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Cover:

Acrylic painting by Dr WONG Hung Fan, named '*Mountain Blossoms*', *resonating with articles contributed by our members on Asian culture and art in this issue.*

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The Editorial Board

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Message from the President

It is with great pleasure that our College can finally host our Annual Dinner once again in 2023, following the return to normalcy in Hong Kong. I look forward to meeting all of you in the coming Annual General Meeting and the Conferment Ceremony. This year, we have offered the option of vegetarian dinner, and we have planned to introduce on-site download of event photos. We hope you will appreciate our new initiatives, and we shall review their popularity afterwards.

On top of organizing the regular College activities taking place each year, our College is particularly busy this year because of two special events.

The International Liaison of Pathology Presidents (ILPP) annual meeting was hosted by our College in Hong Kong on 30-31 October 2023. The last time the meeting was held in Hong Kong was back in 2010. Although it is demanding to be the host organization, it has provided us with an opportunity to introduce Hong Kong to the Presidents or representatives of other Pathology Colleges or organizations in the world.

Other than preparing for the meeting and the related social activities, we have also coordinated with the International Academy of Pathology, Hong Kong Division, to co-host an

ILPP session during their Fall Scientific Meeting on 29 October 2023. The session was well received, and it covered hot topics such as artificial intelligence, digital pathology and globalization.

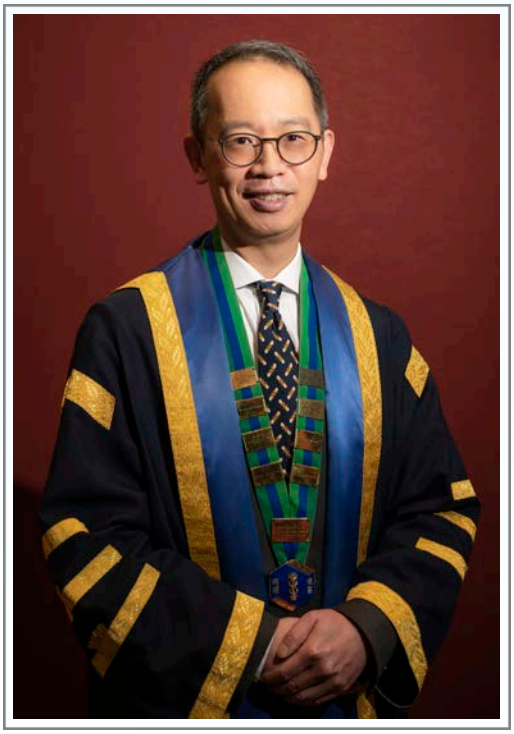
During the ILPP meeting, members shared the challenges and practice of their localities. It was a fruitful meeting for information sharing and network building. Hosting it in Hong Kong

has also provided a precious opportunity for some of the younger Fellows to meet these international leaders in Pathology.

We were very lucky that the event went smoothly, and the weather has been on our side. I believe all of you will know how uncommon it is to see Victoria Harbour with a clear blue sky! The guests enjoyed the meeting and our hospitality, and I am very proud of our team in making this meeting a success. A big thank you to all those who have contributed to this exceptional event.

In addition to organizing the ILPP meeting, the other major task which our College has embarked on this year is the revision of the Regulations on Postgraduate Training and Examinations and the related logbooks. This labour-intensive task involves various Specialty Boards and the Training & Examinations Committee (TEC). The new version will be rolled out soon after endorsement of the regulations by the Education Committee of the Hong Kong Academy of Medicine. Detailed information will be promulgated by TEC in due course.

This year marks the end of my College Presidency. After nearly two decades in the College Council, I am happy to see many young and energetic successors ready to take up the future challenges of the College. These past few years have been exceptionally difficult for the medical profession and our College. I would like to express my sincere thanks to all Council members, College Secretariat and all those who have contributed to the College in many different ways.



