



Hong Kong Institute of Medical Laboratory Sciences

香港醫務化驗學會

ANNUAL SCIENTIFIC MEETING 2010

Theme
**Recent Advances in Infection,
Inflammation and Immunity**

Date: Sunday, 25th July 2010

Time: 11.30 a.m. — 17.00 p.m.

Venue: Grand Ballroom I & II, 6th Floor, Royal Plaza Hotel,
193 Prince Edward Road West,
Mongkok MTR East Station (formerly Mongkok KCR Station)

Sponsored by Beckman Coulter Hong Kong Ltd

Welcome Message

YL Tsim

President, Hong Kong Institute of Medical Laboratory Sciences

The annual scientific meeting is a major event of the Hong Kong Institute of Medical Laboratory Sciences. In fact, this is the primary mission of the Institute, which is, to promote the professionalism and academic status of a high calibre amongst her members.

I would like to welcome distinguished speakers, guests and fellow members to this annual scientific seminar.

The Hong Kong Institute of Medical Laboratory Sciences is a professional body that endeavours the advancement of medical laboratory science and technology. This is done by organizing monthly scientific seminars, annual seminar and participation of conferences at regional and international level.

To make this event successful, I would like to thank all council members, in particular, the Academic Committee headed by Dr Kent Tsang and the Welfare Committee headed by Miss Emily Yeh for their concerted effort.

Of course without the support of Beckman Coulter, the lunch would not be possible. The support and participation of members is of paramount importance. A seminar without audience is meaningless!

Remember the Korean song — We want nobody but you!

Thank you!



香港醫務化驗學會有限公司

Hong Kong Institute of Medical Laboratory Sciences Ltd.

Formerly Hong Kong Medical Technology Association (Founded 1966)

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Annual Scientific Meeting 2010

Theme: Recent Advances in Infection, Inflammation and Immunity
Date: Sunday, 25th July 2010
Time: 11:30 am – 4:15 pm
Venue: Grand Ballroom I & II, 6th Floor, Royal Plaza Hotel, 193 Prince Edward Road West, Mongkok MTR East Station (formerly Mongkok KCR Station)

Schedule	Title	Speaker
1: 25 pm	Opening Speech	Mr. Yiu-Lam Tsim President, HKIMLS
1: 30 pm	Recent Tools for Infection	Dr. Helen Law Research Engineer Institute Pasteur, Paris, France
2: 00 pm	Advances in Molecular Pathology in Cancer and Inflammation: Role of TGF- β	Prof. Hui-Yao Lan Professor Department of Medicine & Therapeutics, Li Ka Shing Institute of Health Sciences, The Chinese University of Hong Kong
2: 30 pm	Tea Break / Trade Exhibition	
3: 00 pm	Laboratory Investigations of Allergic Diseases	Dr. Eric YT Chan Consultant Division of Clinical Immunology, Department of Pathology and Clinical Biochemistry, Queen Mary Hospital
3: 30 pm	Mechanisms Underlying HIV Evasion of Immunity and Their Contributions to Opportunistic Infections	Prof. Allan SY Lau Professor Cytokine Biology Group, Department of Paediatrics, University of Hong Kong
4: 00 pm	Closing Remarks	Mr. Tat-Tang Cheung Vice President, HKIMLS

MLT Board CPD Accreditation: 2 Points

Programme/Activity Code: 07100021

RECENT TOOLS FOR INFECTION AND IMMUNITY RESEARCH

Helen K.W. Law

Centre for Human Immunology, Institut Pasteur, Paris, France.

