



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學



眼科視光學院
SCHOOL OF OPTOMETRY

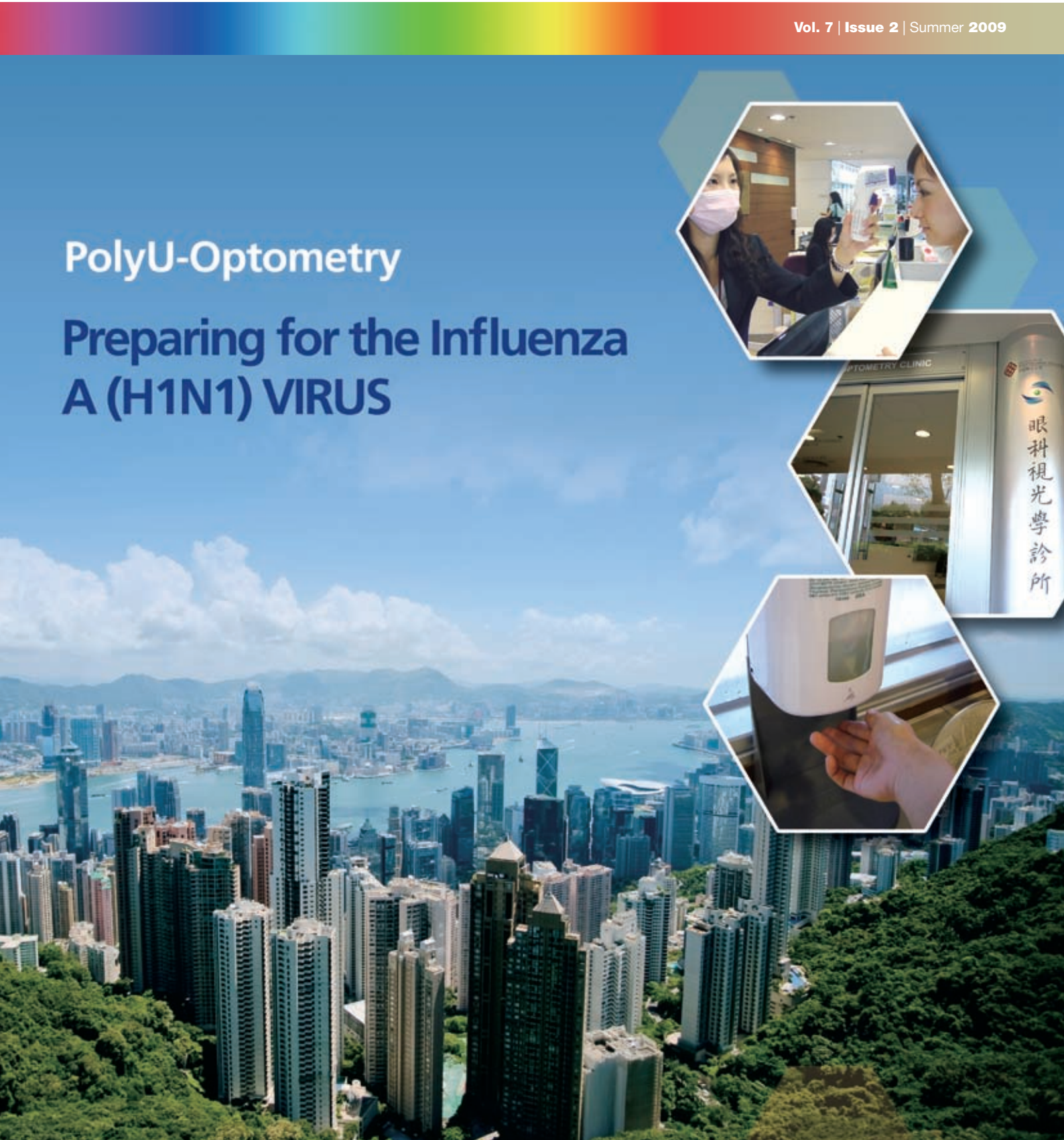
In-focus

A quarterly newsletter of the School of Optometry

Vol. 7 | Issue 2 | Summer 2009

PolyU-Optometry

Preparing for the Influenza A (H1N1) VIRUS



PolyU-OPTOMETRY - PREPARING FOR THE INFLUENZA A (H1N1) VIRUS

The World Health Organization (WHO) has declared the human swine influenza A (H1N1) outbreak a global pandemic. Confirmed cases of swine flu have been reported in many parts of the world, including Hong Kong. The Emergency Response Level under the Government's Preparedness Plan for Influenza Pandemic is activated. There have been 19,370 confirmed cases of human swine influenza A in Hong Kong since the first case was diagnosed on 1 May 2009.