Dr CHAN Chak Lam, Alexander

President

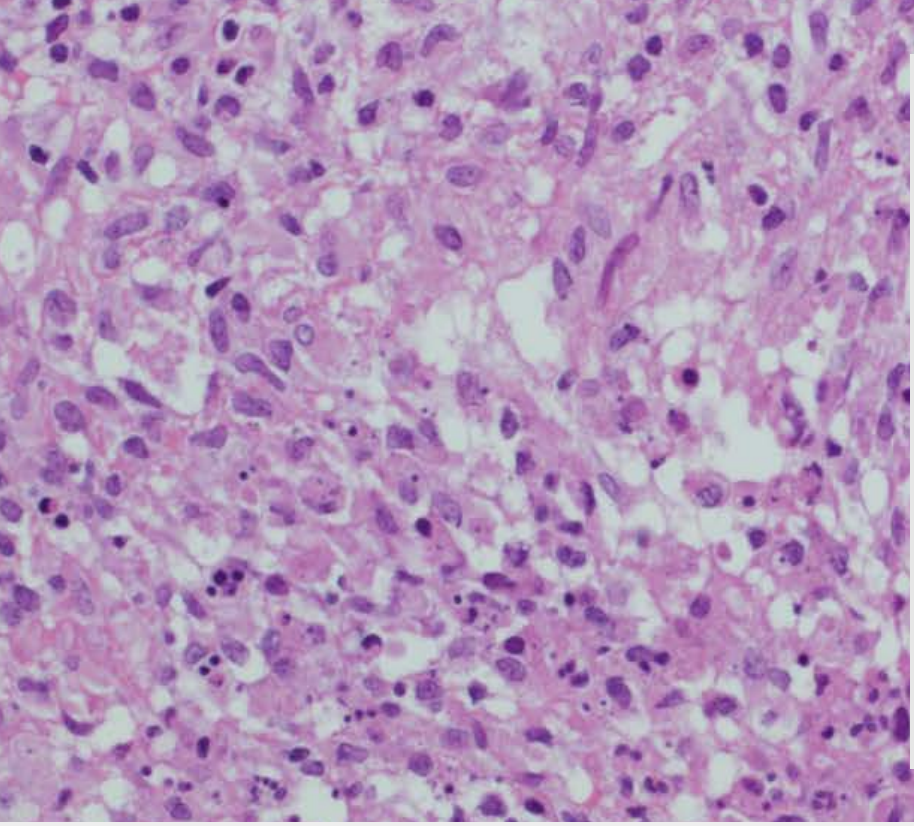
November 2023

The HK Academy of Medicine 30th Anniversary Celebration: "Health for All, Move Forward Together" - Run/Walk Challenge

Let's run! The Hong Kong College of Pathologists encourages Fellows and specialist trainees to exercise for better health and fitness, both physically and mentally, which ultimately contributes to quality care. Together with our President Dr CHAN Chak Lam, Alexander, we joined the Run/Walk Challenge themed “Health for All, Move Forward Together” on 19th March 2023, in celebration of HK Academy of Medicine's 30th anniversary.

ABOVE
From left to right: Dr ZEE Sze Tsing, Jonpaul; Dr CHENG Shui Ying; Dr LO Wing Ip, Anthony; Dr LAI Koon Chi, Christopher; Dr CHAN Chak Lam, Alexander; Dr NG Hoi Yan, Joshua; Dr TANG Wai Lun, Victor

LEFT
From left to right: Dr LO Wing Ip, Anthony; Dr ZEE Sze Tsing, Jonpaul; Dr MAK Siu Ming; Dr CHAN Chak Lam, Alexander; Dr CHAN Ho Ming; Dr CHENG Shui Ying; Dr LAI Koon Chi, Christopher; Dr NG Hoi Yan, Joshua; Dr LEUNG Ying Kit



Editorial note:

There was a significant upsurge of cases of melioidosis in Hong Kong in 2022, especially in the Kowloon region, raising public awareness to the condition. In this issue of the Topical Update, Drs Kristine LUK, May LEE and W.K. TO share their experience in investigating and managing the cases. We welcome any feedback or suggestion. Please direct them to Dr. Janice Lo (e-mail: janicelo@dh.gov.hk), Education Committee, The Hong Kong College of Pathologists. Opinions expressed are those of the authors or named individuals, and are not necessarily those of the Hong Kong College of Pathologists.

