



## Message from the Vice Chancellor of UKM

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*Prof. Dato' Dr. Sharifah Hapsah  
Syed Hasan Shahabudin*

*Assalamualaikum wbt. dan Salam Sejahtera*

I would like to thank the management of UMBI for giving me the opportunity to pen a message in its annual report for 2006-2007. I must again congratulate the director of UMBI, all the research fellows, and the entire support staff for their outstanding contribution towards research and development at UMBI.

As stated in this Annual Report, the researchers at UMBI have achieved considerable success in their work. During this period the involvement of UMBI in the space science programme has been outstanding. By spearheading three of the four experiments conducted at the International Space Station, UMBI has proven that it has what it takes to be major player at the international level. I am proud that UKM has not only contributed the candidate for the nation's historic mission but has also significantly led the scientific programme.

I am convinced that UMBI will continue to excel as a Centre of Excellence accorded by the Ministry of Higher Education. With the support of its researchers and those at the Faculty of Medicine as well as other faculties and institutions in UKM, UMBI will continue to grow as a leading centre for research in molecular medicine, thus enhancing the status of UKM as a research university.

The efforts and achievements of UMBI in year 2006-2007 covered by this report are truly commendable. I hope that UMBI will continue to demonstrate outstanding performance and become the leading institute in molecular medicine in the region.

Thank you.

**Prof. Dato' Dr. Sharifah Hapsah Syed Hasan Shahabudin**  
Vice-Chancellor  
Universiti Kebangsaan Malaysia

# Message from the Director

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*Assalamualaikum wbt. dan Salam Sejahtera*

The years 2006 and 2007 have been very hectic for UMBI especially in terms of research activities. UMBI continued to grow in terms of strength and stature and became even more visible at the national level. The number of post-graduates increased and so did the number of research fellows. UMBI has decided to invest in both bringing in the experienced researchers as well as training bright young scientists for the future. One of UMBI's young research fellow, Ms Azian Murad is now doing her PhD programme at the Queensland Institute for Medical Research in Australia and another, Ms Fazlina Nordin, has just started her PhD program in stem cell research at the prestigious Kings College School of Medicine, United Kingdom. UMBI continues to provide opportunities for young scientists to join its bandwagon of research as part of UKM's efforts in consolidating its status as a research university. Building up the human capacity is definitely a priority.



*Profesor Dr A Rahman A Jamal*

UMBI's formidable line of research fellows also continued their success in acquiring research funding. It is worthy to note that UMBI was developed mainly on money from research funding with little dependency on the university's fund. It is always good to remember that from a start-up funding of RM25000 in 2003 upon its inception, UMBI has acquired assets of more than RM15 million in terms of equipments and research platforms. Kudos to all our research fellows who had worked passionately together to acquire funds from diverse sources and working as a team over the years to help bring up UMBI to its current position. Certainly the ability to acquire funds is another pillar of strength for UMBI.

UMBI continues to be recognized at the national level as a research institute which has the expertise in molecular medicine and could anchor important national projects. The Malaysian Cohort project continued to progress into its 2<sup>nd</sup> and 3<sup>rd</sup> year. The machinery has now been fine tuned and at the end of 2007, more than 4000 participants (40 years and above) have been recruited. The bank of health data and biospecimens has become a valuable resource for research and will continue to grow in value. However, the baseline results have revealed many surprises in terms of the health status of the population.

The National Angkasawan Programme which was initiated in 2005 definitely has a strong and significant UKM's contribution to it. Dr. Sheikh Muszaphar himself is a trainee orthopaedic surgeon at the Faculty of Medicine of UKM and he certainly made the nation proud with his arguably flawless accomplishment of the space mission. The space science program which was firmly embedded into the National Angkasawan Programme, also involved researchers from UKM and specifically from UMBI. The author was given the enviable task of coordinating the space science program which involved scientists from many different institutions including UPM, UM and UiTM. Two of the 3 projects namely, Eukaryotic Cells in Space (ECIS) and Microbes in Space, which were sent to space were led by the author and Professor Dr. Ramelah Mohamed respectively. The successful launch and return of the angkasawan and the space experiments in October 2007 marked another milestone in the achievements of science for the nation and UMBI is certainly proud that it has contributed to this success. In fact, many did not realize that UMBI's researchers had sent the nation's first experiment into space in December 2006 via the STS116 shuttle mission in collaboration with scientists from the University of Colorado, USA as well as from the Simon Fraser University in Canada. Again, this was a landmark experiment involving the famed nematode *Caenorhabditis elegans*, which stayed in space for more than 6 months before being brought back in June 2007. All the specimens from the experiments are being analysed at the time of writing and we believe that the results will benefit the scientific community. The space science programme has enabled UMBI's scientists to link with researchers from other space agencies and institutions including NASA, European Space Agency (ESA), Japanese Space Agency (JAXA) and the Institute for Biomedical Problems (IBMP) in Russia. UMBI also continued to establish networking and linkages with outstanding institutions all over the world. Professor Roderick Dashwood who is the Director for the Cancer Chemoprevention Program at the Linus Pauling Institute, University of Oregon, USA was appointed as an adjunct professor at UMBI.

At the national level, UMBI continues to form linkages with local institutions through various research projects. The Faculty of Pharmacy at UiTM has started collaboration in pharmacogenetics research involving 2 types of cancers. UMBI is also collaborating with the Institute for Medical Research in a project on gene-environment interaction in breast and cervical cancers. UMBI is also a major partner in a project with Innobiologics and the Malaysia Nuclear Agency involving the production and testing of an anti-CEA antibody for in vivo diagnostic for cancer. We hope that more multi-disciplinary, integrated and collaborative research can be promoted and developed amongst institutions to enhance the research output for the nation. There must a balance between competition and collaboration if we want to compete and excel at the global arena.

UMBI has also been successful in getting allocation for its own building under the RMK9. The new building will take at least 3 years to complete but we are certainly happy that this is happening and will allow UMBI to flourish further in its quest to become a centre of excellence in the region. As we move into the year 2008, we have to further consolidate our pillars namely, the human capacity (researchers and graduate students), the research activities, the research funds, the infrastructure, the networking and linkages, and the research output. Central to these are the governance and the efficiency of execution of the strategic plan. UMBI is definitely on track to achieve its mission.



**Professor Dr. A Rahman A Jamal**  
Director UMBI

# Institute Information

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## Introduction

Looking back, the years 2006 and 2007 had been both exciting and challenging for UMBI. UMBI continued to grow and flourish in terms of capacity building, expansion of resources and research. UMBI has spread its wings with the appointment of 6 Associate Fellows into UMBI, that included Professor Dr. Syed Mohamed Aljunid with his highly acclaimed expertise in health economics, Associate Professor Dr. Roohaida Othman with her strength in systems biology, Associate Professor Dr. Zarina Abdul Latiff with her expertise in pediatrics and clinical genetics, Dr. Nor Fadilah Rajab with her passion and skills in toxicology and Dr. Azmi Mohd Tamil with his expertise and enthusiasm in community health and statistics. These appointments reflected the open policy in UKM which has enabled UMBI to form linkages with other faculties to enhance the research strength and capacity in UMBI and UKM. The year 2007 also saw the addition of Dr. Khairul Bariah Ahmad Amin Noordin and Dr. Then Sue Mian as UMBI's fulltime research fellows. These two young scientists were the products of UKM and have tremendous potential to excel further in their career at UMBI.

UMBI also expanded its research facilities with the acquisition of various powerful instruments and platforms for cutting edge research. UMBI have acquired 2 microarray platforms, namely the Affymatrix and the Illumina systems for high throughput analyses in gene expression and whole genome-wide association studies. UMBI has also set up a proteomics laboratory with the acquisition of the Q-TOF (LC-MS) in 2007 for the biomarker discovery in cancers and other diseases.

The year 2007 was also a momentous year with the establishment of gravitational biology and space research as a new area of research for the Malaysian scientific community. Two of UMBI's principal research fellows, Professor Dr. A Rahman A Jamal (who was also the overall scientific coordinator for the space science programme) and Professor Dr. Ramelah Mohamed were the principal investigators for two of the 3 projects under the Space Science Programme. The two experiments entitled "Microbes in Space" and "Eukaryotic Cells in Space" aimed to look mainly at the effects of space radiation and microgravity in cancer cells and microbes specifically at the genome-wide changes in gene expression changes as well as in drug resistance. The successful completion of Project Angkasawan Negara in October 2007 marked the astounding success of Malaysian scientists in experimental design and optimisation for life science experiments. The space flight samples which survived the tremendous G-forces during re-entry and also the hard impact on landing are now in the process of analysis.

The Malaysian Cohort project has gone through the preparation stage and simulation phases to test all the systems and study protocols. The Cohort Information Management System (CIMS) is a copyright which has been jointly developed with a local vendor to manage the information and database for this huge project. The recruitment of participants had covered Kajang and Rompin and will systematically target various places in all the states of Malaysia, including Sabah and Sarawak. The project has received tremendous response and positive feedback from the public and many have willingly contributed to the study and donate biospecimens for research which captured the essence of The Malaysian Cohort "Our gift to the future generation".

The enrolment of postgraduate students and research assistants has also increased to a total of 48 by the end of 2007 and this included 15 PhD and 33 MSc students. These students are currently working on various projects secured by the research fellows in UMBI. In total, at the end of 2007 UMBI has received RM82 million from various funding bodies, including MOHE and MOSTI for these projects.

UMBI is also one of the two institutes in UKM that was selected and given funding for laboratory accreditation. In 2007, various training and activities were conducted to prepare the personnel and documentation for the accreditation process. We have completed the first draft of the Quality Manual and now are in the midst of fine tuning the SOPs and training of personnel. In spite of the busy research activities, UMBI has also successfully organized the 2<sup>nd</sup> Regional Conference on Molecular Medicine (RCMM) on the 26<sup>th</sup>-28<sup>th</sup> October 2007 and we had the privilege of having the Minister of Higher Education, Dato' Mustapha bin Mohamed to officiate the opening ceremony.

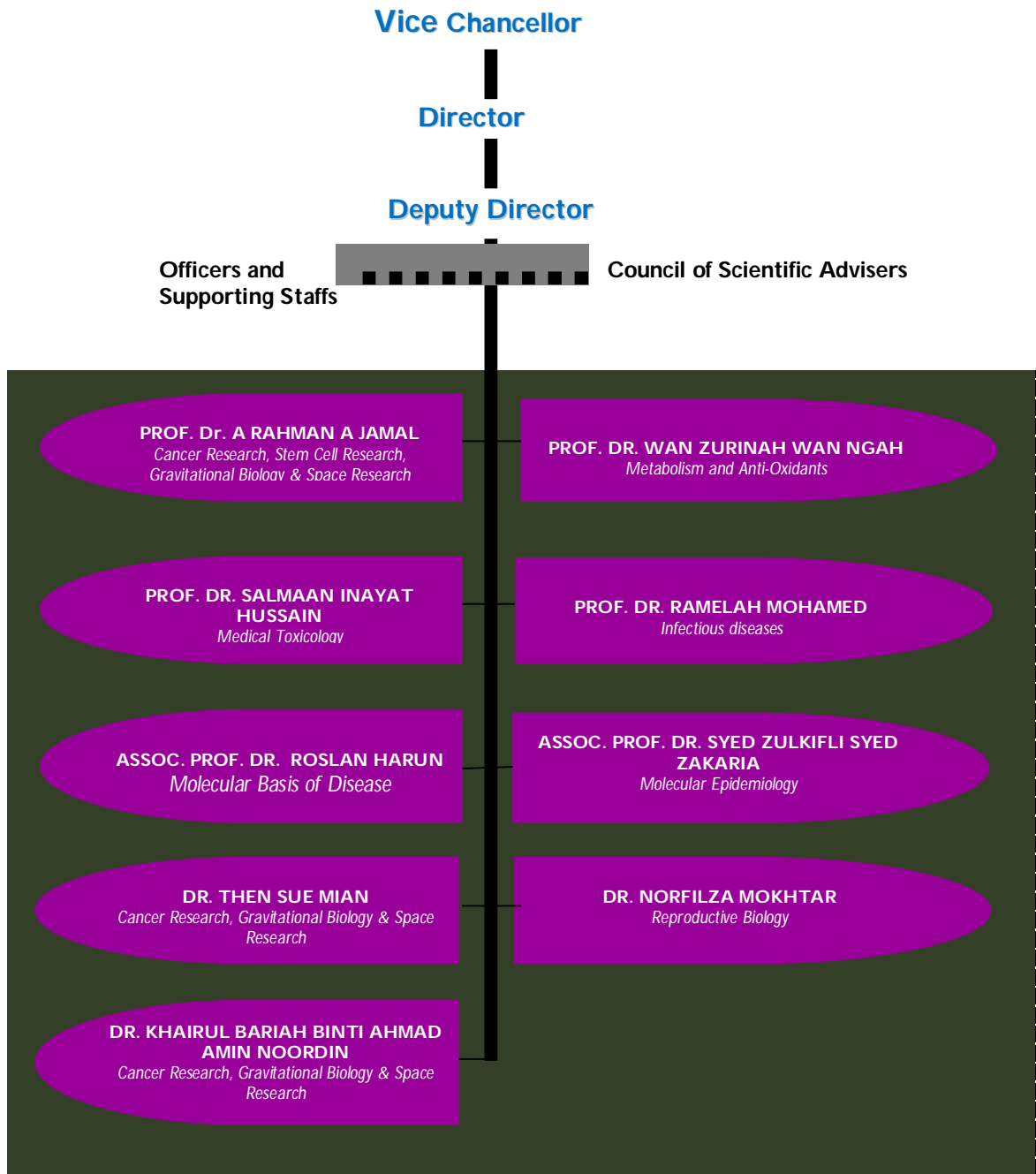
UMBI has also done well in terms of research output with publications in cited and high impact factor journals. UMBI's focus on fundamental and translational research requires optimum output on publications and the generation of new knowledge. UMBI's researchers and staff members have also attended various conferences and training courses both local and overseas to update on the latest development and technologies in medical science research.