At present, evidence suggests that the main route of human-to-human transmission of the new Influenza A (H1N1) virus is via respiratory droplets, which are expelled by speaking, sneezing or coughing. Another mode of transmission is by touching things with flu viruses on it and then touching one's mouth, nose or eyes.

Any person who is in close contact (approximately 1 meter) with someone who has influenza-like symptoms (fever, sneezing, coughing, running nose, muscle ache, etc) is at risk of being exposed to potentially infective respiratory droplets.

WHO has suggested that oseltamivir (brand name: Tamiflu), when properly prescribed, can significantly reduce the risk of pneumonia (a leading cause of death for both pandemic and seasonal influenza) and the need for hospitalization.

When our staff and students arrive at work every morning, body temperatures are measured and recorded on a log sheet. All staff and students working in the clinic are required to wear masks.

For patients attending our clinic, body temperatures are recorded. If the body temperature measured to be above 37.5 degree Celsius, patients are recommended to reschedule their appointments. In addition, we also provide the following recommendations for individuals who are well:

- Refrain from touching mouth and nose
- Perform hand hygiene frequently, by washing with soap and water or using an alcohol-based hand rub, especially if touching the mouth and nose and surfaces that are potentially contaminated
- Reduce as much as possible the time spent in close contact with people who might be ill
- Reduce as much as possible the time spent in crowded settings

For individual with influenza-like symptoms:

- Put on a face mask
- Visit one of the designated fever clinics (DFCs) and follow doctor's prescription
- Stay at home for 7 days after symptoms begin or until free of symptoms for 24 hours, whichever is longer
- Keep distance from well individuals as much as possible (at least 1 meter)
- Cover mouth and nose when coughing or sneezing, with tissues or other suitable materials, to contain respiratory secretions. Dispose of the material immediately after use or wash it. Clean hands immediately after contact with respiratory secretions.

Together with our precautions measures, we are doing our very best to ensure a safe and healthy environment for our staff, students and patients.

Dr. Karen Cheng

Optometry Clinic Manager
School of Optometry

WHAT'S HAPPENING OUT THERE?

Prof. George Woo inaugurated as new President of the WCO

Prof. George Woo was inaugurated as the new President of the World Council of Optometry (WCO) on 6 June 2009. The WCO is an international organization committed to the enhancement and development of eye and vision care worldwide via education, humanitarian outreach and policy development, and is the only optometric body in official relation with the World Health Organization. Prof. Woo is the first ethnic Chinese academic to be elected President of the WCO. He intends to use his presidency to continue the development of Optometry as a profession and as a vital dimension of primary health care around the world.



Lecture by Nobel Laureate Prof. Torsten Wiesel

Prof. Torsten Wiesel, winner of Nobel Prize in Physiology of Medicine in 1981, recently came and delivered a special lecture entitled "Development of the Visual System: Nature vs. Nurture" at the Jockey Club Auditorium on 30 May 2009. Around seven hundred academics, researchers, health care professionals and students attended. Prof. Wiesel shared his research work on visual information transmission and processing in the cortex. He showed that neural connections could be modulated by environmental influences during a critical period of postnatal development. Such sensitivity of the nervous system to the effects of experience may represent the fundamental mechanism by which the animal adapts to its environment during the period of growth and development. Prof. Wiesel also held a discussion session with the audience, with Prof. To Chi-ho as the moderator, after the lecture.



WHAT'S HAPPENING OUT THERE?



The 6th Asia Cornea & Contact Lens Conference

More than 360 delegates from 15 countries and territories attended the two-day Sixth Asia Cornea and Contact Lens Conference organized by The Hong Kong Society of Professional Optometrists (HKSPPO) and co-organized by PolyU School of Optometry, The Eye Foundation, The Hong Kong Association of Private Practice Optometrists, and the Hong Kong Contact Lens Research Association. Opened on 23 April 2009 by Prof. Thomas Wong, PolyU Vice