Topical Update: Melioidosis: an urban outbreak in Hong Kong

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The Hong Kong College of Pathologists, Incorporated in Hong Kong with Limited Liability

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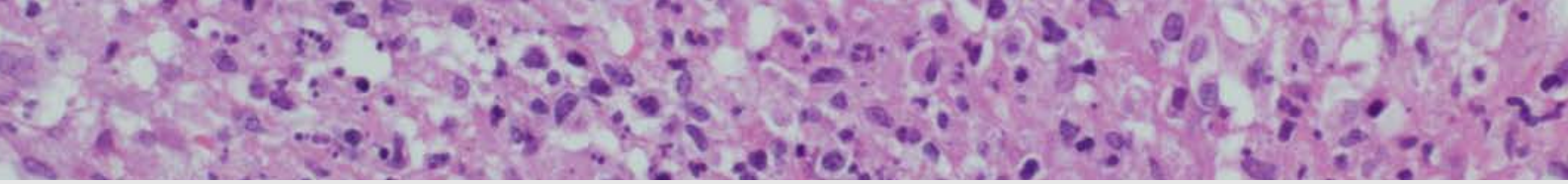
Introduction

Melioidosis is a disease of humans and animals resulting from infection with the aerobic Gram-negative bacillus *Burkholderia pseudomallei*, which is ubiquitous throughout the subtropics and tropics, particularly in Southeast Asia and northern Australia[1]. *B. pseudomallei* is a resilient environmental saprophyte and widely distributed in soil and fresh surface water in endemic regions. Although its optimal temperature of survival ranges between 24 and 32°C[2], it can resist temperature extremes, acidic and alkaline conditions, and is able to persist in distilled water for 16 years[3]. Percutaneous inoculation, ingestion, and inhalation of contaminated soil or water are well recognized modes of transmission of melioidosis[4]. One in 4,600 seroconversion-associated exposures results in clinical disease, and 4% of exposures results in latent infection[5]. The incubation period varies from 1 to 21 days (average 9 days)[6] with the majority (85%) of patients having acute presentation[6]. Melioidosis was first reported in Myanmar in 1911[7]. Hong Kong is considered an endemic area given the environmental suitability for *B. pseudomallei* and the earliest report of human melioidosis could be dated back to 1984[8]. The seropositive rate among patients in a chest hospital was reported to be 14% in a study performed in 1987[9] and the majority seropositive subjects had no travel history to endemic areas. An increasing trend of a total of 61 cases were identified in the last two decades[10]. Hong Kong has seen a mysterious spate of melioidosis cases since August 2022, with a cluster emerging in the Sham Shui Po (SSP) district. Melioidosis has been included as a statutory notifiable infectious disease in Hong Kong (under Cap. 599) since 11th November 2022. At the time of writing, a



total of 51 cases of melioidosis have been diagnosed since 2015 in Kowloon West Region. In this article, we would share our experiences in the clinical features, epidemiology and laboratory diagnosis of melioidosis[11].