With the rapid expansion of facilities and students, UMBI certainly needs more space to cater for the increasing capacity and demands. Our Vice Chancellor and the top management have given their full support to UMBI in its efforts to have its own building. Currently, UMBI is in the process of planning for a ten-storey building adjacent to the Pusat Perubatan UKM.

In a nutshell, the years 2006 and 2007 have certainly been memorable in terms of research activities and accomplishments. Definitely, we have gone from ground to space in just a matter of 4 years! We believe that there is only one way to go which is to continue to expand and grow as we have set our sight to be a world class research institute by the year 2015.



## Organization chart





## Staff Directory

### Director



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### Research fellows



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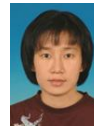
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## Supporting staff



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## Research Programmes At UMBI

Our research in molecular medicine includes fundamental, applied and experimental/development research. There are seven thrust areas of research activities at UMBI, based on the strength and expertise of the research fellows.

Research programme	Researchers	Position
Cancer research	Prof. Dr. A Rahman a Jamal	Director and Principal Fellow
	Dr. Khairul Bariah Binti Ahmad Amin Noordin	Research Fellow
	Dr. Then Sue Mian	Research Fellow
Gravitational Biology & Space Research		
Stem cell and gene therapy		
Metabolism and antioxidants	Prof. Dr. Wan Zurinah Wan Ngah	Principal Fellow
Infectious diseases & immunology	Prof. Dr. Ramelah Mohamed	Principal Fellow & Senior Fellow
Toxicology	Prof. Dr. Salmaan Inayat Hussin	Principal Fellow
Molecular basis of disease	Assoc. Prof. Dr. Roslan Harun	Deputy Director/Senior Fellow
Reproductive Biology	Dr. Norfilza Mokhtar	Research Fellow
Molecular epidemiology and pharmacogenomics	Assoc. Prof. Dr. Syed Zulkifli Syed Zakaria	Senior Fellow

# Researchers



## Profile Fellows

### Professor Dr. A Rahman A Jamal

**Qualifications:** MD (UKM), MRCP (Ireland), PhD (London)  
PhD thesis in Haematology (awarded by University of London in 1996)

#### Research interests

- **Molecular biology of cancers**  
Our research team currently focuses on genomics, proteomics and pharmacogenetics of various cancers including leukaemias, breast cancer, cervical cancer and colorectal cancers.
- **Biomarker discovery**  
Our team currently anchors The Malaysian Cohort project which aims to recruit 100,000 individuals aged 40 years and above to study gene-environment interaction in cancers and other diseases.
- **Thalassaemia**  
Our research team focuses on morbidity and complications as well as the molecular epidemiology of the disease.
- **Clinical oncology**  
Our research team focuses on survival studies, clinical trials for febrile neutropenia and late effects of therapy.



*Professor Dr A Rahman A Jamal*

#### Selected journal publications

- N. Fazlina, A. Maha, **R. Jamal**, A.L. Zarina, S.K. Cheong, A. Hamidah, O. Ainoon, S.Z. Zulkifli & N.H. Hamidah. Expression of multidrug resistance (MDR) proteins and in vitro drug resistance in acute leukemias. **Hematology**. 2007; 12(1):33-37.
- Zarina AL, Hamidah A, Zulkifli SZ, Zulfiqar MA, **Jamal R**. Malignant pancreatic carcinoid tumour. **Singapore Med J**. 2007;48(12):e320-2.
- Hamidah A, Rashid RA, Jamal R, Zhao M, Kanegane H. X-linked dyskeratosis congenita in Malaysia. **Pediatr Blood Cancer**. 2007
- Hamidah A, Lim YS, Zulkifli SZ, Zarina AL, Nordiah AJ, Jamal R. Cefepime plus amikacin as an initial empirical therapy of febrile neutropenia in paediatric cancer patients. **Singapore Med J**. 2007 Jul;48(7):615-9.
- Nooraini MY, Zalina AZ, Raiza S, Rosita J, Suzana S, **Rahman Jamal**. A pilot project on the nutrition status amongst paediatric oncology patients at the Hospital Universiti Kebangsaan Malaysia. **Malaysian J Health Sciences**. 2007;5:47-58.
- Hamidah A, Khu SY, Thambidorai CR, Muhaizan WM, Zarina AL, **Jamal R**. Recurrent gastric inflammatory myofibroblastic tumour in a 13-year-old male. **Pediatr Surg Int**. 2006.

#### Professional activities (selected)

- Project Leader, The Malaysian Cohort Study (MOSTI)
- Project Coordinator, The Malaysian Space Science Programme
- Chairman, National Committee on Guidelines for Stem Cell Research
- Chairman, Expert Panel, National Thalassaemia Registry
- Active Member, American Association of Cancer Research
- Member, Medical Qualifications Board, Malaysian Medical Council
- Adviser, Federation of Malaysian Thalassaemia Societies



## Professor Dr. Wan Zurinah Wan Ngah

**Qualifications:** BSc/Hons (UK), PhD (New Zealand)  
PhD thesis in Biochemistry (awarded by Victoria University of Wellington, New Zealand, 1982)

### Research interests

- Anti-oxidants in ageing and Down syndrome as a model for accelerated ageing
- Palm oil vitamin E specifically gamma-tocotrienol in immune response, as a signalling molecule. Human, animal and *in vitro* studies using gamma-tocotrienol are ongoing
- Studies into natural and synthetic compounds and their effect on cells in culture and in induced hepatocarcinogenesis

### Selected journal publications

- Harliansyah, Noor Azian Murad, Wan Zurinah Wan Ngah and Yasmin Anum Mohd Yusof. Antiproliferative, antioxidant and apoptosis effects of *Zinziber officinale* and 6-gingerol on HepG2 cells. **Asian Journal of Biochemistry 2007;2(6): 421-426**
- Noor Aini AH, Ilyana I, Musalmah M and Wan Ngah WZ. Effect of long term supplementation of vitamin E at two different doses on lipid peroxidation and antioxidative enzymes activity during ageing in rats. **Research Journal Biological Sciences 2007; 2(2):198-203**
- Musalmah M, Norlinda I, Salwati S, Abdul Gapor MT and Wan Ngah WZ. Gamma-tocotrienol pretreatment reduces DNA damage in lymphocytes of normal subjects and patients with Down syndrome. **Mal J Biochem Mol Biol 2006;13:18-21**
- Suhaniza Sulaiman, Nor Aripin Shamaan, Wan Zurinah Wan Ngah & Yasmin Anum Mohd Yusof. Chemopreventive effect of *Chlorella vulgaris* in choline deficient diet and ethionine induced liver carcinogenesis in rats. **Int J Cancer Res 2006;2(3):234-241**

### Professional activities (selected)

- Editor Malaysiang Journal of Biochemistry and Molecular Biology
- Member Technical Committee of National Biotechnology Directorate
- Member New York Academy of Science
- Member of Ministry of Education Nobel Laureate path committee



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## Professor Dr. Ramelah Mohamed

**Qualifications:** B.Sc.; M.Sc. (ITB); Dip. Med. Micro. (Philippines); Ph.D (London)  
PhD thesis in Medical Microbiology (awarded by University of London in 1984)

### Research interests

- **Infectious Diseases**

***Helicobacter pylori*:** Our group interest in *H. pylori* focuses on characterization of genes and their association with severe gastroduodenal diseases in different ethnic groups.

***Vibrio cholerae*:** During the last three years we collaborated with research groups from five different institutions (USM, UPM, UM, IMU & IMR) focusing on the development of rapid diagnostic tests for several diarrhoeal diseases particularly relying on PCR-based assays.

- **Hospital Acquired Infections**

Our area of interest is looking into the mechanisms of carbapenem resistant in *Pseudomonas aeruginosa* isolated from various clinical specimens.

### Selected journal publications

- **Ramelah Mohamed** & Alfizah Hanafiah, (2006). Atigen production of Novel CagA Variants from Malaysian *Helicobacter pylori* Isolates. *Helicobacter*;11:pp65
- N. Ahmad, W.R. Zakariah, S.S. Kasri & **R. Mohamed**. (2006). Mutational Analysis of *rdxA* Gene in Metronidazole-Resistant and Sensitive *Helicobacter pylori* Isolated in Malaysia. *Helicobacter*;11(Supplement2):pp48.
- **Ramelah Mohamed** and Alfizah Hanafiah. (2006). Biological Function of Variants of CagA Protein in Malaysian *Helicobacter pylori* Isolates. *Helicobacter*; 11 (Supplement2):pp15.
- A. Ahmad, N.M. Yusof, R. Harun & **R. Mohamed**. (2006). Distinct Gene Expression Profiles in *Helicobacter pylori*-Specific CD4-T cell From Peripheral Blood in Chronic Gastritis and Peptic Ulcer Disease. *Helicobacter*; 11 (Supplement 2):pp 30-31.

### Professional activities (selected)

- Treasurer, MINDS UKM Chapter
- Life Member, Malaysian Society of Infectious Diseases and Chemotherapy
- Member, Academy of Medicine Malaysia.
- Member, Malaysian Graduate Society
- Member, Persatuan Perubatan Islam Malaysia



Professor Dr. Ramelah  
Mohamed



Professor Dr. Salmaan Hussain  
Inayat-Hussain

## Professor Dr. Salmaan Hussain Inayat-Hussain

**Qualifications:** BSc/Hons (UKM), PhD (UK)  
PhD thesis in Biochemical Toxicology (awarded by University of Leicester, England in 1997)  
European Registered Toxicologist (2005-2010)

### Research interests

- Molecular mechanism controlling the induction of apoptosis by natural styryllactones including goniiothalamine.
- Molecular mechanism of benzene induced apoptosis and its relevance to aplastic anemia
- Biological assessment of bone graft substitutes.
- Assessment of environmental genotoxins in industrial wastewater and river.
- Biomarker of pesticide poisoning using beta-glucuronidase in comparison to cholinesterase.

### Selected journal publications

- Chan, KM, Rajab, NF, Ishak, MHA, Ali, A.M., Yusoff, K., Din, L.B. & **Inayat-Hussain, S.H.** (2006) Goniiothalamine induces apoptosis in vascular smooth muscle cells. *Chem-Biol. Interact.* 159(2): 129-40.
- Zafar KS, **Inayat-Hussain SH**, Siegel D, Bao A, Shieh B, Ross D. (2006) Overexpression of NQO1 protects human SK-N- MC neuroblastoma cells against dopamine-induced cell death. *Toxicol Lett.* 166(3):261-7.
- Siew Ee Ling, Nor Fadilah Rajab, Annuar Bin Osman, Kumar Sudesh, **Salmaan Hussain Inayat-Hussain** (2006) In vitro biocompatibility evaluation of poly(3- hydroxybutyrate-co-4-hydroxybutyrate) copolymer in fibroblast cells. *Journal of Biomedical Materials Research Part A* 2006; 1-9.
- **Inayat-Hussain, SH** and Ross, D (2005) Differential involvement of the mitochondrial/caspase-9 dependent apoptotic pathway in hydroquinone treated HL-60 and Jurkat leukemia cells. **Chem Res Toxicol** 18(3):420-7.