President (Management), and Ms. Rufina Chan, Chairman of HKSPPO and Chairperson of the Organizing Committee, the Conference provided a platform for clinicians, academics and researchers to exchange views on the latest cornea and contact lens research. The first day of the conference started with a keynote lecture titled "Refractive Surgery – Past, Present and Future" by the renowned ophthalmologist Prof. Victor Woo, Adjunct Professor of PolyU School of Optometry. It was followed by Past President and Founding Fellow of the Contact Lens Society of Australia Mr. Richard Lindsay's presentation on "Contact Lens Fitting Following Refractive Surgery". Another three keynote lectures were delivered on the second day of the Conference by Dr. William Miller of the University of Houston on the topic "The Adjunctive Role of In Vivo Confocal Microscopy in Corneal Disease"; Dr. Ety Bitton of the University of Montreal on "A Focused Approach to Ocular Dryness"; and Director of the Premier Eye and Cataract Centre Dr. Godfrey Lam on "Lid Anomalies that may affect Contact Lens Wear".

The Conference also brought together industry experts in the free paper and poster presentations on widely concerned issues, including "Silicone Hydrogel Daily Disposables"; "Evaluating Contact Lens Multipurpose Solutions to protect Contact Lens and Care Systems Synergy"; and "Understanding Comfort in Contact Lens Care".

The next ACCLC will be held from 3-5 March 2010 in the Philippines!



WHAT'S HAPPENING OUT THERE?

ARVO 2009: a report by Dr. Kee Chea-su

ARVO 2009 was held at sunny Ft-Lauderdale, Florida, from 3-7 May. This meeting has become an annual gathering of vision scientists with amazing mix of interests from nanotechnology to clinical trial. Studies on refractive development using animal models usually go through the Anatomy and Pathology (AP) section for the abstract revision. Serving as an incoming chair for AP section is both an honour and a priceless experience to me. My personal view on the continuous success of this international eye meeting relies not only on their forward-looking and professional planning, but also on the passion of organizers and participants in bringing lights to needed populations. For this I am proud to say that our School of Optometry myopia team had successfully presented 4 scientific posters in this meeting and returned home safely!



Sports Vision Forum

The Sports Vision Forum 2009: Testing & Enhancement, sponsored by The Hong Kong Jockey Club Sports Medicine and Health Sciences Centre and hosted by the School of Optometry, was held on 25 May 2009. Dr. Daniel Laby and Dr. David Kirschen discussed about the emerging academic discipline of Sports Vision in the lecture. They brought to the audience a multi-disciplinary perspective into the professional management of sports vision care. The participants were also introduced to latest examination and vision enhancement techniques in sports vision during the workshop in the afternoon.



WHAT'S HAPPENING OUT THERE?



PolyU-Optometry and HKU-Eye Institute Initiates Research Sharing

A joint eye research seminar was held on campus on 31 March 2009. Initiated by Prof. Maurice Yap and Prof. David Wong, the aim of this seminar was to provide a forum for the researchers from The University of Hong Kong and The Hong Kong Polytechnic University to exchange views and share their latest research findings. Followed the opening remarks by Prof. George Woo, Prof. To Chi-ho from the School of Optometry, PolyU and Prof. David Wong from The Eye Institute of The University of Hong Kong presented the overviews of the research foci of two institutions. More research collaborations between two institutions are expected in the near future.



Courses for Optometric and Sales / Marketing Professionals

The School conducted several company commissioned training courses over the past few months. These courses were tailored for the company's sales and marketing and optometric professionals. The feedback from the participants was very positive. Most agreed that the courses had provided them with updated knowledge useful for their work and daily practice.



Kyongbuk College of Science, Korea Visited the School

Students and staff from the Department of Ophthalmic Optics of Kyongbuk College of Science, Korea visited SO on 30 June 2009. Prof. Maurice Yap gave a talk to the group and later took the group on a visit to the Optometry Clinic.



OUR PEOPLE

PTeC's Outstanding Professional Services and Innovations Award 2008

The award presentation ceremony was held 27 March 2009 which was officiated by Prof. Timothy W. Tong, President of PolyU. Dr. Pauline Cho was the winner of the Most Active New Consultant Award. Congratulations, Pauline!



New Fellows of the British Contact Lens Association

Mr. Vincent Chui, clinical optometrist, and Mr. Davie Chen, PhD candidate, received their BCLA Fellowship on 30 May 2009. Congratulations to the both of them!

Adjunct Appointment of the School

New Adjunct Associate Professor:



Dr. Tan Kah-ooi
(new appointment)
(Singapore Polytechnic)

Dr. Tan Kah-ooi is the Associate Programme Director, Optometry Degree Programme, Singapore Polytechnic-University of Manchester. He was a member of the Advisory Committee on Optometry at PolyU from 1998 to 2003. Welcome aboard, Kah-ooi!

