
Potential Collaborations identified in breakout session MHS

• Prof Rahmah Noordin USM Deputy Director of Institute for Research in Molecular Medicine (INFORMM) 
Medical Microbiology/Proteomics- Parasitology and diagnostic tests: 
Potential collaboration with Profs Una Ryan, Prof. Andy Thompson and Assoc. Prof. Alan Lymbery

Dr Norazmi Mohd. Nor USM 
Clinical Science/Medical Microbiology/Immunology- Tropical infectious diseases: 
Potential collaboration with Prof. Cassie Berry on type I IFNs as a biomarker for cerebral TB disease in the tropics

Doping Control Centre: Antidoping in sport competitions USM with Dr Jeremiah Peiffer

Genomics Genetics: Ancient DNA 1.4 million years old. 
Perak man USM and UKM with Prof Mat Belgarde and Dr Mike Bunce
USM

• USM – development of rapid diagnostics and affordable vaccines for low resource settings.

• USM is a pioneering, transdisciplinary research-intensive university that empowers future talent and enables the bottom billions to transform their socio-economic wellbeing.

• Prof Asma Ismail DVC-R&I offered to fund initial workshops for collaboration and she is interested in our healthy cohort at IIID for public health research and proposes to visit Murdoch with Prof Rahmah Noordin.

• 18 Research Centres and 133 patents in health sciences.
# Performance – MyRA 1

## 2007-2009

<table>
<thead>
<tr>
<th>No</th>
<th>Summary and Total Marks</th>
<th>Status</th>
<th>Marks Obtained</th>
<th>Full Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SECTION B: Quantity and Quality of Researchers (25%)</td>
<td>OK</td>
<td>19.1</td>
<td>25</td>
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<tr>
<td>2</td>
<td>SECTION C: Quantity and Quality of Research (30%)</td>
<td>UNSATISFACTORY</td>
<td>17.4</td>
<td>30</td>
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<tr>
<td>3</td>
<td>SECTION D: Quantity of Postgraduates (10%)</td>
<td>EXCELLENT</td>
<td>14.1</td>
<td>10</td>
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<tr>
<td>4</td>
<td>SECTION E: Quality of Postgraduates (5%)</td>
<td>OK</td>
<td>6.7</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>SECTION F: Innovation (10%)</td>
<td>OK</td>
<td>8.9</td>
<td>10</td>
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<tr>
<td>6</td>
<td>SECTION G: Professional Services and Gifts (7%)</td>
<td>OK</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>SECTION H: Networking and Linkages (8%)</td>
<td>OK</td>
<td>6.9</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>SECTION I: Support Facilities (5%)</td>
<td>OK</td>
<td>4.6</td>
<td>5</td>
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<tr>
<td></td>
<td>TOTAL MARKS (B, C, D &amp; E must be &gt; 50)</td>
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<td>57.3</td>
<td>70</td>
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<td></td>
<td>OVERALL SCORE (Entry level &gt; 75 for MRU)</td>
<td>- OK -</td>
<td>84.6</td>
<td>100</td>
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## 2011

<table>
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<tr>
<th>Status</th>
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<td>OK</td>
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<tr>
<td>EXCELLENT</td>
<td>38.9</td>
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<tr>
<td>EXCELLENT</td>
<td>16.8</td>
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<td>6.7</td>
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<tr>
<td>EXCELLENT</td>
<td>10.0</td>
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<tr>
<td>OK</td>
<td>7.0</td>
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<tr>
<td>OK</td>
<td>6.3</td>
</tr>
<tr>
<td>OK</td>
<td>4.6</td>
</tr>
<tr>
<td></td>
<td>82</td>
</tr>
<tr>
<td>- OK -</td>
<td>109.7</td>
</tr>
</tbody>
</table>
UTM

- 46% postgraduates
- 3,439 PhD students
- 10,888 postgraduate students
- 4,435 international students
- 5,000 global outreach program
- Endowment RM31.0 m
UTM Research Alliances