### Professional activities

- Full Member, Society of Toxicology
- Member, Environmental Risk Management Group, JSPS-VCC
- Editorial Board Member of Chemico-Biological Interactions
- Editorial Board Member of Journal of Toxicological Sciences
- Editorial Board Member of Human and Experimental Toxicology
- Editorial Board Member of Malaysian Journal of Health Sciences
- International Peer Reviewer panel for Medical Science Monitor
- Alternate Member, Industry Standard Committee (ISC R) on Medical Equipment and Devices
- Technical Expert for Certification Bodies Accreditation Scheme, Department of Standards Malaysia



## Associate Professor Dr. Syed Zulkifli Syed Zakaria

Qualifications: MD (UKM), M.Med. Paeds. (UKM), PhD  
PhD thesis in Clinical & Molecular Epidemiology (awarded  
by University of Newcastle, Australia in 2003)

### Research Interest

- Molecular Epidemiology:  
Epidemiology of biomarkers including drug metabolizing enzymes, MTHFR genes and DNA repair genes. Mutation of the RET gene in Hirschsprung's disease
- Oncology  
Genetic markers in cancer including bladder, lung and leukaemias.
- Clinical  
Focusing on quality of life of thalasseemics and leukemia survivors.

### Current research activities

- Evaluation of the knowledge, attitude and practice of Malaysian paediatricians in withdrawing or limitation of treatment of children.
- Comparison study of the health related quality of life (HRQOL) between paediatric leukemia population on maintenance therapy and those post chemotherapy: a cross sectional study.
- Parental stress index and CISS score in parents of patients with thalassemia.
- Characterisation of *RET* gene mutations in Malaysian children with Hirschsprung's disease.

### Selected journal publications

- N. Fazlina, A. Maha, R. Jamal, A.L. Zarina, S.K. Cheong, A. Hamidah, O. Ainoon, **S.Z. Zulkifli** & N.H. Hamidah. Expression of multidrug resistance (MDR) proteins and in vitro drug resistance in acute leukemias. **Hematology**. 2007; 12(1):33-37.
- Hamidah A, Lim YS, **Zulkifli SZ**, Zarina AL, Nordiah AJ, Jamal R. Cefepime plus amikacin as an initial empirical therapy of febrile neutropenia in paediatric cancer patients. **Singapore Med J**. 2007 Jul;48(7):615-9.
- Rohana J, Hasmawati J., Nawawi H., **Zulkifli SZ**. Risk factors associated with low bone mineral content in very low birth weight infants. **Singapore Med J** 2007;48 (3):191-194
- Ho Siew Eng, Gurbinder Kaur, Syed Rozaidi Wafa, **Syed Zulkifli Syed Zakaria**, Razali Omar. Post-cardiac surgery patient's satisfaction with quality nursing care at IJN. **Medicine & Health**. 2007; 1 (1): 14-19

### Professional activities

- Member, Medical Faculty Research and Ethics Committee
- Member, Malaysian Association for the Protection of Children



Assoc. Professor Dr. Syed  
Zulkifli Syed Zakaria



Assoc. Professor Dr. Roslan  
Harun

## Associate Professor Dr. Roslan Harun

Qualifications: MD (UKM), MRCP (UK), PhD (Leeds), FRCP (Glasgow), AM (Malaysia)  
PhD thesis in Molecular Biology (awarded by the University of Leeds in 1998)

### Research interests

- **Gene expression analysis in asthma**

Asthma is a chronic inflammatory disease of the airways with ongoing repair process that constitute airway wall remodeling. In this project, whole genome analysis using DNA microarrays is used to determine altered gene expression in various types of inflammatory and structural cells involved in the chronic airway inflammation and airway remodeling in asthma. These differentially expressed genes will be used to construct a specialized microarray, 'Asthma chip', which will be used to (a) identify gene expression changes underlying asthma; (b) generate molecular portraits for distinct types of asthma; and (c) correlate distinct gene expression profiling with various clinical manifestations of asthma.

- **Functional genomic of lung cancer**

Lung cancer is one of the leading causes of cancer death in worldwide and non-small cell lung cancer (NSCLC) accounts for nearly 80% of the disease. Understanding molecular changes in these major tumour types will allow identification of novel tumour markers or potential therapeutic targets. Using differential display and DNA microarray methods, we identified many differentially expressed genes in lung cancers isolated from bronchial biopsies. The expressions of some of these genes were subsequently confirmed by semi-quantitative or real-time RT-PCR. We are currently looking at the protein expression, determining the functions of these genes using RNA interference (RNAi) and studying the effects of these genes inhibition on the expression of the down-stream genes.

### Selected journal publications

- Mohd Shah Azarisman, Mohd Anshar Fauzi, Mohd Perdaus Ahmad Faizal, Zaharim Azami, Abdul Manap Roslina and **Harun Roslan**. The SAFE (SGRO score, air-flow limitation and exercise tolerance) Index: a new composite score for the stratification of severity in chronic obstructive pulmonary disease. *Postgrad. Med. J.* 2007; 83; 492-497
- NorAdina A T, Hamidon B B, **Roslan H**, Raymond A A, 2006: Risk factors for developing sleep- disordered breathing in patients with recent ischaemic stroke. *Singapore Med J* 47:392-399

### Professional activities (selected)

- Member, Malaysian Thoracic Society (MTS)
- Member, Islamic Medical Association Malaysia (PPIM)
- Committee Member, Malaysia Drug Control Authority (DCA)
- Committee Member, Malaysian Society for the Advancement of Pharmacogenomics (MSAP)
- Life Member, Malaysia Medical Relief Society (MERCY Malaysia)





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## Dr. Norfilza Mohd Mokhtar

**Qualification:** MD (USM) M. Med Sci. (UKM), PhD (Cambridge)

### Research interest

- **Molecular markers of endometrial cancer**

Endometrial cancer is the fourth most common gynaecological malignancy in Malaysia. The basis of the development of this cancer was thought to be due to the hyperplastic changes of normal endometrial tissues as a result of the unopposed oestrogen exposure. This is however is not true for all the types of histopathologic classification. K-ras mutations at codon 12 was seen in the endometriod carcinoma whereas a majority of serous carcinoma cases have p53 mutation at exon 5 -8. Therefore, the objectives of this project are, 1) to identify the transcripts involved in the development of endometrial carcinoma in Malaysian population, 2) to identify the profiling for a single cell level using laser capture microdissection, c) to obtain the potential markers for the disease using SELDI-TOF MS.

- **Development of preimplantation genetic diagnosis in Malaysia**

Preimplantation genetic diagnosis (PGD) was first introduced in 1990 to screen for a single gene disorder (Handyside AH et al., 1990) or chromosomal disorder. The advantages of PGD include the reduction in the number of cases of abortion procedures following the detection of chromosomal abnormalities as well as the reduction in the risk of women undergo amniocentesis. This research has one major purpose, which is to introduce PGD to our local settings. To start with, we have chosen HBB gene in the Thalassemia as a single gene defect. A single cell is removed from an embryo 8-cell stage after in vitro fertilisation (IVF). An embryo biopsy is done using micromanipulators under an inverted tissue culture microscope. A glass needle is used to drill a hole in the zona pellucida using a laser. A single cell is then removed using gentle suction and subjected for Polymerase Chain Reaction (PCR).

### Selected publications

- Norfilza M. Mokhtar, M Hamim Rajikin, Zaiton Zakaria. The effect of palm vitamin E on preimplantation embryo, pregnancy and postnatal development in nicotine-treated rats. (manuscript in progress)
- Norfilza M. Mokhtar, Stephen, K. Smith and D. Stephen Charnock-Jones (2005). Progesterone regulates CXCL14 (macrophage inflammatory) mRNA in human endometrium. Proceeding in Endocrine Journal, protein 2 52(suppl)page 76.

### Professional activities

- Member of Lucy Cavendish College, University of Cambridge
- Fellow of Cambridge Commonwealth Trust
- Fellow of Cambridge Philosophical Society
- Member, Malaysian Society of Pharmacology and Physiology



*Dr. Norfilza Mohd Mokhtar*



Dr. Then Sue Mian



Dr. Khairul Bariah bin Ahmad  
Amin Noordin

## Dr. Then Sue Mian

**Qualifications:** BSc./Hons (UKM), PhD (UKM)  
PhD thesis in Biochemistry (awarded by Universiti  
Kebangsaan Malaysia in 2007)

### Research Interest:

Neuroscience: Antioxidant effects in oxidative stressed induced neuronal apoptosis

### Selected Journal Publications

- Then, S. M., Musalmah, M., Gapor, M. T., Wan Zurinah, W. N. 2004. Neuroprotective effects of  $\gamma$ -tocotrienol against hydrogen peroxide-induced oxidative stress in cultured rat astrocytes. *Malaysian J. Biochem. & Mol. Biol* **9**: 22-27
- Musalmah, M., Then, S. M., Gapor, M. T., Wan Zurinah, W. N. 2006. Comparative effects of  $\alpha$ -tocopherol and  $\gamma$ -tocotrienol against hydrogen peroxide induced apoptosis on primary-cultured astrocytes. *J. Neurol. Science*. **243**: 5-12

### Professional Activities

- Reviewer for Neuroscience
- Member, Malaysian Biochemistry and Molecular Biology Society

## Dr. Khairul Bariah binti Ahmad Amin Noordin

**Qualification:** BSc. Hons (UWAustralia), PhD (UKM)  
PhD thesis in Biochemistry (awarded by Universiti  
Kebangsaan Malaysia in 2006)

### Research interest

- Molecular basis of cancers
- Effects of space radiation and microgravity on cells

### Selected Journal Publications

- **Khairul Bariah**, A.A.N, Rahman Jamal, Wan Ngah, W.Z. 2008. Detection of p53 gene mutations by single strand conformation polymorphisms (SSCP) analysis in various human liver cell lines. *Malaysian J. Biochem. & Mol. Biol* (in press).

### Professional Activities

- Member, Malaysian Biochemistry and Molecular Biology Society



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## Dr. Zulhabri Othman

**Qualifications:** BSc./Hons (UKM), PhD (UKM)  
PhD thesis in Biochemistry (awarded by Universiti  
Kebangsaan Malaysia in 2007)

### Research Interest

- Molecular basis of disease and cancers

### Selected Journal Publications

- Zulhabri O, Isa MR, Rahman AJ, Harjit S and Wan Ngah WZ. 2000. Detection of p53 Gene Mutations in Human Hepatoma Cell Lines Using PCR-RFLP. *Malaysian J. Biochem. Mol. Biol.* Vol.5:43-46.



Dr. Zulhabri Othman

## Dr. Looi Mee Lee

**Qualifications:** B. Biomedical Sc. (UKM), PhD (UKM)

### Research Interest

- Cancer Proteomic- biomarkers discovery and protein functions analysis

### Selected Journal Publications

- **M.L. Looi**, M.D. Ahmad Zailani Hatta, M.A. Siti Aishah, W.N. Wan Zurinah & M.Y. Yasmin Anum. 2008. Oxidative Damage and Antioxidant Status in Patients with Cervical Intraepithelial Neoplasia and Carcinoma of the Cervix. *European Journal of Cancer Prevention. Article in Press.*
- **M.L. Looi**, M.D. Ahmad Zailani Hatta, M.A. Siti Aishah, W.N. Wan Zurinah & M.Y. Yasmin Anum. 2008. Expression of p53, bcl-2 and Ki-67 in Cervical Intraepithelial Neoplasia (CIN) and Invasive Squamous Cell Carcinoma (SCC) of the Uterine Cervix. *Analytical and Quantitative Cytology and Histology.* 30 (2): 63-70
- **M.L. Looi**, M.D. Ahmad Zailani Hatta, M.A. Siti Aishah, M.H. Baizurah, W.N. Wan Zurinah & M.Y. Yasmin Anum. 2006. Serum levels of squamous cell carcinoma antigen (SCC-Ag) and CA 125 in cervical intraepithelial neoplasia and invasive squamous cell carcinoma of the uterine cervix. *International Journal of Cancer Research* 2(3): 212-218.
- **Looi ML**, Ahmad Zailani Hatta MD, Siti Aishah MA, Wan Zurinah WN & Yasmin Anum. 2006. Abstract: p16<sup>INK4A</sup> Expression in Cervical Premalignant and Malignant Lesions. *The Malaysian Journal of Medical Sciences* 13 (1): 199.
- **Looi Mee Lee**, Noor Aini Abdul Hamid & Yasmin Anum Mohd Yusof. 2005. Effects of Palmvitee on Status of Superoxide Dismutase and Glutathione Peroxidase in Rat Liver during Aging. 2005. *Malaysian Journal of Biochemistry and Molecular Biology* 12: 21-24.