Academic Visitors to the School of Optometry



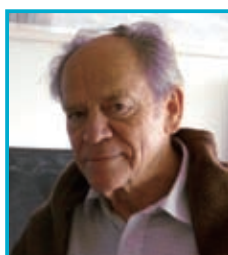
Dr. Daniel Laby

*Clinical Associate Professor, Massachusetts Eye and Ear Infirmary,
Harvard Medical School, USA
Date: 25 May 2009*



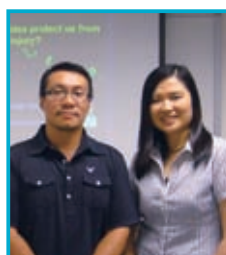
Dr. David Kirschen

*Chief of Binocular Vision and Orthopedic Services, Jules Stein Eye Institute,
University of California, Los Angeles, USA
Date: 25 May 2009*



Prof. Torsten Wiesel

*President Emeritus of the Rockefeller
University & Vincent and Brooke Astor
Professor Emeritus, Laboratory of
Neurobiology, USA
Date: 29-30 May 2009*



Dr. Rachel Li

*Post-doctoral Fellow, Eye Institute,
The University of Hong Kong,
Hong Kong
Date: 26 June 2009*



Dr. Patrick Lo

*Consultant Optometrist, Canada
Date: 12-26 August 2009*

OUR RESEARCH

Research Grants Council (RGC) Visit

On 11 June 2009, the panel members of the Research Grants Council (RGC) visited PolyU. The members were firstly briefed on the latest research activities and achievements in the central poster display session, followed by the parallel visits to academic departments in different sub-groups. The members of the Biology and Medicine sub-group toured the laboratories and the Optometry Clinic of the School of Optometry. Prof. Carly Lam, Prof. Maurice Yap and Prof. To Chi-ho presented our latest research work on the ageing eye and the myopia epidemic to the members.



Optometry Goes Proteomic

Proteomics is the study of cellular proteins in a high-throughput manner. It typically allows thousands of protein be profiled and identified in relatively short period of time with either gel-based method such as 2D

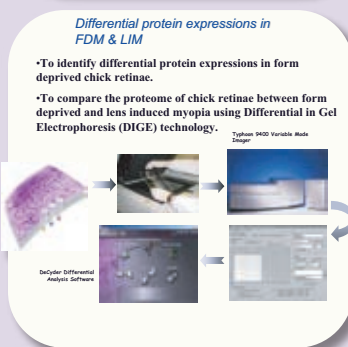
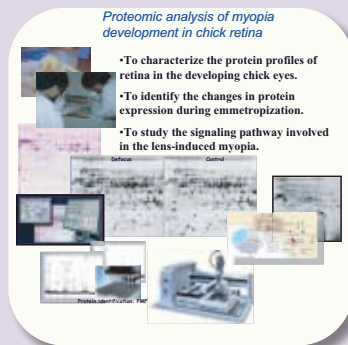


gel or gel-free approaches, such as nano-LC separation. Using quantitative protein dyes or labels and comparison software, researcher can easily compare differential protein expressions between control and experimental samples in a high throughput and hypothesis free manner. Differentially expressed proteins can be selected, fragmented and identified using peptide mass fingerprinting (PMF) and/or with protein sequencing by tandem mass (MS/MS) spectrometry. It is a powerful tool in research and it is not surprising that proteomics has been widely use in nearly all discipline of biological research.



Our researchers take advantage of this technique and apply it to myopia and aging eye research. It is known that cellular protein expressions during eye growth are dynamic. Understanding how cellular proteins are changing at critical time points during normal and myopic eye growth is pivotal to elucidating the biochemical mechanisms that drives eye growth. Myopia animal model is a very good experimental platform for studying changing in proteins during normal and myopic eye growth. In young animals such as chick, myopia can be induced in one eye using optical lenses or diffusers whereas the other eye can act as a control. We are then able to compare changes of protein expressions in ocular tissues between the control and myopic eyes. Since proteomic analysis only requires tiny amount of protein, proteins extracted from one eye is sufficient for comprehensive

OUR RESEARCH



protein profiling and analysis. It negates the need of pooling samples from different individuals. This capability of “intra-animal” comparison between two eyes of the same animal is very advantageous and can minimize individual variation in protein expression.