The advancement of technology has expanded our knowledge in infection and immunity tremendously. In the past decade, the development of state-of-the-art flow cytometers combined with new fluorochromes and tandem dyes have allowed polychromatic analysis of cells. With careful design and optimisation of staining panels, it is possible to detect and enumerate very rare stem cells, cancer cells, virus infected cells and antigen presenting cells in the circulation. In addition, the use of flow cytometry for the study of signalling pathways (PhosFlow) and cytokine secretion (intracellular cytokine staining) have matured. New technologies have been developed beyond flow cytometry to increase the breadth and depth of cellular analysis. For example, using <50 microlitre of serum/medium, more than 50 cytokines can be assayed by multiple analytes profiling (xMAP technology) and single cell gene expression can be assayed at nanolitre scale (Fluidigm). Moreover, high content image analysis allows the study of immune synapse, granules/organelles, nuclear translocation, internalisation, and other cell morphology changes. It can also be used for genome wide siRNA screening. The latest wave is to study signal transduction pathways using quantitative mass cytometry which enable the concurrent measurement of 50-100 markers in thousands of cells at single cell level (CyTOF). The continual challenge would be to design methods for the analysis of huge data sets, to interpret the results, and, to decipher the complex relationships between pathogens, cells and molecules.

ADVANCES IN MOLECULAR PATHOLOGY IN CANCER AND INFLAMMATION: ROLE OF TGF-BETA.

Hui Y. Lan

Department of Medicine and Therapeutics, and Li Ka Shing Institute of Health Sciences,
The Chinese University of Hong Kong, Hong Kong SAR, China.

It is now well-recognized that inflammation can drive tumor progression. Transforming growth factor beta (TGF- β) may be an essential regulator in this process. Beyond the suppressive effect of TGF- β on the carcinogenesis, TGF- β promotes cancer progression through modification of both cancer stromal cell and carcinoma cell behavior and enhances their interaction within the tumor microenvironment. TGF- β is highly produced by cancer cells as well as stromal cells, which, in turn, alters the cancer microenvironment and promotes cancer cell growth, invasion, and metastasis via both autocrine and paracrine mechanisms. In the inflammation-associated cancer, TGF- β signaling (Smad2/3) is highly activated in both tumor and stromal tissues, which is associated with loss of an inhibitory Smad7 mediated by the Smad3-induced Smurf2-dependent ubiquitin degradation mechanism. Enhanced activation of TGF- β /Smad signaling, presumably Smad3, can promote cancer progression by inducing EMT, a key process in cancer stromal tissue remodeling and cancer cell migration and metastasis. Moreover, TGF- β is able to enhance cancer cell growth and metastasis by stimulating angiogenesis, which is mediated by Smad3-stimulated VEGF. In addition, we also found that Smad7 can inhibit NF- κ B signaling by inducing I κ B α , an inhibitor of NF- κ B phosphorylation. Thus, loss of Smad7 in the cancer site may be attributed to the activation of the NF- κ B signaling pathway through which cancer cell proliferation and inflammatory response are enhanced. Importantly, it is now clear that carcinoma-immune cell cross-talk initiated by TGF- β signaling is important in determining the tumor progression and metastasis. Increased TGF- β signaling contributes significantly to tumor-associated macrophage infiltration and induces T regulatory cell differentiation via the Smad3-dependent mechanism, resulting in cancer inflammation but blunting immune surveillance, favoring tumor growth, invasion, and metastasis by escaping the host immune defense system. All these studies suggest that the imbalance of TGF- β signaling such as over-activation of Smad2/3 associated with loss of Smad7 and dysregulation of TGF- β functions in the stromal-tumor axis may be critical in cancer growth, invasion, and metastasis. Thus, targeting TGF- β signaling in the stromal-tumor axis by overexpression of Smad7 may represent a novel and effective anti-cancer therapy.

LABORATORY INVESTIGATIONS OF ALLERGIC DISEASES

Eric YT Chan

Division of Clinical Immunology, Department of Pathology and Clinical Biochemistry,
Queen Mary Hospital.

The incidence of allergic diseases in Hong Kong has increased several folds in the past 20 years. This phenomenon has been observed worldwide especially in developed countries. Allergy testing in identifying the causative allergen is therefore gaining importance. The results are applicable to clinical management in terms of avoidance of allergens and specific immunotherapy. With an appropriate clinical history several laboratory tests are helpful in determining an atopic status (total IgE) and finding the causative allergens. Atopy is the term referring to an IgE propensity. The causative allergens in IgE-mediated diseases can be determined in the laboratory by serum specific IgE and basophil activation tests. Non-IgE mediated allergic diseases are mediated by lymphocytes or non-IgE immunoglobulins. Lymphocyte proliferation or cytokine release assays are most often used laboratory tests to find out the responsible agents in cellular type (type IV) of allergy. Anaphylaxis is due to mast cell degranulation caused by specific IgE. Patients with anaphylaxis are often non-atopic. Mast cell degranulation can be confirmed in the laboratory by measuring the serum tryptase level. The causative agents are investigated by the methods described above.