Dr. Looi Mee Lee



Dr. Hui-min Neoh

## Dr. Hui-min Neoh

**Qualifications:** B. Biomedical Sc. (UKM), PhD (Tokyo)

### Selected Journal Publications

- **Neoh HM**, Cui L, Yuzawa H, Takeuchi F, Matsuo M, Hiramatsu K. Mutated Response regulator *graR* is responsible for phenotypic conversion of *Staphylococcus aureus* from Heterogeneous Vancomycin-Intermediate Resistance to Vancomycin-Intermediate Resistance. *Antimicrob Agents Chemother.* 2008 Jan;52(1):45-53.
- **Neoh HM**, Hori S, Komatsu M, Oguri T, Takeuchi F, Cui L, Hiramatsu K. Impact of reduced vancomycin susceptibility on the therapeutic outcome of MRSA bacteraemia. *Annals of Clinical Microbiology.* 2007 Oct 30; 6(1):13.
- Cui L, Tominaga E, **Neoh HM**, Hiramatsu K. Correlation between Reduced Daptomycin Susceptibility and Vancomycin Resistance in Vancomycin-intermediate *Staphylococcus aureus*. *Antimicrob Agents Chemother.* 2006 Mar; 50(3): 1079-82.
- Cui L, Iwamoto A, Lian JQ, **Neoh HM**, Maruyama T, Horikawa Y, Hiramatsu K. Novel mechanism of Antibiotic Resistance Originating in Vancomycin-Intermediate *Staphylococcus aureus*. *Antimicrob Agents Chemother.* 2006 Feb; 50(2): 428-38.
- Cui L, Lian JQ, **Neoh HM**, Reyes E, Hiramatsu K. Microarray-based identification of genes associated with glycopeptide resistance in *Staphylococcus aureus*. *Antimicrob Agents Chemother.* 2005 Aug; 49(8): 3404-13.



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## Associate Fellows

### **Professor Dr. Syed Mohamed Aljunid**

Health Economics & Management  
MD(UKM), MSc(Public Health)S'pore, PhD(Health Economics & Financing) London  
Department of Community Health  
Faculty of Medicine, UKM



### **Dr. Azmi Mohd Tamil**

BSc. Medical Science (UKM), M.D. (UKM), MPH (UKM)  
Department of Community Health  
Faculty of Medicine, UKM



### **Associate Professor Dr. Roohaida Othman**

B.Sc. (Hons) Biochemistry United Kingdom  
Ph.D (Biochemistry) United Kingdom  
Centre of Bioscience and Biotechnology  
Faculty of Science and Technology



### **Dr. Noraziah Mohamad Zin**

BSc(UPMalaysia), PhD(Strathclyde)  
Department of Biomedical Sciences  
Faculty of Allied Health Sciences  
UKM Kuala Lumpur



### **Associate Professor Dr. Zarina Abdul Latif**

MBBS (Malaya), M.Med.Paeds. (UKM), MSc. Medical Genetics (Glasgow)  
Department of Public Health  
Faculty of Medicine



### **Dr. Nor Fadilah Rajab**

B.SC (UPM), MSc (Biochemistry) UKM, PhD (Biomedical Science) UK  
Department of Biomedical Sciences  
Faculty of Allied Health Sciences





## Scientific advisers

### For UMBI

#### **Professor Dr. Farzin Farzaneh**

Head of Department  
Department of Molecular Medicine  
Guy's, King's and St. Thomas School of Medicine  
King's College London

Professor of Molecular Medicine  
King's College London

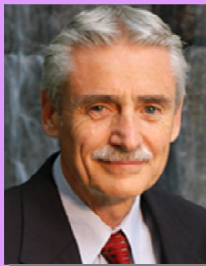


#### **Professor Dr. Rodney Dashwood**

The Linus Pauling Institute  
Oregon State University  
Weniger Hall 503, Corvallis OR 97331-6512

Professor of Environmental & Molecular Toxicology:  
Chief Chemoprotection Program, Linus Pauling Institute

### For The Malaysian Cohort



#### **Professor Dr. Lee Hartwell**

President and Director  
Fred Hutchinson Cancer Research Center  
Seattle, Washington, United States

Professor of Genome Science and  
Adjunct Professor of Medicine  
University of Washington  
Nobel Laureate (Medicine and Physiology in 2001)



#### **Professor Dr. John D. Potter**

Director of International Research  
Public Health Sciences Division  
Fred Hutchinson Cancer Research Center  
Seattle, Washington, United States

Professor of Epidemiology  
School of Public Health and Community Medicine  
University of Washington



# Key Projects



## The Malaysian Cohort

The Malaysian Cohort project has entered the second year and the start of the simulation phase to test all systems and study protocols used. The progress of the project was presented to an evaluator panel at the Ministry of Science, Technology and Innovation in January 2007 preceded by a cabinet note at the end of 2006 and was found to be satisfactory.

The preparation of with great care started and all protocols were edited and developed to ensure a high quality and standard. The preparation of all questionnaires involved 67 experts and academics from 10 institutions from all over Malaysia. These questionnaires were translated into 3 languages by the National Translation Centre. Pre-tests were done and these questionnaires were subjected to various improvement processes. The best equipments for biophysical measurements were purchased. The protocol for starting the BIOBANK involved having standard operating procedures (SOP) for all stages of specimen collecting, processing, testing and storing in order to ensure high quality bio specimens with a separate back-up of bio specimens. A multi-layered informed consent was used to ensure ethical participant recruitment and bio specimens' collection. The database system developed has four security layers to protect personal data of the participants with a separate back-up system.

**Innovations** and **new ideas** became the main theme in the preparation of the TMC project. An E-questionnaire was developed to interview participants in the field which is a first for Malaysia and the Asia Pacific region. This **e-questionnaire**, apart from being paperless, is efficient as data can be downloaded directly into the database and can be used for real-time reference (including data dictionary, terminology dictionary, diet diary, etc) through a pop-up menu system developed together. **A Diet digital album** was developed which was very convenient for the enumerators and participants by giving accurate information for gathering information related dietary intake.

A data system with four security layers was developed to ensure participant privacy called a **Personal Privacy Framework**. A **mobile lab** was designed and purchased to be used in the field in order to ensure the bio specimens were collected and processed

*Source of Funding*  
MOSTI

*Project Leader*  
Professor Dr. A Rahman A Jamal

*Operation Head*  
Associate Professor Dr. Syed  
Zulkifli Syed Zakaria

*Duration*  
10 years

*Total Funding*  
RM65,000,000.00





properly and stored as quickly as possible. Collection of specimens was according to SOP ensuring that the stability and quality of metabolites, proteins and bioanalytes were maintained. With this mobile laboratory, the sampling process can be done immediately (serum and plasma are separated from blood cell). The **BIOBANK** approach and specimen storage used is the most comprehensive that has been attempted before with clear SOP to ensure quality in acquisition and storage of bio specimens. A few unique additional aspects of storage for the TMC study in Malaysia included multiple plasma and serum storage in small aliquots, storing of live mononuclear cell in DMSO medium for long periods and a paper-based DNA storage method (in addition to DNA from mononuclear cells) with the usage of FTA paper. The TMC approach will allow the evaluation of healthcare service which will be the development of a **Clinical Risk Grouping (CRG)** system for the first time in Malaysia and Asia Pacific.

TMC has undergone three simulations at the UKM Medical Complex from Jun 2006 to February 2007 after its approval from UKM Medical Research and Ethics Committee. More than 400 staff and the public aged 40 and above participated voluntarily. After every simulation, improvement in approach and quality control was implemented. The coordinators for every section were also present to monitor and supervise the flow of the simulation exercise. Feedback from participants is reviewed to address any weaknesses. Problems such as long waiting time were a main issue that was handled promptly. As a whole, the participant's reception was good and the majority suggested broadening this study to the society. Now, the TMC secretariat is preparing to do the fourth and last simulation before launching the project at the national level. This simulation will be based at the UKM main campus in Bangi, testing all systems and protocols including on-site specimen processing and transportation to the main processing centre at UMBI.

Apart from its intrinsic value, the TMC project has provided many job opportunities and skills training to more than 40 research assistants. They are responsible to execute logistics preparation, questionnaire interviews, biomedical measurements, bio specimen collection, bio specimen processing, application development, setting up information technology system, publishing, financial management and others.

As a Project Leader, I would like to thank all The Malaysian Cohort Committee and everybody involved in the preparation of this project with the hope of continued support in this endeavour considering that this is a very challenging project needing high commitment. This project has the potential to develop research resources (database and biobank) which will be a precious resource to the country and particularly to all Malaysian researchers allowing further studies to be done especially in the discovery of new biomarkers in order to identify the risk of various diseases in Malaysia. Clearly, this TMC project is our 'Gift to the Future Generation'.





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## UMBI and The National Space Science Programme: A Major Milestones In The Nation's History

UMBI played a significant role in the National Angkasawan Programme which saw the nation's first ever angkasawan, Dr. Sheikh Muszaphar (also from UKM), launched to the International Space Station on the 10<sup>th</sup> of October 2007 to be part of the Soyuz space mission. UMBI's director, Professor Dr. A Rahman A Jamal was deeply involved in the mission organization from October 2005 when the National Space Agency roped him in as the coordinator for life sciences experiments. Professor Rahman was instrumental in helping formulate and negotiate the space science contract plus heading the discussions on the various space experiments which were submitted to the Russian authorities. Professor Rahman became the principal investigator to the first ever experiment to be sent to space by a Malaysian scientific team via a collaboration with scientists from the University of Colorado, USA and also the Simon Fraser University, Canada. The experiment involved sending the famous nematode *Caenorhabditis elegans* to the ISS via the STS116 shuttle flight in December 2006. The worms stayed in space for 6 months duration and were brought back to earth in June 2006.

Three experiments were eventually chosen to be flown to the ISS after passing through various screening and assessment processes. Two of the experiments namely, Eukaryotic Cells in Space (ECIS) and Microbes in Space (MIS) were led by UMBI's scientist, i.e. Professor Rahman and Professor Ramelah Mohammed respectively. Dr. Then Sue Mian, Dr. Khairul Bariah and Ms Fazlina Nordin, were the young scientists who also travelled to Baikonur to join the scientific team. The experiments and our angkasawan were successfully launched on the 10<sup>th</sup> October 2007 and returned to earth on the 21<sup>st</sup> October 2007. The experiments were intact and safe and are now being analysed. UMBI and UKM are certainly proud of the achievements of the angkasawan as well as our scientists as part of the scientific team.