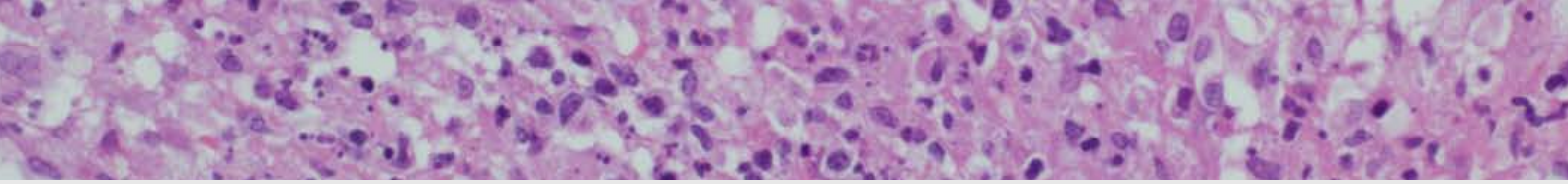
Clinical features

Among the 51 patients who had their first episode of culture-proven melioidosis diagnosed from Jan 2015 to May 2023, the median age of the patients was 71 years (range, 42-94 years) and 39 (76.5%) of them were male. Worldwide the median age of affected patients is 50 with a male predominance ranging from 58.5% to 84%[12]. Possible explanations include an increased exposure to contaminated soil or water through high-risk occupations, such as agricultural or construction activities; or there is a higher prevalence of risk factors such as smoking or alcohol excess among the male patients. Diabetes mellitus is the most common comorbidity among our patients, contributing 56.9% of cases. This is also in concordance with other case series[12]. Diabetes mellitus impairs immune function by decreasing chemotaxis, phagocytosis, cytokine response, and bacterial killing by polymorphonuclear leukocytes[13,14]. Specifically, the release of the neutrophil signaling chemokine IL-8 from lung epithelial cells is delayed and diabetics are therefore at greater risk of infection by inhalation[15].

Thirty-seven patients (73%) had chest infection, of which 27 (73%) patients presented with multi-lobar pneumonia, 23 (62%) had concomitant bacteremia and 14 (38%) had mediastinal involvement. The overall case fatality rate was 27.5%. In our case cohort, there was a higher percentage of chest infection but a comparable mortality rate when compared with the cases previously reported in Hong Kong (42.6% pneumonia and 31% mortality[10]). Less than 22% of patients had exposure history (6 patients worked near construction sites; 2 patients had travel history to Thailand; 2 had history of farming; and 1 was a sewage worker). Six patients were at the ages of nineties at the time of diagnosis and two were nursing home residents. In fact, the residential address of 43 patients (84.3%) was in the SSP district within an estimated area of 2.5 km^2.

Given the clinical presentation and epidemiological information, inhalation of aerosols containing a higher bacterial load during typhoons and rainstorms was therefore suspected to cause the sudden upsurge of cases in the SSP district. Higher lethality and shorter incubation period of aerosol inhalation of *B. pseudomallei* were demonstrated by animal models[16,17], and rainfall two weeks before presentation was an independent risk factor for pneumonia, septic shock and death[18]. Increased transport of the organism in eroded topsoil via the rise in the water table during period of heavy rainfall[19] and severe weather events and wind are associated with dispersal of bacteria contaminated aerosol[20]. *Lau SK et al*[21] demonstrated the presence of *B. pseudomallei* DNA in 6.8% of soil samples collected in the oceanarium; and it was significantly correlated with ambient temperature and relative humidity. Additionally, *Chen et al*[22] successfully detected *B. pseudomallei* DNA in 80 to 100% of air samples with significant correlation with the rainfall and the presence of typhoons. Furthermore, *Currie et al*[23] cultured *B. pseudomallei* from air samples taken outside the residence of a patient with mediastinal melioidosis, and whole genome sequencing confirmed the linkage between the isolates in the air sample and the patient sample. From 9th to 12th August 2022, there were 4 culture proven melioidosis cases (three *B. pseudomallei* isolates were recovered from blood culture while one was isolated from a sputum sample) and all patients resided in the SSP district. Preceding the presentation of the cases, the Amber Rain warning and the typhoon signal-3 (Wulan) were hoisted for 3 days and 2 days, respectively[24]. On 15th August 2022, 1 out of 8 air samples (1,000 L each) taken at a podium near a construction site in SSP recovered viable *B. pseudomallei*, which was phylogenetically clustered with 27 patient isolates with less than 0.07% core genome difference[11]. It belonged to a new multi-locus sequence type (MLST) ST-1996 and was identified as early as in a patient sample collected in 2016, suggesting that *B. pseudomallei* may have persisted in the nearby environment, dispersal of which has been aggravated by reduction in vegetation in the area and extreme weather events due to climate change. Furthermore, the admission dates of cases were strongly associated with the rainfall and the hoisting of tropical cyclone warning signals[11].