MECHANISMS UNDERLYING HIV EVASION OF IMMUNITY AND THEIR CONTRIBUTIONS TO OPPORTUNISTIC INFECTIONS

Allan SY Lau

Cytokine Biology Group, Department of Paediatrics and Adolescent Medicine, Li Ka Shing Faculty of Medicine, University of Hong Kong.

Human Immunodeficiency Virus (HIV) is the primary etiological agent for AIDS. Among the nine HIV-1 viral proteins, transactivator Tat functions as a key modulator in viral replication and acts as a potent immunomodulator in AIDS pathogenesis. The HIV Tat regulatory protein has been known to have multiple regulatory roles including the regulation of cytokine production and apoptosis. Its dysregulation of IL-6, IL-10 and TNF- α expression contributes to disease complications in AIDS including Kaposi's sarcoma, B-cell lymphoma and HIV-associated dementia. Recent reports have elucidated some of the mechanisms underlying how HIV-1 Tat induces cytokines through the activation of specific kinases and transcription factors. Additionally, HIV-1 Tat interacts with other cytokines to disrupt cellular function thereby contributing to HIV evasion of the immune system. For example, HIV-1 Tat perturbs IFN- γ receptor signalling and downregulates MHC presentation. Collectively, these cellular changes induced by HIV may be beneficial for pathogen evasion of immunity. Thus HIV has been shown to interact with opportunistic pathogens including Kaposi sarcoma-associated herpesvirus, protozoa, fungi, bacteria and mycobacteria in their effects on immunity. We recently showed that HIV-1 Tat also perturbs the Toll-like receptor system including the lipopolysaccharide activated signalling pathways. Taken together, these HIV-1 Tat-induced effects may provide a favourable milieu for the survival of HIV as well as the co-infecting pathogens, thereby contributing to the HIV-associated diseases. Therefore, anti-Tat treatment becomes one of the key areas for AIDS therapeutics development, with clinical trials of several drug candidates targeting at inhibiting Tat activities. In conclusion, understanding the mechanisms of action for HIV-1 Tat effects and their associated dysregulation of cytokines may provide new leads for the development of novel AIDS therapeutics. (Publications from A. Lau Group: Blood 2009, AIDS 2009 & 2010, J Leukoc Biol. 2010, J Immunol 2005. Supported by Research Grants Council and Research Fund for the Control of Infectious Diseases, Hong Kong.)



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THE EXECUTIVE COUNCIL (2008-2010)

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2009/2010 REPORT OF HKIMLS PRESIDENTS

YL Tsim and TT Cheung

The Hong Kong Institute of Medical Laboratory Sciences has been established for more than 45 years. The Institute promotes the advancement of medical laboratory sciences and technology. The monthly lectures introduce the state-of-the-art scientific knowledge to our members. The national and international conferences update our medical laboratory scientists by specialists coming from various countries. The Institute fosters good relationship among Asia countries and nearby cities. We have participated in the Asia Association of Medical Laboratory Scientists. Furthermore, we have close relationship with neighbourhood cities such as Taipei, Guangdong and Macau. Conferences are regularly held in these areas.

The welfare of members is another area we always focus at. One and two-days outings have been organised to suit members' need. This is important for members to take a break and exchange views and feeling among our professionals.

The Institute requires young and energetic members to serve in the council, committees and task forces. The replacement of senior councillors is the direction of our succession plan. This is done by membership and council drives in the past few years. At present the number of our members has increased to 744. New councillors will take up the office while senior councillors will step down gradually. In the new board of directors, nearly half of the councillors are replaced with new bloods.