# Research Activities



## UpdateS in Molecular Medicine: Invited Lectures

Date	Presenter	Title
26 January 2006	Dr. Sek Chuen Chow	Immunomodulation by Statins
13-14 February 2006	Professor Dr. James M. Anderson	Inflammatory Cell Interaction with Surface-Modified Biomaterials, Writing a Good Publication dan ISO 10, 993-1 Biological Evaluation of Medical Devices- Part 1: Evaluation and Testing Within a Risk Management Process
13 April 2006	Dr. Nicholas Ng	Novel approaches using bioluminescent reporter genes for optimizing RNAi and siRNA screening in high-throughout applications
19 June 2006	Dr. Ram Lexman	Application of microarray technology in clinical research
26 June 2006	Professor Dr. Roderick H. Dashwood	Can Kangkung Cure Cancer? Recent studies on the Cancer Chemopreventive Properties of Chlorophylls and Chlorophyll Rich Vegetables
28 June 2006	Dr. Hye-Kyung Na	Induction of Apoptosis in Human Breast Cancer Cells and Suppression of Mouse Skin Carcinogenesis by Diallyl Trisulfide Derived from Garlic
28 June 2006	Professor Dr Young-Joon Surh	Chemopreventive and Cytoprotective Effects of some Dietary and Medicinal phytochemicals and theirs underlying molecular mechanisms
11 January 2007	Professor Dr. Ah-Ng Tony Kong	<ol style="list-style-type: none"> <li>1. Natural Dietary Cancer Chemopreventive Phytochemicals : Current Advances in Cellular Signaling, Gene Expression and In-Vivo Pharmacological Effects.</li> <li>2. Preventing Initiation and Progression of Cancer is Better Than Treating Advanced Metastasized Cancer : Translating The Use of Relative Non-Toxic Dietary Phytochemicals to The Clinic.</li> </ol>
16 May 2007	Dr. David A. Basiji	Multispectral Imaging Flow Cytometry with The ImageStream System : Acquiring and Using 100,000 Cell Images at a Time
6 June 2007	Professor Dr. Albert Sasson	Healthcare Biotechnology: Achievements, Perspective and Perceptions
11 July 2007	Dr. Murphy dari Thermo Fisher Scientific	RNA-I : From Discovery To Building Block For A Functional Map Of Human Genome
1 November 2007	Dr. Azaibi Tamin	Science, Medicine and Religion : Recipe For True Happiness and Success
14 December 2007	Professor Dr. Roderick H. Dashwood	Dietary Anticarcinogens In The Realm of Epigenetic



## Workshops, Conferences, talks, and etc.

Date	Title/Programme	Venue
<b>Workshop</b>		
25-27 August 2006	Motivation Workshop	Jeram Besu, Raub Pahang
24-26 April 2006	Mutation Detection Workshop	UMBI
20-22 March & 27-29 March 2007	Basic Molecular Technique Workshop	UMBI
13, 14 dan 17 December 2007	Transient Transfection & siRNA Technology Workshop	UMBI
24 -25 October 2007	Laser Capture Microdissection (LCM) Workshop	UMBI
24 -25 October 2007	Microarray Workshop	UMBI
<b>Training</b>		
29 May	Laser capture microdissection training	UMBI
9-11 May	ABI 3130 XL DNA sequencer training	UMBI
6 July & 14 August 2007	Gel Documentation Training	UMBI
16 – 20 July	Q-TOF Proteomics Training	UMBI
1 August 2007	Seqscape Training	UMBI
31 October 2007	Accreditation Training Part A : Introduction - ISO/IEC 17025	UMBI
7 November 2007	Accreditation Training Part A: (i) Documentation and Implementation ISO/IEC 17025	Pusat Belia Antarabangsa
23 November 2007	Accreditation Training Part B: (ii) Documentation and Implementation ISO/IEC 17025	Resident Hotel, UNITEN
<b>Talk</b>		
18 December 2006	Analysis of microarray data with decision site for microarray analysis	UMBI
12 December 2006	High resolution Melt (HRM) and its application	Dewan Kuliah 1
11 May 2006	Magnetic Cell Separation by ROBOSEP (Stem Cell Technology Inc)	UMBI
17 May 2006	MoFlo CyAn ADP Flowcytometer & Cell Sorter (Dako Cyomation)	UMBI
17 May 2006	Phlebotomist Talk	UMBI
13 <sup>th</sup> September 2006	Learn about pall life sciences filtration and separation products	UMBI
14 <sup>th</sup> September 2006	Identify Amplifications & Deletions in Copy Number, Alternative Gene Splicing, and build Diagnostic/Prognostic Prediction Models using Affymetrix's New Mapping and Exon Arrays	UMBI
18 July 2007	Laboratory Accreditation and Diagnostic talk	UMBI
2 February 2007	Ceramah Amalan 5S	UMBI
25 April 2007	Keselamatan dan Kawalan Kebakaran Makmal	UMBI
8 January 2007	Roche Lightcycler 480 Demonstration	UMBI
9 April 2007	Affymetrix	UMBI
11 April 2007	Genome Sequencer	UMBI
14 November	dHPLC machine demo	UMBI
<b>Conference/retreat</b>		
26-28 October 2007	2nd Regional Conference on Molecular Medicine (RCMM)	The Legend Hotel
3 – 5 August 2007	UMBI Strategic Plan Retreat	Colmar Tropicale, Bukit Tinggi
25 – 27 November	Laboratory Accreditation Retreat	Awana Hotel, Kijal



2007

**Others**

7 June 2007	Visit by National Productivity Corporation - Program Amalan 5S
11 June 2007	Visit by Professor Dr. William Coleman from Australia and ORL specialist
23 July 2007	Visit by Sekolah Menengah Kebangsaan Seri Bintang Selatan, KL
24 August 2007	Visit by Sekolah Menengah Bukit Bintang, KL
27 August 2007	Visit by Japanese Aerospace Exploration Agency (JAXA)
17 December 2007	Visit by Foundation in Medical Sciences from Centre for Foundation Studies, Kolej Universiti Teknologi and Pengurusan Malaysia
5 January 2007	Press Conference for the Space Science Programme





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## Activities of Researchers

Activity	10 <sup>th</sup> International Conference On Thalassaemia & Haemoglobinopathies & 12 <sup>th</sup> International TIF Conference For Thalassaemia Patients and Parents
Date	7 – 10 January 2006
Venue	Dubai, United Arab Emirates
Attended by	Professor Dr. A Rahman A Jamal
Activity	Scientific Visit to International Space Station (ISS)
Date	13 – 18 January 2006
Venue	University of Colorado & Canadian Space Agency
Attended by	Professor Dr. A Rahman A Jamal
Activity	Visit to National Center for Genetic Engineering and Biotechnology (BIOTEC), Thailand Science Park
Date	13-16 February 2006
Venue	Bangkok, Thailand
Attended by	Associate Professor Dr. Roslan Harun
Activity	Program Angkasawan Negara: Discussion
Date	12-18 February 2006
Venue	University of Colorado, USA dan Canadian Space Agency
Attended by	Professor Dr. A Rahman A Jamal
Activity	Joint 6 <sup>th</sup> Human Genome Organization Pacific Meeting & 7 <sup>th</sup> Asia Pacific Human Genetics Conference
Date	6 – 10 March 2006
Venue	Taipei, Taiwan
Attended by	Professor Dr. A Rahman A Jamal
Activity	Program Angkasawan Negara: Final Discussion on Scientific Projects with the Russian counterparts
Date	14-18 March 2006
Venue	Russian Space Agency, Moscow
Attended by	Professor Dr. A Rahman A Jamal
Activity	2006 Asia Pacific ISSX Meeting
Date	24-27 May 2006
Venue	Jeju, South Korea
Attended by	Associate Professor Dr. Salmaan Hussain Inayat Hussain
Activity	Pacific Health Summit
Date	20-22 June 2006
Venue	Seattle, USA
Attended by	Professor Dr. A Rahman A Jamal
Activity	6 <sup>th</sup> Costam/Sfrr (Malaysia/Asean) Workshop Micronutrients, Oxidative Stress And The Environment
Date	29 June – 2 July 2006
Venue	Kuching, Sarawak
Attended by	Professor Dr. Wan Zurinah Wan Ngah Associate Professor Dr. Salmaan Hussain Inayat Hussain
Activity	Visit to Libya, Yamen dan Iran
Date	1-7 July 2006
Venue	Libya, Yamen dan Iran
Attended by	Professor Dr. A Rahman A Jamal

Activity	Malaysian Thoracic Society 9 <sup>th</sup> Annual Congress
Date	14 – 16 July 2006
Venue	Pulau Pinang
Attended by	Associate Professor Dr. Roslan Harun
Activity	Postgraduate Studies Programme Retreat
Date	21-23 July 2006
Venue	Seremban, Negeri Sembilan
Attended by	Professor Dr. Ramelah Mohamed
Activity	GUT Conference 2006
Date	20-23 July 2006
Venue	Kuala Lumpur
Attended by	Professor Dr. Ramelah Mohamed
Activity	Postgraduate Studies Programme Retreat
Date	26 – 27 July 2006
Venue	Bangi, Selangor
Attended by	Professor Dr. Ramelah Mohamed
Activity	2 <sup>nd</sup> Malaysian-Indonesian Medical Sciences Conference
Date	3-4 August 2006
Venue	Jakarta, Indonesia
Attended by	Professor Dr. Wan Zurinah Wan Ngah
Activity	Infection Control Seminar: Infection Control Facing The Challenges
Date	5-6 August 2006
Venue	Auditorium Hospital UKM
Attended by	Professor Dr. Ramelah Mohamed
Activity	Program Angkasawan Negara: Discussion and Scientific Programme
Date	12-18 August 2006
Venue	Moscow
Attended by	Professor Dr. A Rahman A Jamal
Activity	European Respiratory Society Annual Congress
Date	2-6 September 2006
Venue	Munich, Germany
Attended by	Associate Professor Dr. Roslan Harun
Activity	XIX International Workshop In Gastrointestinal Pathology And Helicobacter
Date	7-9 September 2006
Venue	Wroclaw, Poland
Attended by	Professor Dr. Ramelah Mohamed
Activity	5th Meeting of the Asia Cohort Consortium
Date	8-11 September 2006
Venue	Singapore
Attended by	Professor Dr. A Rahman A Jamal Associate Professor Dr. Syed Zulkifli Syed Zakaria
Activity	3rd Annual Anti-Ageing Conference
Date	15-17 September 2006
Venue	London
Attended by	Professor Dr. Wan Zurinah Wan Ngah
Activity	Program Angkasawan Negara: Discussion
Date	18-23 September 2006
Venue	Moscow, Rusia
Attended by	Professor Dr. A Rahman A Jamal



Activity	Program Angkasawan Negara: Discussion and Scientific Programme
Date	16-22 October 2006
Venue	University of Colorado
Attended by	Professor Dr. A Rahman A Jamal
Activity	Western Pacific Congress on Helicobacter
Date	12-14 November 2006
Venue	Bangkok, Thailand
Attended by	Professor Dr. Ramelah Mohamed
Activity	11th Congress of the Asian Pacific Society of Respirology (APSR2006)
Date	19-22 November 2006
Venue	Kyoto, Japan
Attended by	Associate Professor Dr. Roslan Harun
Activity	Bio Malaysia 2007
Date	6-8 December 2006
Venue	Kuala Lumpur Convention Centre, Kuala Lumpur
Attended by	Professor Dr. Ramelah Mohamed Dr. Norfilza Mohd Mokhtar
Activity	Press conference: MOSTI with Angkasawan Negara
Date	5 January 2007
Venue	Bilik Mesyuarat Lembaga, HUKM
Attended by	Professor Dr. A Rahman A Jamal
Activity	Kegemilangan Sains Dalam Tamadun Islam Sains Islam Mendahului Zaman Exhibition
Date	8 January 2007
Venue	Kuala Lumpur Convention Centre
Attended by	Professor Dr. A Rahman A Jamal, Profesor Dr. Ramelah Mohamed
Activity	Penyediaan Pelan Tindakan Penyelidikan dan Inovasi IPTA Workshop
Date	2 – 4 February 2007
Venue	Hotel Pan Pacific, KLIA
Attended by	Professor Dr. A Rahman A Jamal
Activity	Closing Ceremony Kegemilangan Sains Dalam Tamadun Islam Sains Islam Mendahului Zaman Exhibition
Date	15 Februari 2007
Venue	Kuala Lumpur Convention Centre
Attended by	Professor Dr. A Rahman A Jamal
Activity	Program Angkasawan Negara: Final Discussion on Scientific Projects with the Russian researchers
Date	18 – 25 February 2007
Venue	Moscow, Rusia
Attended by	Professor Dr. A Rahman A Jamal
Activity	Program Angkasawan Negara: Meeting
Date	2 March 2007
Venue	Pejabat ANGKASA Putrajaya
Attended by	Professor Dr. Ramelah Mohamed
Activity	Asian Medical Students Association Meeting
Date	3 March 2007
Venue	Dewan Kuliah 1, Hospital UKM
Attended by	Professor Dr. Ramelah Mohamed