Genitourinary system was the second most commonly (17.6%) involved (five patients had prostatic abscess; four patients had urinary tract infection). Melioidosis patients also presented a wide clinical spectrum: peritonsillar abscess, skin and soft tissue infection, bone and joint infection, continuous ambulatory peritoneal dialysis (CAPD) peritonitis, organ abscess (renal, liver and spleen), pericarditis, mycotic aneurysm and meningitis. Eleven patients (21.6%) had multiple sites of infection and four patients (7.8%) had relapse of infection, with a range of 5 months to 3 years. One patient had defaulted oral eradication therapy while two patients had doxycycline as the oral eradication drug due to intolerance to trimethoprim-sulfamethoxazole. In an Australian study, the recurrence rate was reported at 5.7% with a median time to relapse of 9.4 months[25]. Relapse is commonly associated with poor compliance to antimicrobial treatment or eradication regimen containing either doxycycline or amoxicillin-clavulanate[26].



Laboratory Diagnosis

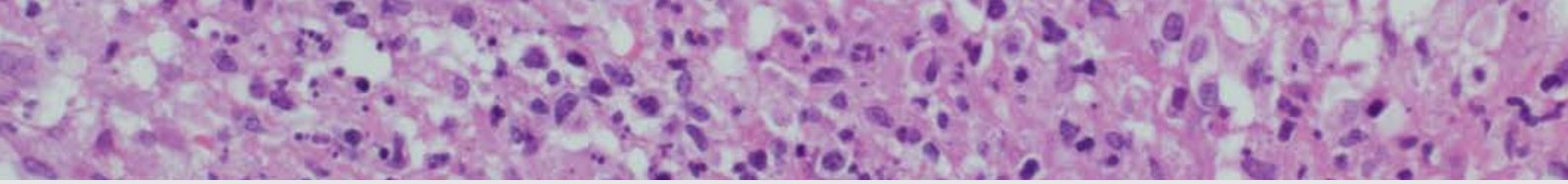
Culture

The culture of *B. pseudomallei* from blood, respiratory secretions, urine, cerebrospinal fluid, pus, and wound swabs remains the diagnostic gold standard. *B. pseudomallei* grows well on most routine laboratory media, such as blood, chocolate and MacConkey agars, revealing smooth, creamy colonies with a metallic sheen on blood agar. They are small Gram-negative bacilli with bipolar staining giving them a safety pin appearance. This is due to central accumulation of polyhydroxybutyrate granules, which do not retain the staining reagents[27]. As a consequence of prior antimicrobial treatment of the patients and presence of normal flora in non-sterile specimens, the overall sensitivity of culture has been reported at 60.2% only[28]. In our cohort, 32 patients (62.7%) had bacteremia, which has been found in 38 to 73% of melioidosis cases in other series[12]. In another study using the BacT/alert automated blood culture system (bioMérieux, Marcy ÍEtoile, France), 93% of isolates could be detected within 48 hours of incubation, with a mean time of 23.9 hours to signal positive[29]. Among the nine patients having genitourinary infection, however, only three of them had positive urine culture while additional four patients had pyuria. Urine samples are normally inoculated into cystein-lactose-electrolyte-deficient (CLED) agar for 24 hours incubation per our laboratory protocol and this may account for the low rate of isolation of *B. pseudomallei.* For patients with suspected genitourinary tract infection and sterile pyuria, request should be made to the laboratory for urine culture using nutrient agar for prolonged incubation. Notably, *B. pseudomallei* isolation in urine is consistent with renal parenchymal infection and not passive filtration into the urine[30].