Using a similar logic, proteomics is also being applied to studying signaling pathways in ciliary epithelium in aqueous humor formation (AHF). We are particular interested in the regulation of AHF as it is a key contributor to the intra-ocular pressure of the normal and glaucomatous eyes. The effects of conventional and novel agonists and antagonists on the cellular protein expressions can be studied comprehensively. Those differentially expressed proteins may shed important light on the regulatory machinery of AHF in the ciliary epithelium. Glaucoma also typically leads to retina cell death. Using glaucoma animal model, the retinal proteins of the glaucomatous and control eyes can be readily compared with proteomic analysis at key time points.

Proteomic approaches have gained popularity in major research areas, such as cancer research. It is more than likely it will gain popularity in eye research and contribute to new knowledge in understanding eye conditions. In fact, our researchers of the School of Optometry in Hong Kong are witnessing the impact of proteomic approach to eye research as it unfolds.

Myopia Genomics Research

Myopia or shortsightedness is no stranger to people living in Hong Kong. They may have myopia themselves or their family members, relatives and friends may also have myopia. In general, the prevalence of myopia can be up 70-90% in Chinese living in urbanized cities like Hong Kong, but is only about 20-30% in their Caucasian counterpart. Typically, myopia is a complex trait. This means both environmental and genetic factors contribute to the development of myopia. Our myopia genomics research team is led by Prof. Shea-ping Yip (Principal Investigator, Department of Health Technology and Informatics) and Prof. Maurice Yap (School of Optometry). It is one of the few teams in the world that systematically search for the genes predisposing humans to myopia. We have been using a variety of approaches to identifying such genes: candidate gene approach, genome-wide approach and other approaches between these two extremes. We have already identified a few myopia susceptibility genes: hepatocyte growth factor, myocilin and transforming growth factor β 1 genes. Many more myopia genes are to be discovered and the mechanisms of how such genes interact among themselves and with environmental factors will have to be worked in the future. Solving such a complex problem requires expert knowledge in Optometry, genetics, genomics, molecular biology, bioinformatics and systems biology.



Recently, we also started to investigate the role of microRNA molecules in early ocular development and in myopia induced in animals. In simple terms, microRNAs are small nucleic acid molecules that perform the task of regulating the expression of genes involved in many important biological processes. The role of microRNAs in ocular development and myopia is largely an unexplored area. We expect this research direction will lead to new exciting findings that may help understand the development of myopia in the near future and the control of myopia in the long term.

OUR RESEARCH

Conference Presentations

Presenter	Conference	Title of Presentation
Mr. Jimmy Tse	6th Asia Cornea & Contact Lens Conference (Hong Kong), 23 – 24 Apr 2009	Corneal-scleral contact lens fitting for challenging cornea: case series
Mr. Vincent Chui	6th Asia Cornea & Contact Lens Conference (Hong Kong), 23 – 24 Apr 2009	Soft scleral prosthetic contact lens fitting for cosmetic improvement in a patient with opaque cornea and strabismus
Mr. Wong Chun-lung	ARVO 2009 Annual Meeting (USA), 3 – 7 May 2009	Effect of intravitreal injection of ouabain on refractive error and choroidal thickness in lens-induced hyperopic chicks
Prof. To Chi-ho	ARVO 2009 Annual Meeting (USA), 3 – 7 May 2009	The effects of baicalein on trans-epithelium electrical parameters of porcine ciliary body epithelium (CBE)
Dr. Do Chi-wai	ARVO 2009 Annual Meeting (USA), 3 – 7 May 2009	Potential role of cAMP in regulating aqueous humor secretion in mammalian eye
Mr. Geoffrey Chu	ARVO 2009 Annual Meeting (USA), 3 – 7 May 2009	Local effects on myopic and astigmatic eye growth in chickens
Mr. Vincent Chui	BCLA 33rd Clinical Conference and Exhibition (UK), 28 – 31 May 2009	Corneal refractive therapy on a post-PRK
Dr. Pauline Cho	BCLA 33rd Clinical Conference and Exhibition (UK), 28 – 31 May 2009	Importance of drying in care of the lens case
Dr. Pauline Cho	WCO General Delegates Meeting and Joint Optometric Conference (Malaysia), 5 – 7 Jun 2009	<ol style="list-style-type: none"> 1. Importance of drying in care of the lens case 2. Seven years longitudinal study on myopic children wearing orthokeratology lenses
Prof. To Chi-ho	WCO General Delegates Meeting and Joint Optometric Conference (Malaysia), 5 – 7 Jun 2009	Advances in aqueous humor formation research
Miss Rita Sum	47th ISCEV Symposium (Italy), 6 – 10 Jul 2009	Slow double stimulation mfERG paradigm bypasses unclear ocular media with diabetic retinopathy
Dr. Henry Chan	47th ISCEV Symposium (Italy), 6 – 10 Jul 2009	<ol style="list-style-type: none"> 1. Slow double stimulation mfERG paradigm bypasses unclear ocular media with diabetic retinopathy 2. Global flash multifocal electroretinogram in the early detection of the local functional changes of diabetic retinopathy lesions