Activity	Mesyuarat Pemilihan Anugerah Akademik Negara
Date	3-5 March 2007
Venue	Hotel Renaissance, Kota Bharu Kelantan
Attended by	Professor Dr. A Rahman A Jamal
Activity	Program Angkasawan Negara: Meeting
Date	5 & 6 March 2007
Venue	ANGKASA, Putrajaya
Attended by	Professor Dr. Ramelah Mohamed
Activity	Program Angkasawan Negara: Fluid Processing Apparatus" (FPA) Training
Date	7 March 2007
Venue	Malaysian Genome Institute, Bangi
Attended by	Professor Dr. Ramelah Mohamed
Activity	Lecture by Renowned Scientist from Stanford University (inventions & patents in DNA based technologic)
Date	12 March 2007
Venue	Hotel Mandarin Oriental, KL
Attended by	Professor Dr. A Rahman A Jamal
Activity	Seminar on Bioethics: Meeting The Challenges
Date	16 March 2007
Venue	Universiti Malaya, KL
Attended by	Professor Dr. A Rahman A Jamal
Activity	Exjade Launch Meeting
Date	24 March 2007
Venue	Hotel Prince, KL
Attended by	Professor Dr. A Rahman A Jamal
Activity	Discussion on protein research and freeze drying
Date	3 April 2007
Venue	Fakulti Bioteknologi, UPM
Attended by	Professor Dr. Ramelah Mohamed
Activity	Genome Sequencer FLX – Roche Talk
Date	11 April 2007
Venue	UMBI
Attended by	Professor Dr. Ramelah Mohamed
Activity	Discussion with UPM Researchers
Date	11 April 2007
Venue	UMBI
Attended by	Professor Dr. Ramelah Mohamed
Activity	Postgraduate Management Workshop
Date	11 – 13 April 2007
Venue	Hotel Seri Malaysia, Melaka
Attended by	Associate Professor Dr. Roslan Harun
Activity	6 <sup>th</sup> Asia Cohort Consortium Meeting
Date	13 April 2007
Venue	Westin Bonaventure Hotel in Los Angeles
Attended by	Professor Dr. A Rahman A Jamal
Activity	American Association for Cancer Research Annual Meeting 2007
Date	14 - 18 April 2007
Venue	Los Angeles Convention Center
Attended by	Professor Dr. A Rahman A Jamal

Activity	Olympus Soft Imaging Solutions
Date	19 April 2007
Venue	Istana Hotel
Attended by	Professor Dr. Ramelah Mohamed
Activity	APEC Life Sciences Innovation Forum
Date	19 – 20 April 2007
Venue	Hotel Hilton Adelaide, Australia
Attended by	Profesor Dr. A Rahman A Jamal
Activity	Program Angkasawan Negara: Discussion on programme with the Russian researchers
Date	24 April 2007
Venue	Hotel Equatorial, Bangi
Attended by	Professor Dr. Ramelah Mohamed
Activity	Antibody Humanisation Training
Date	3-5 May – 8 June 2007
Venue	Inno Biologics, Bandar Baru Nilai
Attended by	Dr. Khairul Bariah Ahmad Amin Noordin
Activity	BIO International Convention 2007
Date	6-9 May 2007
Venue	Boston, USA
Attended by	Profesor Dr. A Rahman A Jamal
Activity	Antibody Humanisation Course
Date	7-9 May 2007
Venue	Inno Biologics, Bandar Baru Nilai
Attended by	Dr. Khairul Bariah Ahmad Amin Noordin
Activity	Health Campus Strategic Plan Retreat
Date	11-13 May 2007
Venue	Meritus Pelangi Beach Resort & SPA, Langkawi, Kedah
Attended by	Professor Dr. A Rahman A Jamal & Prof. Wan Zurinah Wan Ngah
Activity	International conference on radiation protection and workshop
Date	29-31 May 2007
Venue	Langkawi
Attended by	Dr. Norfilza Mohd Mokhtar
Activity	ISBER 2007 Annual Meeting
Date	30 May – 2 June 2007
Venue	Hotel Furama Riverfront, Singapura
Attended by	Dr. Then Sue Mian
Activity	Raising National Awareness of Biotechnology : Prospects and Challenges Seminar
Date	5 June 2007
Venue	Hotel IOI Palm Garden, Putrajaya
Attended by	Professor Dr. Ramelah Mohamed
Activity	Workshop on Intellectual Property
Date	6 July 2007
Venue	PPPI UKM Bangi
Attended by	Dr. Khairul Bariah Ahmad Amin Nordin & Dr. Then Sue Mian
Activity	Workshop on Quality Management
Date	25-26 July 2007
Venue	Kelab Golf Danau, UKM Bangi
Attended by	Associate Professor Dr. Roslan dan Associate Professor Dr. Syed Zulkifli Syed Zakaria

Activity Postgraduate Supervision Workshop: Towards Efficient Supervision  
 Date 1-2 August 2007  
 Venue Hotel Equatorial, Bangi  
 Attended by Professor Dr. A Rahman A Jamal, Dr. Khairul Bariah Ahmad Amin Noordin, Dr. Then Sue Mian

Activity Malaysian Space Science Directions Conference  
 Date 6 August 2007  
 Venue Hotel ShangriLa Putrajaya  
 Attended by Professor Dr. A Rahman A Jamal

Activity UKM Scenario Planning Workshop  
 Date 23 August 2007  
 Venue Hotel Guoman, Port Dickson  
 Attended by Professor Dr. A Rahman A Jamal

Activity 3<sup>rd</sup> National Transfusion Medicine Conference 2007  
 Date 27 August 2007  
 Venue Hotel Berjaya, Times Square KL  
 Attended by Professor Dr. A Rahman A Jamal

Activity Guthrie Scholar Dinner  
 Date 3 September 2007  
 Venue Hotel UiTM Shah Alam  
 Attended by Professor Dr. A Rahman A Jamal

Activity Program Anqkasawan Negara  
 Date 18 September - 25 Oktober 2007  
 Venue Moscow Rusia  
 Attended by Professor Dr. A Rahman A Jamal, Professor Dr. Ramelah Mohamed

Activity Program Anqkasawan Negara  
 Date 28 September hingga 11 October 2007  
 Venue Baikonour, Kazakhstan  
 Attended by Professor Dr. Ramelah Mohamed, Dr. Then Sue Mian

Activity Program Anqkasawan Negara  
 Venue Moscow, Rusia  
 Attended by Dr. Khairul Bariah Ahmad Amin Noordin

Activity Formal Visit to Seri Perdana, meeting with Malaysia Prime Minister (Program Angkasawan Negara)  
 Date 1 November 2007  
 Venue Putrajaya  
 Attended by Professor Dr. A Rahman A Jamal, Professor Dr. Ramelah Mohamed

Activity Formal Visit to Ministry of Defense, Y. Bhg. Dato' Seri Najib Tun Razak  
 Date 2 November 2007  
 Venue KEMENTAH, Kuala Lumpur  
 Attended by Professor Dr. A Rahman A Jamal, Professor Dr. Ramelah Mohamed

Activity AACR Centennial Conference - Translational Cancer Medicine  
 Date 4-8 November 2007  
 Venue Singapura  
 Attended by Professor Dr. A Rahman A Jamal

Activity Leadership and Team Working Course  
 Date 10 November 2007  
 Venue Hotel Guoman, Port Dickson  
 Attended by Professor Dr. A Rahman A Jamal

Activity	Faculty of Dentistry Research Retreat
Date	16-17 November 2007
Venue	Hotel Quality, Shah Alam
Attended by	Professor Dr. A Rahman A Jamal
Activity	The 6th Princess Chulabhorn International Science Congress
Date	25-29 November 2007
Venue	Bangkok Thailand
Attended by	Professor Dr. Wan Zurinah Wan Ngah
Activity	BIOMALAYSIA 2007 Conference
Date	27-29 November 2007
Venue	PWTC, Kuala Lumpur
Attended by	Professor Dr. Ramelah Mohamed
Activity	12th AsiaPacific Society of Respiriology (ASPR) Congress Gold Coast
Date	30 November - 4 December 2007
Venue	Queensland, Australia
Attended by	Associate Professor Dr. Roslan Harun
Activity	Conference on Mechanisms of Antimutagenesis and Anticarcinogenesis
Date	28 November -5 December 2007
Venue	Japan
Attended by	Professor Dr. Salmaan Hussain Inayat Hussain
Activity	Good Clinical Practice
Date	2-5 December 2007
Venue	Bukit Merah Laketown Resort
Attended by	Dr. Norfilza Mohd Mokhtar, Dr. Khairul Bariah Ahmad Amin Noordin
Activity	2nd Asian Bio Manufacturing Conference
Date	3-4 December 2007
Venue	Hotel Sheraton Imperial, Kuala Lumpur
Attended by	Professor Dr. A Rahman A Jamal
Activity	Technical Assessment for Monitoring and Assessment of Sciencefund R&D Projects (Biotechnology)
Date	7-11 December 2007
Venue	Hotel Palace of the Golden Horses, Kuala Lumpur
Attended by	Professor Dr. A Rahman A Jamal
Activity	Medical and Biotechnology Research Colloquium
Date	17-18 December 2007
Venue	Hotel Palace of the Golden Horses, Kuala Lumpur
Attended by	Professor Dr. A Rahman A Jamal Professor Madya Dr. Roslan Harun Professor Dr. Wan Zurinah Wan Ngah Professor Dr. Ramelah Mohamed Dr. Norfilza Mohd Mokhtar Dr. Khairul Bariah Ahmad Amin Noordin

# Infrastructure and Facilities



## Laboratories

- Proteomics laboratory (mass spectrometer)



- Genomic laboratory (automated sequencers, thermocyclers, dHPLC system, etc.)



- Gene expression and genotyping systems (microarray systems)



- Cell biology (cell culture laboratory, Laser Capture Microdissection, *C. elegans* laboratory, etc.)



- Infectious diseases laboratory





## Equipments

The UMBI office and laboratory are located at the 7<sup>th</sup> floor, Clinical Block, Hospital Universiti Kebangsaan Malaysia (HUKM), Cheras, Kuala Lumpur. We have a well equipped laboratories namely the genomic laboratory, cell culture laboratory, cancer genetic laboratory and a Biobank HUKM-UMBI which function as shared resources for researchers in UMBI and the Faculty of Medicine to conduct research in molecular medicine. Some of the state-of-the-art equipments available are shown below:

### **iCycler Real-Time Polymerase Chain Reaction Machine**

iCycler Real Time – PCR machine is a real time PCR thermocycler with optical module and provides a real time measurement of the PCR process in 2–2.5 hours. Real time and on-line PCR monitoring also reduces opportunities and speeds time-to-results because traditional post-PCR steps are no more necessary.



### **Gel documentation system**

UMBI has two different gel documentation systems (Gel Doc 2000, BioRad and FluorChemFC2, AlphaInnotech). Both gel documentation systems are easy to use, and are high performance gel documentation system. Both used a CCD camera to capture images in real time, with motorized zoom lens for convenient zoom, focus, and iris adjustments. Using the available softwares, images acquired with the systems can be optimized, annotated and printed to a video printer or to local printer.





### ***Microarray System (Microarray)***

The Affymetrix and Illumina microarray system provides RNA expression profiling using the GeneChip Human Genome arrays. The system includes a hybridization system, scanner and operating system with GCOS software for data analysis and mining. GeneChip Human Genome Arrays provide gene expression data for a multitude of applications, eg: uncovering new regulatory pathways and validating drug targets.



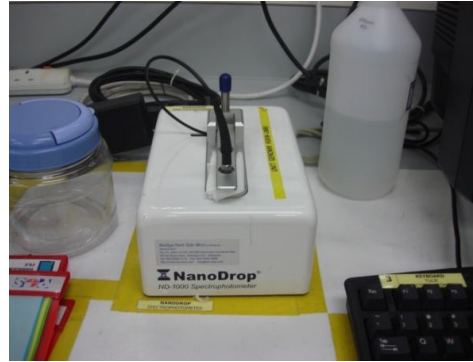
### ***ABI 3100 Genetic Analyzer (DNA sequencing)***

The ABI 3100 Genetic Analyzer with 16 capillary electrophoresis system can separate, detect and sequence 16 samples in 2.5 hours with a simple and easy approach. Besides DNA sequencing, resequencing technique and linkage analysis can also be performed by this machine.