Details of committee reports are separately presented in the print out.

At last but not least, we wish to express our gratitude to all councillors for their voluntary work and contribution.

2009/2010 REPORT OF ACADEMIC COMMITTEE

KS Tsang, V Ma and TW Lai

In the fiscal year of August 2009 to July 2010, the Academic Committee organized 8 scientific functions including one symposium, 6 multi-disciplinary monthly meetings together with the annual scientific meeting. Both local and overseas distinguished scholars and experts were invited to enlighten members with the latest knowledge as well as recent advances in medical laboratory sciences. Details of the year-round activities were shown below and some of the presentations notes are accessible on-line at <http://www.hkimls.org>.

Date	Topic of Scientific Meeting 2009/2010	Speaker
13th Aug 2009	Biomarkers in Cancer Diagnosis and Prognosis	Dr. William Chi-Shing Cho Queen Elizabeth Hospital, HK
5th Oct 2009	Secure and Protected Use of Laboratory Information	Mr. Paul Fraley
3rd Nov 2009	Symposium: Good Practices in Quality Laboratory Management	Mr Jeff Larson Bio-Rad Laboratories, USA Dr. Richard Pang Pro Q Consulting Services
7th Dec 2009	Potential and Impact of Proteomic Technologies in Clinical Diagnostics	Dr. Terence Chuen-Wai Poon Chinese University of Hong Kong
23th Apr 2010	Fungi that kill! Invasive Fungal Infections: A Clinical Perspective	Dr. Bonnie Chun Kwan Wong Prince of Wales Hospital
9th June 2010	Toxicology Screening by Mass Spectrometry in the Clinical Laboratory	Dr. Chung Shun Ho Prince of Wales Hospital
29th June 2010	American Diabetes Association Endorses HbA1c for Screening and Diagnosis of Diabetes: How Accurate and Reliable is Your HbA1c?	Dr. Richard Pang Pro Q Consulting Services Asia Pacific
25th July 2010	Annual Scientific Meeting 2010: Recent Advances in Infection, Inflammation and Immunity	Dr. Helen Law Institute Pasteur, Paris, France Prof. Hui-Yao Lan Chinese University of Hong Kong Dr. Eric YT Chan Queen Mary Hospital, HK Prof. Allan SY Lau University of Hong Kong

2009/2010 ANNUAL REPORT ON HONG KONG INSTITUTE OF MEDICAL LABORATORY SCIENCES QUALITY ASSURANCE PROGRAMME (HKIMLSQAP)

KS Tsang, SM Long, YC Yuen, CY Yau, MH Lo, TW Lai, WS Wong, FC Long, WM Fok, SL Wong, HK Leung, KL Tong, KN Cheung, Y Leung, WT Hui and PKC Cheng on behalf of Hong Kong Institute of Medical Laboratory Sciences Quality Assurance Programme, Hong Kong Institute of Medical Laboratory Sciences, Hong Kong.

HKIMLSQAP has been operating for 21 years since 1990 and continuing to provide a non-profit making external quality assurance programme to medical laboratories at low cost. To cope with service demands and the pursuance of accreditation, HKIMLSQAP implemented a number of strategic plans and measures to fortify and enhance the productivity and competitiveness. Ms Vanessa M.H. Lo and Ms Kristi T.W. Lai from Hong Kong Sanatorium and Hospital were recruited as Quality Manager and Deputy Quality Manager, respectively. Ms Debby W.M. Fok took up the office of Clinical Chemistry Panel Head in early 2009, whereas currently serving speciality panel members and council members of HKIMLSQAP were re-appointed to serve for another term of two years from 2009-2010. A part-time assistant was employed to help man the office of HKIMLSQAP, and the despatching of proficiency testing materials was contracted to a courier agent professionalizing at delivery of biomedical products among HA hospitals for one year starting from Jan 2010. HKIMLSQAP appreciated the long-term courier services offered by AIDS Ltd, PathLab Medical Laboratories Ltd, Chan & Hou Med Lab Ltd, and Giant Med Lab & X-ray Services Ltd for over two decades since 1990.