- Water
- Nanotechnology
- Biotechnology
- Construction
- K-economy
- Sustainability
- Energy
- Transportation
- Cybernetics
- Materials and manufacturing
- Infocomm
<table>
<thead>
<tr>
<th>No</th>
<th>Criteria</th>
<th>Unit for KPI</th>
<th>2007-2009</th>
<th>2010</th>
<th>2011</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Critical Mass</td>
<td>Total number of academic staff involved as principal investigator of research grants</td>
<td>514</td>
<td>654</td>
<td>1012</td>
</tr>
<tr>
<td></td>
<td>a. University funded</td>
<td></td>
<td>90</td>
<td>215</td>
<td>513</td>
</tr>
<tr>
<td></td>
<td>b. National grants</td>
<td></td>
<td>418</td>
<td>429</td>
<td>482</td>
</tr>
<tr>
<td></td>
<td>University/National funded</td>
<td></td>
<td>508</td>
<td>644</td>
<td>995</td>
</tr>
<tr>
<td></td>
<td>c. International grants</td>
<td></td>
<td>6</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>PhD or Professional Qualification</td>
<td>Total number of staff with PhD/DSc, DEng</td>
<td>730</td>
<td>900</td>
<td>1018</td>
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</table>
Assoc. Prof Aamir Saeed Malik UTM Plans to visit MU in November 2012 with Prof Ahmed Fadzil DVC-Academic
Prof Datuk Dr. Ghauth Jasmon
VC

Prof Dr. Hamzah A. Rahman
DVC Research & Innovation
University of Malaya

- 12 Faculties, 6 Institutes, 2 Academies, 3 Academic Centres
- Offering courses at:
  - Undergraduate (112 programmes)
  - Postgraduate (109 programmes)
- More than 2000 academic staff
  - 67% are PhD holders
  - 21% are International staff

www.um.edu.my
Australia-Malaysia Research Innovation Forum, Kuala Lumpur 12th June 2012
University of Malaya

- Home to 26,000 students
- 14,400 undergraduate (UG) students
  - 900 are International UG students
- 11,600 postgraduate (PG) students
  - 2500 are International PG students
- Total of about 3400 international students from 82 countries
Enhancement of Research and Publications

- Formation of 8 Research Clusters
- Formation of Units to assist research & publications
- Increased R & D fund (operational budget) from 7% (2006) to 25% (2011)
- Implementation of the University Research Grant (URG) scheme
UM Research Clusters

- Advanced engineering technology
- Advanced fundamental research
- Humanities and ethics
- Health and translational medicine
- ICT
- Social and behavioural science
- Sustainability science
- Biotechnology and bio product
Enhancement of Research and Publications

- Set **Standard Academic Performance Targets** and new promotion criteria as benchmarked against global research universities in the Asian as well as other regions.
- Set up **High Impact Research Grant (HIR)** scheme which is chaired personally by the VC - stringent outcome targets is expected from the scheme.
- **Incentives** of RM 50,000 for publication in Nature and Science.
- **Incentives** paid for ISI paper based on the ISI tiers (Q1, Q2, Q3, Q4)

[web link]
www.um.edu.my
Australia-Malaysia Research Innovation Forum, Kuala Lumpur 12th June 2012
HIR from the Ministry of Higher Education

Cabinet decision to support at least one research university to break into the Top 100 world ranked universities by 2015 based on QS Ranking

MOHE Fund started in July/August 2011

Total allocation – RM590 million for 5 years

Five faculties and one Special Chancellory Project
HIGH IMPACT RESEARCH (HIR) ADVISORY COUNCIL

1. UM Nobel Fellow Dr. Barry Marshall
2. UM Nobel Fellow Dr. Ryoji Noyori
3. UM Nobel Fellow Dr. David Baltimore
4. UM Distinguished Fellow Dr. Rita Colwell
CRITERIA FOR HIR FUNDING

1. Emphasis is on Fundamental Research
2. Quality projects in niche priority areas
3. Internationalism and partnership with ivy-league universities
4. Publication in ISI/WoS Tier 1 high impact journals in respective disciplines
5. PIs must have good track record of Tier 1 publications, not meant for “rookies”
6. Cost-effectiveness at RM100K/Tier 1 paper
7. Other targets include manpower development, patents
Some of UM's MOU International partners
<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Academic Staff</td>
<td>Has increased from 1,650(2007) to more than 2,000(2011) with 25% international faculty</td>
</tr>
<tr>
<td>Number of Undergraduate Students</td>
<td>Has decreased from 19,443(2006) to 14,340(2011)</td>
</tr>
<tr>
<td>Number of postgraduate students</td>
<td>Has increased from 9,884(2006) to 11,638(2011) with 25% foreign students from 82 countries</td>
</tr>
<tr>
<td>Expenditure for Research &amp; Development</td>
<td>Has increased from 7%(2006) to 25%(2011) of university ‘s annual operational budget</td>
</tr>
<tr>
<td>Research Publications</td>
<td>Has increased from 1,436 (2006) to 3,747 (2011)</td>
</tr>
<tr>
<td>Patent (Registered and Pending)</td>
<td>Has increased from 28(2007) to 57(2011)</td>
</tr>
</tbody>
</table>
No. of Publications in ISI-Indexed Journals