## Nanodrop (ND-1000 Spectrophotometer)

The NanoDrop is ND-1000 is a full-spectrum (220-750nm) spectrophotometer that measures 1 ul samples with high accuracy and reproducibility. It utilizes a sample retention technology that employs surface tension alone to hold the samples in place. This eliminates the use of cuvettes and allows for clean up in seconds. In addition, the ND-1000 has the capability to measure highly concentrated samples without dilution.



## Cell Culture and *C.elegans* Laboratory

The cell culture laboratory at UMBI is equipped with the instruments for cell culture work including Biosafety Cabinet Class II Type B2, CO<sub>2</sub> incubator, refrigerated centrifuge and microscope (fluorescence & inverted). The *C.elegans* lab is especially designed to propagate the worms. We are collaborating with Colorado University, USA and the Japanese Space Agency (JAXA) for our *C.elegans* in space research.



## Bioanalyzer

The Agilent 2100 bioanalyzer is a highly popular and useful microfluidics-based platform for the analysis of DNA, RNA, proteins and cells. As the first commercial analytical instrument based on lab-on-a-chip technology, the Agilent 2100 bioanalyzer delivers fast, automated, high quality digital data.



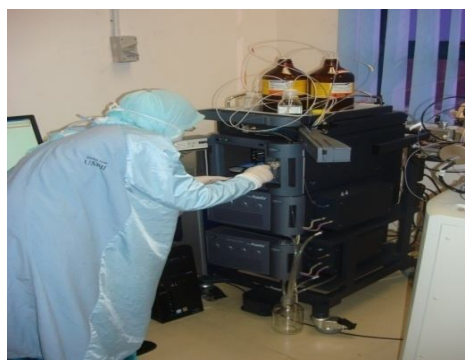
## MVE Cryosystem (BioBank)

The MVE cryosystem consists of a liquid nitrogen freezer with storage capacities of 2000 vials and a liquid nitrogen tank.



## nanoACQUITY UPLC™ Q-TOF PREMIER™ SYSTEM

The nanoACQUITY UPLC™ QTOF Premier™ system is a tandem liquid chromatography-mass spectrometry system. The nanoACQUITY UPLC™ gives sharper peaks and improved chromatographic resolution, thus enhances the performance of virtually LC-MS experiment. The combination of the ACQUITY UPLC System with the Q-Tof Premier makes the ultimate package for unequivocal proteins profiling.



## Veritas Laser Microdissection System

Veritas Microdissection is the only instrument to offer both laser capture microdissection (LCM) and Laser Cutting, providing unmatched flexibility. The UV Laser Cutting provides unprecedented speed and precision which ideal for non-soft tissues and capturing large numbers of cells. LCM is a gentle technique, maximising biomolecule integrity which ideal for single cells or small number of cells. Veritas Microdissection can cut and capture structures from multiple tissue sections or cytological samples with just a few mouse clicks. The AutoScan feature assures identification and capture of cells of interest. This automation system reduces hands-on time and utilises a variety of slide and tissue preparation techniques.







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## HUKM-UMBI Genomic Unit

The HUKM-UMBI Genomics Unit was set up in 2004 as part of a collaboration between HUKM and UMBI. This is a smart partnership aimed at promoting HUKM as a research hospital and UMBI as a provider of molecular diagnostic tests. UMBI has already acquired a number of high end equipments for research in genomics. The partnership has allowed HUKM to channel funds to maintain these equipments as well as providing other basic amenities including reagents and consumables. The genomics unit is a shared resource meaning that it is open for use by researchers at both the Faculty of Medicine and those serving HUKM.

This unit is dedicated to provide the scientific resource, facilities and research expertise to the research community whilst at the same time providing diagnostic services in molecular genetics. This collaboration has also consolidated HUKM's position as a premier teaching and research hospital by providing state-of-the-art molecular diagnostics.

UMBI has also set up a Biobank again in collaboration with HUKM. This is in line with UMBI pursuing and pioneering new ideas to support service and research. The aim is to have a systematic collection of biospecimens that conforms to the highest standards of collection, processing and storage. The centralisation of tissue and specimen collection will ensure that the BioBank HUKM-UMBI will become one of the best resources for cancer tissues (and other biospecimens) in Malaysia. UMBI also provides assistance to clinicians and other researchers who are interested in research in molecular medicine. We hope to continue to work closely with the faculty members as well as others outside UKM.

As part of its international networking and to upgrade the knowledge of our staff members, three of our personnel visited the Molecular Genetic Laboratory, at the John Hunter Hospital in Newcastle, Australia for a 2-week training stint from 17<sup>th</sup> December 2005.

### **Current status of the Molecular Diagnostics Services at UMBI**

The research protocol for the identification of BRCA1 and BRCA2 genes (the breast cancer predisposition genes) and LDL receptor gene (for Familial Hypercholesterolemia) are now at the final optimisation stages. Beta globin mutation analysis are also being set up in line with the country's screening programme to be launched next year. We also offer detection of engraftment post-bone marrow transplant using the VNTR and the STR approach. We are also currently optimising the platforms for the mutation detection and diagnosis of rare diseases including metabolic syndromes. Such examples include among others, Duchenne muscular dystrophy, spinal muscular atrophy, congenital myoclonus and the fragile X syndrome. Molecular diagnosis for these diseases provides conclusive support for any diagnosis and invaluable data for patient genetic counseling. UMBI aspire to be a leading provider of molecular diagnostics in the country to help clinicians dealing with genetic diseases (especially rare ones) and simultaneously reducing the cost of doing the tests overseas.

# Postgraduate Research Student



## Doctor of Philosophy (Molecular Medicine)

Name	Project Title	Supervisors
<b>Registered in 2003</b>		
Haliansyah	The influence of cytokines, liver tumour promoter and expression of selenoproteins	Prof. Dr. Wan Zurinah Wan Ngah
<b>Registered in 2004</b>		
Mazatulikhma Mat Zain	Neuroprotective effect of synthetic pyrrolidone derivatives and their mechanism of action	Prof. Dr. Wan Zurinah Wan Ngah
D. Maryama Ag Daud	Effect of exercise duration and intensity on the oxidative status and antioxidant enzyme activities among sedentary adults	Prof. Dr. Wan Zurinah Wan Ngah
Riyadh Saif Ali Al Hammadi	HNF4 alpha gene polymorphisms in Type 2 diabetes mellitus	Prof. Dr. Wan Zurinah Wan Ngah
Goon Jo Ann	Effect of exercise(tai chi) on oxidative status in the ageing population	Prof. Dr. Wan Zurinah Wan Ngah
Chin Siok Fong	Effect of ageing on antioxidant enzymes, oxidative stress, protein degradation and sister chromatid exchange	Prof. Dr. Wan Zurinah Wan Ngah
<b>Registered in 2005</b>		
Salleh Mutahar Yahya Al-Othrub	Prevalence of pandemic thermostable direct hemolysin-producing <i>Vibrio parahaemolyticus</i> O3:K6 in clinical, seafood and the west coast environment of Kuala Lumpur in Malaysia	Prof. Dr. Ramelah Mohamed
<b>Registered in 2005</b>		
Dr. Abubakar Danjuma Abdullahi	Functional analysis of genes underlying non-small cell lung carcinoma using high-throughput RNA silencing	Associate Prof. Dr. Roslan Harun
Wong Lai Teng	Analysis of the molecular mechanisms controlling the induction of apoptosis by natural styryllactones including goniothalamine	Dr. Fadilah bt Rajab Associate Prof. Dr Salmaan Hussain Inayat Hussain Associate Prof. Dr. Roslan Harun



## Masters of Science (Molecular Medicine)

Name	Project Title	Supervisors from UMBI
<b>Registered in 2003</b>		
Fazlina Nordin	Multidrug Resistance (MDR) proteins and in-vitro cytotoxicity of anti-leukemic drugs	Prof. Dr. A Rahman A Jamal
Melati Khalid	APC gene mutation and methylation status in colorectal cancer	Prof. Dr. A Rahman A Jamal
Maridah Mohd Amin	Effect of ageing on antioxidant enzymes, oxidative stress, protein degradation and sister chromatid exchange	Prof. Dr. Wan Zurinah Wan Ngah
Azni Amir Musa	Cloning and expression of the 24.1 kDA protein for <i>Campylobacter jejuni</i>	Assoc. Prof. Dr. Mohd Zaki Salleh
Suhaniza Sulaiman	The effect of <i>Chlorella vulgaris</i> on hepatocarcinogenesis in the rat	Prof. Dr. Wan Zurinah Wan Ngah
Suhana Md Saad	The anticarcinogenic characteristics of chlorella vulgaris algae and its nutrient content	Prof. Dr. Wan Zurinah Wan Ngah
Suhana Mamat	Genetic polymorphisms of p450 and the effect of vitamin E on lipid peroxidation in cells expressing CYP2E1 enzyme	Prof. Dr. Wan Zurinah Wan Ngah
Mohammad Johari Ibrahim	Effect of vitamin E supplementation on the oxidative status and immune response in ageing in the Malaysian population	Prof. Dr. Wan Zurinah Wan Ngah
<b>Registered in 2004</b>		
Lim Lay Cheng	To study the oxidative stress products and antioxidant status in the ageing process	Prof. Dr. Wan Zurinah Wan Ngah
Saadiah Abd. Malek	PCR-based method for rapid diagnosis of systemic candidiasis	Prof. Dr. Ramelah Mohamed Prof. Dr. A Rahman A Jamal
Norhayati Kamaruddin	Association of <i>Helicobacter pylori</i> with p53 protein expression and pepsinogen levels in gastric pre-cancerous and cancerous lesions.	Prof. Dr. Ramelah Mohamed
Wan Rasinah Zakariah	Characterisation of antibiotic resistance genes of <i>Helicobacter pylori</i> isolated from Malaysian patients.	Prof. Dr. Ramelah Mohamed
Dr Hayati M. Yusoff	Identification of Interleukin-1 beta and IL-6 in Primary Osteoarthritic patients	Dr. Norfilza Mohd Mokhtar
<b>Registered in 2005</b>		
Husna Mohd Noor	Global expression analysis of functional genes involved in the activation of T-helper cells (CD4 <sup>+</sup> ) amongst asthmatic patients.	Assoc. Prof. Dr. Roslan Harun
Norziha Zainul Abidin	Expression analysis and functional analysis of genes activated by interleukin 5 (IL-5) in eosinophils <i>in vitro</i> in asthmatic patients	Assoc. Prof. Dr. Roslan Harun
Norshuhadah M. Yusof	Gene expression profiling of CD4 <sup>+</sup> and CD8 <sup>+</sup> T cells and its correlation with the clinical manifestations of <i>Helicobacter pylori</i>	Assoc. Prof. Dr. Roslan Harun
Nor Ezleen Qistina	Identification of differential expression and functional analysis of genes in activated B-lymphocytes <i>in vitro</i> in the peripheral blood of patients with asthma.	Assoc. Prof. Dr. Roslan Harun
Yusnita bt Yakob	Molecular characterization of codons 12, 13 and 61 of the K-RAS, N-RAS and H-RAS genes in multiple myeloma	Prof. Dr. A Rahman A Jamal
Noor Wahidah Mohd Nasri	Development of preimplantation genetic diagnosis for Thalassemic patients	Dr. Norfilza Mohd Mokhtar

**Registered in 2006**

Abdul Hamydy Abdul Hamid	Mengkali perbezaan taburan alel gen <i>ice A</i> strain <i>Helicobacter pylori</i> pada kaum melayu, cina dan India yang menghadapi penyakit gastritis dan ulcer peptic di malaysia	Prof. Dr Ramelah Mohamed
Noorul Hidayah Badri	Pembangunan ujian diagnostik pantas untuk identifikasi <i>Vibrio cholerae</i>	Prof. Dr. Ramelah Mohamed
Hasmawati Yahaya	Identification of new therapeutic target in breast cancer using chromatin engineering	Assoc. Prof Dr Roslan Harun
Nurasyikin Harmainy	Penghasilan toksin <i>vibrio cholerae</i>	Prof. Dr. Ramelah Mohamed
Fatma S.A Saghir	Genomic markers of endometrial cancer among Malaysian population	Dr. Norfilza Mohd Mokhtar