Budget deficit persisted. However, HKIMLSQAP could maintain the business as usual without an increase of the annual subscription by an unconditioned loan from Hong Kong Medical Technology Association. HKIMLSQAP was caught in the cross-fires between participants and BioRad, the collaborator in jointly organising the Clinical Chemistry programme. A series of complaints criticized the frequently recurrent episodes of transcription errors. The problems prevailed to an intolerable situation, despite HKIMLSQAP repeatedly urged BioRad to implement corrective actions. There was no evidence of amelioration. Under the austerity measure, HKIMLSQAP put into action an electronic template for on-line submission of survey data in late May, 2010 hoping that the impasse could be rectified.

HKIMLSQAP is actively prepared for accreditation by strengthening and substantiating the comprehensiveness of the organization and services to participating laboratories. A preliminary visit to HKIMLSQAP was made by HOKLAS assessors in December, 2009. Having completed the processing of refinement, a formal application for accreditation was filed in early 2010. A site assessment was scheduled in coming September. On behalf of HKIMLSQAP, we appreciate the tremendous efforts and contributions of council and panel members to make end meet, and the long-term trust, faith, enthusiasm and support of medical laboratories, both local and in the vicinity of Hong Kong.

2009/2010 HKIMLS ANNUAL REPORT ON RECREATIONS

E Yeh and Y Leung

三月二十一日，我們化驗會舉辦了“番禺美食之旅一天遊”。會員和家屬都非常踴躍參加，人數約共七十人。早上於深圳福田口岸集合，隨即乘坐兩架大旅遊巴士浩浩蕩蕩出發。我們一直駛至番禺，到聞名的最大、最豪的四海一家品嚐自助餐。真是“聞名不如見面”！用膳的地方大！大！非常大！美食亦多不勝數，我見各會員都非常忙碌地找尋不同的美食。吃過自助餐後必然要做運動。我們到萬博中心和博雅居閒逛。那裏除了有各式各樣充滿中國特色，古色古香的家具外，還有很多極之豪華的傢俬。其後我們再到名牌折扣店選購商品，團員均滿載而歸。此外，番禺原來有一間歷史博物館，在這裡可了解到當地的歷史文化，加深團員對番禺這地方的認識。大開眼界！原來逛超市是國內旅行團景點之一。領隊帶我們到平價大型國貨超市逛街。我見各會員都在格價，或多或少也有買了些東西。很快便到了晚餐的時候。我們嚐試地道鴿腎飯風味宴，每一款菜色都由鴿製成。原來一隻小小的鴿子也有這麼大的貢獻！當然師傅也要用心和超卓廚藝做出這些別出心裁的菜式，味道簡直難以筆墨形容。期間當然有我們學會康樂活動的重頭戲→抽獎環節!!!獎品之實用和量多，令每位團員都哈哈大笑!!快樂的時間過得特別快，吃過晚飯後，便載團員回到深圳關口解散。這天的旅行給予不同會員及家屬都有機會增加認識對方，既有親子樂，也有親朋樂，相聚在一起，高興不已！當然是要多謝我們各會員及家屬支持，才可創造這樣難忘的一天！



A short excursion to Daiolou clusters (碉樓) at KaiPing of GuangDong was organized on Sunday, 31st January, 2010. The diaolou are fortified multi-storey towers with intra-structures for sentinel and defence against intrusion, burglary, robbery and piracy in southern China from the early Qing Dynasty. In the 1920 - 1930s there were more than three thousand of these structures. Today, approximately 1,800 diaolou are still standing. They served two purposes: housing and protecting against forays by bandits. The KaiPing diaolou and villages were added to the list of United Nations Educational, Scientific and Cultural Organization World Heritage Sites in 2007. KaiPing has traditionally been a region of major emigration abroad, and a melting pot of ideas and trends brought back by overseas Chinese. As a result, many diaolou incorporate architectural features from China and from the West. The towers built in the beginning of the 20th century were mainly paid from money of Chinese abroad in North America. Some of the structures were never claimed by their investors.