(Source: UM Library)
UM in QS World University Rankings

**Year: 2007**
- Overall: 246=
  - Social Sciences & Management: 119
  - Natural Sciences: 124
  - Life Sciences & Medicine: 107
  - Engineering & Technology: 166
  - Arts & Humanities: 233=

**Year: 2008**
- Overall: 230=
  - Social Sciences & Management: 137=
  - Natural Sciences: 197=
  - Life Sciences & Medicine: 127=
  - Engineering & Technology: 179=
  - Arts & Humanities: 190

**Year: 2009**
- Overall: 180=
  - Social Sciences & Management: 167=
  - Natural Sciences: 244
  - Life Sciences & Medicine: 132=
  - Engineering & Technology: 201=
  - Arts & Humanities: 178=

**Year: 2010**
- Overall: 207=
  - Social Sciences & Management: 195
  - Natural Sciences: 290=
  - Life Sciences & Medicine: 181=
  - Engineering & Technology: 164=
  - Arts & Humanities: 238=

**Year: 2011**
- Overall: 167=
  - Social Sciences & Management: 165
  - Natural Sciences: 296
  - Life Sciences & Medicine: 147
  - Engineering & Technology: 180
  - Arts & Humanities: 191
UM Enhancement of Research Performance

GOAL in delivering excellence:

– aim for QS ranking in top 100

(need to improve 67 places)
Potential Collaborations identified in breakout session MHS

• Prof Jamunarani S Vadivelu UM - Immunology/Clinical Science-Tumour immunology
  - Potential collaboration with Dr Phil Stumbles on dendritic cells in ultrasonic therapy of tumours.

• Dr Tiong Yin Xin- Sheena and Assoc. Prof. Durriyah Sharifah Neuroscience- Electrophysiology
  - New collaboration with Dr Sarah Etherington on neuronal network pathways is now underway due to delegation visit.

• Prof. Johari Surin UM - Medical Microbiology- Parasitology
  - Established collaborations with Prof. Andy Thompson on parasitology.
Potential Collaborations identified in breakout session MHS

• Prof. Thong Kwai Lin UM Deputy Director Research Development and Services IRMM Medical Microbiology-Bacteriology
  - Potential collaboration with Prof. Stan Fenwick on food borne bacterial pathogens.

• UM Centre of Excellence for Research in AIDS - Clinical Science/Immunology
  - Potential collaborations with Prof. Simon Mallal’s team.

• UM Centre for Proteomics Research
  - Potential collaborations with Assoc. Prof. Rob Trengove’s team.

• Nanobiotechnology - Nanotechnology
  - Potential collaboration on rapid nano-biodiagnosticstics for low resource settings with Dr Eddy Poinern.
Outcomes from the IRU delegation

• A deeper understanding of the Malaysian Higher Education system, its aspirations for change and the potential for IRU members to contribute

• Institution level agreement to pursue areas of potential linkage

• Some agreements for follow up between participating IRU researchers and Malaysian counterparts
Potential Collaborations

- Enhancement of research performance, delivering excellence
- Identify potential collaborations
- Discoveries made by visit
- Existing relationships
- Pursue areas of interest
- Malaysia DVC-R visit to Australia IRU
  - USM will visit in November
- Ministry, AKEPT (Malaysian Higher Education leadership Academy) and IRU support
Methods of Research Collaboration

• Co-supervision, joint papers, joint grant applications, joint degrees
• Joint lab/facilities
• Joint seminar/workshop/conference
• Joint industry
• Student/staff exchange
• Joint clinical trial/field trial/evaluation studies
Funding Opportunities

• Malaysian Fundamental Research Grant Scheme (FRGS)
• Government/industry matching grants
• International student exchange program (ISEP)
• Australian Endeavour awards