OUR RESEARCH

New Papers

Chan B, Cho P, de Vecht A. Toric orthokeratology: a case report. *Clin Exp Optom* 2009;92:387-391.

Chen D, Lam AKC, Cho P. A pilot study on the corneal biomechanical changes in short-term orthokeratology. *Ophthalm Physiol Opt* 2009; 29: 464-471.

Choy CK, Cho P, Boost MV, Benzie IF. Do multipurpose solutions damage porcine corneal epithelial cells? *Optom Vis Sci* 2009; 86: E447-453.

Do CW, Civan MM. Species variation in biology and physiology of the ciliary epithelium: similarities and differences. *Exp Eye Res* 2009; 88: 631-640.

Kwan WCK, Yip SP, Yap MKH. Monochromatic aberrations of the human eye and myopia. *Clin Exp Optom* 2009; 92: 304-312.

Lam CSY. Diagnostic drugs. In: Rosenfield M, Logan N eds. *Optometry: science, techniques and clinical management*, Second ed: Butterworth-Neinemann, 2009. P. 89-99.

Lim KP, Yip SP, Cheung SC, Leung KW, Lam ST, To CH. Novel PRPF31 and PRPH2 mutations and co-occurrence of PRPF31 and RHO mutations in Chinese patients with retinitis pigmentosa. *Arch Ophthalmol* 2009; 127: 784-790.

Millodot M. Origin of optometry at Cardiff University. *Hindsight: Journal of Optometry History* 2009; 40: 29-32.

Lam AKC, Lam CF, Leung WK, Hung PK. Intra-observer and inter-observer variation of Hertel exophthalmometry. *Ophthalm Physiol Opt* 2009; 29: 472-476.

Shahidullah M, To CH, Pelis RM, Delamere NA. Studies on bicarbonate transporters and carbonic anhydrase in porcine nonpigmented ciliary epithelium. *Invest Ophthalmol Vis Sci* 2009; 50: 1791-1800.

Woo GC, Halpern GM, Kwong EYM. Effect of TCM-derived extracts on cataract development in the elderly: a pilot study. *Progress in Nutrition* 2009; 11: 12-17.

Upcoming Conferences / Seminars / Workshops

	Date & Venue	Details
Conferences	23-24 April 2009 Hong Kong Disneyland Hotel	The 6th Asia Cornea & Contact Lens Conference Website: http://www.acclc.org
	5-7 November 2009 Hong Kong Convention and Exhibition Centre and Chiang Chen Studio Theatre, PolyU	The 17th Asia Pacific Optometric Congress cum The 7th Hong Kong Optometric Conference
Seminar	21 September 2009 1:00pm - 2:00pm CD309, PolyU	Effect of ageing on tactile acuity by Dr. Allen Cheong
	8 October 2009 6:30pm - 7:30pm M1603, PolyU	Near-peripheral vision reorganization in macular degeneration: psychophysics and fMRI by Prof. Eli Peli

STUDENTS CORNER

The 16th OPTDS – “Provision”

The 16th Optometry Departmental Society (16th OPTDS) “Provision” will be serving Optometry students this year. In order to broaden the horizons of our fellow students and enrich their life beyond academic studies, we are planning to organize cultural, sports and other recreational activities. The events will include the Orientation camp, Orientation night and the OPT Cup. Besides serving members of our Society, we aim to promote the profession of Optometry to the public as well. We welcome staff and fellow students to join our forthcoming activities!

Miss Li Hoi-lam

Mr. Wong Tse-kan

Mr. Chan Tsz-chun, Clayton

Miss Ng Lai-wa

Mr. Wong Chun-man, Theo

Miss Leung Kwan-ling

Miss Paeonia Lau

Mr. Man Ka-hing

Mr. Chan Wai-hon

Mr. Lee Lung-wai

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