**Registered in 2007**

Lim Wei Chun	Characterization of Fragile X repeat number (implication for genotype-phenotype correlation)	Prof. Dr. A Rahman A Jamal
Nor Khatijah Mohd Aris	Molecular & genetic profiling of gestational diabetes mellitus using single nucleotide polymorphism	Assoc. Prof. Dr. Syed Zulkifli Syed Zakaria (co-supervisor)
Siti Norfaizah Wagiman	The frequency of the folate related genes in the childhood leukemia patients in Malaysian population	Assoc. Prof. Dr. Syed Zulkifli Syed Zakaria Prof. Dr. A Rahman A Jamal



# Achievements



## Major New Grants Awarded 2006-2007

Source	Project Title	Project Leader	Funding
Sciencefund	Gamma-tocotrienol modulates oxidative stress response and gene expression of human lymphocytes from different age groups	Prof. Dr. Wan Zurinah Wan Ngah	200,000
Sciencefund	Genetic polymorphisms and enzyme activity of thiopurine S-methyltransferase: Development of molecular diagnostics and a bioassay to reduce toxicity and enhance therapeutic efficiency in acute lymphoblastic leukaemia	Prof. Dr. A Rahman A Jamal	247,000
Sciencefund	Folate, MTHFR gene polymorphism and childhood cancers	Prof Madya Dr. Syed Zulkifli Syed Zakaria	100,000
Sciencefund	Genomic and proteomic markers of endometrial cancer in Malaysian population	Dr. Norfilza Mokhtar	70,000
Sciencefund	Identification Of New Prognostic And Predictive Markers Of Lung Cancer	Prof. Madya Dr. Roslan Harun	261,080
Sciencefund	Genotype-Phenotype Correlation in thalassaemia: Towards development of a lab-on-a-chip for diagnosis and prognostication	Prof. Dr. A Rahman A Jamal	242,600
FRGS	Analysis of gene function in non-small cell lung carcinoma (NSCLC) using high-throughput RNA silencing	Prof. Madya Dr. Roslan Harun	113,000
FRGS	Nuclear factor kB (NF-kB) and activator protein-1(AP-1) modulation of DNA repair in aliver cancer cell lines	Prof. Dr. Wan Zurinah Wan Ngah	101,000
FRGS	Genotype-Phenotype Correlation for Fragile X Syndrome: Towards a Personalised Approach for Diagnosis, Management and Rehabilitation	Prof. Dr. A Rahman A Jamal	60,000
FRGS	Gene expression profiling of progesterone-regulated genes and genotyping in women with recurrent abortions	Dr. Norfilza Mohd Mokhtar	50,426
MOST	Eukaryotic cells in space	Prof. Dr. A Rahman A Jamal	763,000
MOSTI	Genetics mutation and changes in expression profiles in Caenorhabditis elegans exposed to space radiation and microgravity	Prof. Dr. A Rahman A Jamal	575,000
MOSTI	The effects of spaceflight on growth, antibiotic resistance mechanism and gene expression profiles of Helicobacter pylori and Acinetobacter	Profesor Dr. Ramelah Mohamed	431,640
GUP	Identification of potential biomarkers of ovarian cancer patients using genomic approach	Dr. Norfilza Mohd Mokhtar	191,000
GUP	Antioxidant-Gene Interactions in Ageing	Prof. Dr. Wan Zurinah Wan Ngah	389,000
UKM	Molecular mechanism of antitumor quinone induced apoptosis	Prof. Madya Dr. Salmaan Hussain Innayat Hussain	18,000
Third World Academy of Sciences Research Grants in Basic Sciences	Molecular mechanisme of styryllactone induced apoptosis	Prof. Madya Dr. Salmaan Inayat Hussain	15,000
MOSTI	Mutagenicity testing facility in accordance with the OECD principles of GLP	Prof. Madya Dr. Salmaan Inayat Hussain	4,200,000
Golden Hope	Evaluation of skin product animal and human studies	Prof. Dr. Wan Zurinah Wan Ngah	321,000.00



## Publication

### Journals

**Sim EUH, Bong IPN, Balraj P, Tan SK, Rahman Jamal, Sagap I, Nadeson S, Rose IM, Lim PKM.** A preliminary study of differentially expressed genes in Malaysian colorectal carcinoma cases. *Jurnal Biosains*. 2006;17:19-37.

**Azian M, Hapizah MN, Khalid BAK, Khalid Y, Rosli A, Rahman Jamal.** Use of denaturing gradient gel electrophoresis (DGGE) method for mutational screening of patients with Familial hypercholesterolaemia (FH) and Familial defective apolipoprotein B100 (FDB). *Malaysian J Pathol*. 2006;28:7-15.

**Musalmah M, NorIsnida I, Salwati S, Abdul Gapor MT and Wan Ngah WZ.** Gamma-tocotrienol pretreatment reduces DNA damage in lymphocytes of normal subjects and patients with Down syndrome. *Mal J Biochem Mol Biol* 2006;13:18-21

**Suhaniza Sulaiman, Nor Aripin Shamaan, Wan Zurinah Wan Ngah & Yasmin Anum Mohd Yusof.** Chemopreventive effect of *Chlorella vulgaris* in choline deficient diet and ethionine induced liver carcinogenesis in rats. *Int J Cancer Res* 2006;2(3):234-241

**Musalmah Mazlan, Then Sue Mian, Gapor Md Top and Wan Zurinah Wan Ngah.** Comparative effects of  $\alpha$ -tocopherol and  $\gamma$ -tocotrienol against hydrogen peroxide induced apoptosis on primary- cultured astrocytes. *Journal Neurological Sciences* 2006; 243:5-12

**ML Looi, MD Ahmad Zailani Hatta, MA Siti Aishah, H Baizura, WZ Wan Ngah & MY Yasmin Anum.** Serum levels of

squamous cell carcinoma antigen and CA 125 in cervical intraepithelial neoplasia and invasive squamous cell carcinoma of the uterine cervix. *Int J Cancer Res*, 2006 ;2 (3):212-218

**Suhana Md Saad, Yasmin Anum Mohd Yusof & Wan Zurinah Wan Ngah.** Comparison between locally produced *Chlorella vulgaris* and *Chlorella vulgaris* from Japan on proliferation and apoptosis of liver cancer cell line, HepG2. *Mal J Biochem Mol Biol* 2006;13:32-35

**Nor Adina A T, Hamidon B B, Roslan H, Raymond A A.** 2006: Risk factors for developing sleep-disordered breathing in patients with recent ischaemic stroke. *Singapore Med J* 47:392-399

**Chan, KM, Rajab, NF, Ishak, MHA, Ali, A.M., Yusoff, K., Din, L.B. & Inayat-Hussain, S.H.\*** (2006) Goniotalamin induces apoptosis in vascular smooth muscle cells. *Chem-Biol. Interact.* 159(2): 129-40.

**Zafar KS, Inayat-Hussain SH, Siegel D, Bao A, Shieh B, Ross D.** (2006) Overexpression of NQO1 protects human SK-N-MC neuroblastoma cells against dopamine-induced cell death. *Toxicol Lett.* 166(3):261-7.

**Noor Hafiza N, Norzila MZ, Zulkifli SZ.** Clinical characteristics of first admissions and readmissions for acute asthma. *Asia-Oceanian Journal of Paediatrics and Child Health.* Vol 5 Dec 2006;31-7

**D Maryama Daud, Aminuddin Abdul Hamid Karim, Nabishah Mohamad, Noor Aini Abd Hamid and Wan Zurinah Wan Ngah.** Effect of exercise intensity

on antioxidant enzymatic activities in sedentary adults. *Malaysian Journal of Biochemistry and Molecular Biology* (2006) 13, 37-47.

**Siew Ee Ling, Rajab, NF, Annuar, BO, Sudesh, K, Inayat-Hussain, SH\*** (2006) *In vitro* biocompatibility Evaluation Of Poly(3-Hydroxybutyrate-Co- 4-Hydroxybutyrate) Copolymer In Fibroblast Cells. *Journal of Biomedical Materials Research Part A*: 1-9

**N. Fazlina, A. Maha, R. Jamal, A.L. Zarina, S.K. Cheong, A. Hamidah, O. Ainoon, S.Z. Zulkifli & N.H. Hamidah.** Expression of multidrug resistance (MDR) proteins and *in vitro* drug resistance in acute leukemias. *Hematology*. 2007; 12(1):33-37.

**Hamidah A, Zarina AL, Zulkifli SZ, Zulfiquar MA, Jamal R.** Malignant pancreatic carcinoid tumour. *Singapore Med J.* 2007;48(12):e320-2.

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**A Rahman A Jamal.** The setting up of a biobank: The Malaysian

experience. Symposium lecture at the Joint 6<sup>th</sup> Human Genome Organisation (HUGO) Pacific Meeting and 7<sup>th</sup> Asia-Pacific Human Genetics Conference (HUGO-AP). March 6-10 2006, Academia Sinica, Taipei, Taiwan.

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**A Rahman A Jamal.** Iron metabolism and iron chelation in thalassaemia. Thalassaemia Seminar, Hospital Likas, Kota Kinabalu,. 9-10th June 2006.

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**A Rahman A Jamal.** Ethics of stem cell research. Seminar on Medical Ethics, Institute of Health Management, organized by the Ministry of Health and Academy of Medicine. 2<sup>nd</sup> December 2006.

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**Wan Zurinah Wan Ngah (2007)**  
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### **Abstracts presented at various conferences, seminars, workshops**

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## Awards

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- **Bronze**

**Ramelah Mohamed** & Alfizah Hanafiah. Atigen production of Novel CagA Variants from Malaysian *Helicobacter pylori* Isolates.

**Western Pacific Conference on Helicobacter; Bangkok, Thailand; November 12 – 14, 2006.**  
- **Young Investigator's Award**

A. Ahmad, N.M. Yusof, R. Harun & **R. Mohamed**. Distinct Gene Expression Profiles in *Helicobacter pylori*-Specific CD4-T cell From Peripheral Blood in Chronic Gastritis and Peptic Ulcer Disease

**Country Correspondents, U.S National Library of Medicine's Toxicology and Environmental Health Information Program on World Library of Toxicology, Chemical Safety & Environmental Health Project (7 September 2006).** - **Professor Dr. Salmaan Hussain**

**Awarded for the Development of Agro-biotechnology industry in Terengganu State by the State Secretary.** - **Professor Dr. Salmaan Hussain**



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## Networking & Collaboration

UMBI has established networking and collaboration with several international and local research institutions and industries as listed below. We hope to embark on establishing a wider network with more institutions in the coming years.

### International institutions

- King's College Medical School, London, United Kingdom
- Fred Hutchinson Cancer Research Centre, Seattle, Washington, USA
- University of South Australia, Adelaide, Australia
- Kyorin University School of Medicine, Tokyo, Japan
- Graduate School of Medicine, University of Kyoto, Japan
- University of Colorado Health Sciences Center, Colorado, USA
- Chiba University, Japan
- Okayama University, Japan
- Kyoto University, Japan
- Institut d'Investigacions Biomediques de Barcelona, (IIBB), Spain

### Local institutions

- Institute for Research In Molecular Medicine (INFORMM), Universiti Sains Malaysia
- Institute of Biotechnology, Universiti Teknologi Mara
- Faculty of Pharmacy, Universiti Teknologi Mara
- School of Medical Sciences, Universiti Sains Malaysia
- Faculty of Medicine and Health Sciences, Universiti Putra Malaysia
- Institute Medical Research, Ministry of Health
- Hospital Kuala Lumpur
- Hospital Kuala Terengganu
- Malaysia Palm Oil Board

### Industries

- INNOBIOLOGICS
- BioSynTech Sdn. Bhd.
- Aventis Pharma
- Siber Hegner
- Chemoscience
- Research Instrument
- Golden Hope Industries

# Official Committee

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## Accreditation Committee

**Associate Prof. Dr. Roslan Harun (Head of Quality)**

**Professor Dr. Ramelah Mohamed (Head of Accreditation)**

Dr. Khairul Bariah Ahmad Amin Noordin

Dr. Then Sue Mian

Roszita Ibrahim

Saidatul Norul Huda Ahmad

Husna Mohd Noor

Hafiza Hamsur

Lim Lay Cheng

Nazihah Jalal

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Deputy Vice Chancellor (Academic Affairs and Internationalisation) UKM

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Deputy Vice Chancellor (Student Affairs and Alumni), UKM

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