Ashdown's medium, which contains trypticase soy agar with 4% glycerol, 4 mg/L gentamicin, 0.1% crystal violet and 1% neutral red, is the most widely used selective medium for improved isolation of *B. pseudomallei*[31]. Pinpoint, flat, dry, and wrinkled purple colonies are characteristic. It is able to grow at 42°C and is positive for oxidase activity and motility. However, gentamicin may have inhibitory effects on the growth of *B. pseudomallei*, and incubation should be prolonged for at least 96 hours. Of note, rare gentamicin-susceptible strains from Sarawak, Malaysia, have been described[32]. Subsequently, a modified Ashdown's agar including norfloxacin, ampicillin, and polymyxin B (NAP-A) was evaluated to have improved selectivity but equal recovery of *B. pseudomallei*[33]. The use of an enrichment broth with Ashdown's medium and colistin (500,000 U/L) for incubation at 37°C for 48 hours followed by inoculating into Ashdown's medium may further increase the yield, though with a compromise of increasing the time to identification[34]. In response to the surge of melioidosis cases, of which the diagnosis of 4 patients was delayed in the second hospital admission 3 to 6 weeks later, Ashdown's agar has been routinely added for the plating of respiratory specimens from the Caritas Medical Centre, whose catchment is in SSP district. An additional 6 undiagnosed patients were identified through the surveillance culture by Ashdown's agar (0.25% of specimens, unpublished data). Due to the non-specific clinical presentation of melioidosis, clinicians should request specific *B. pseudomallei* culture for patients who present with severe community-acquired pneumonia or for those with risk factors such as diabetes mellitus or exposure history. Furthermore, during heavy rainfall or typhoon season, the routine addition of a selective medium to enhance the isolation of *B. pseudomallei* in respiratory specimens should also be considered.

Identification

Even with presumptive bench speciation, confirmation of identification of *B. pseudomallei* poses challenges in the clinical microbiology laboratory. Commercial bacterial identification system using conventional biochemical tests, namely API 20NE (bioMérieux, Marcy L'Etoile, France) and the Vitek 2 (bioMérieux, Marcy L'Etoile, France) system, may misidentify *B. pseudomallei* as *Chromobacterium violaceum*[35] and *B. cepacia* complex[36], respectively. The Active Melioidosis Detect (AMD; InBios International, USA) is a commercial lateral flow assay (LFA) detecting *B. pseudomallei* capsular polysaccharide (CPS) by a monoclonal antibody. *Houghton RL et al* reported a sensitivity of 98.7% and a specificity of 97.2% when using this LFA on cultured isolates, with a lower limit of detection of approximately 2 ng/ml[37]. LFA is easy to perform and can provide a result in 15 min with a low cost; therefore, is appealing to resource-limited laboratories. Matrix-assisted laser desorption ionization-time of flight mass spectrometry (MALDI-TOF MS), nonetheless, is potentially useful for the rapid and accurate identification of *B. pseudomallei*, provided an in-house spectrum incorporating adequate strains of *B. pseudomallei* and *B. thailandensis* is constructed[38, 39]. Of note, neither commercially available MALDI-TOF instruments, Bruker Microflex Biotyper (Bruker Daltonik GmBH, Bremen, Germany) and bioMérieux Vitek MS (bioMérieux, Marcy L'Etoile, France), has the routine diagnostic database including the reference spectra required for identification of *B. pseduomallei*[40,41]. There are five conserved biomarkers specific for *B. pseudomallei*[42]. In



the Bruker security-relevant library, the mass peak at a mass/charge ratio 6551 differentiates *B. thailandensis* from *B. mallei* and *B. pseudomallei*[42]. PCR testing of *B. pseudomallei* isolates is another option for confirmatory identification. The type III secretion system gene clusters, in particular, cluster 1 (T3SS-1), *orf2*, and *orf11*, can discriminate *B. pseudomallei* from other *Burkholderia* species[43,44]. The difference between the 16S rRNA gene sequences of *B. pseudomallei* and *B. thailandensis* is strikingly low at approximately 1%, and sequencing of *B. pseudomallei* unique gene target (*gro*EL) thus offers a better differentiation[45]. In our laboratory, real-time PCR[43] is adopted to confirm the identification of *B. pseudomallei* colonies with compatible morphotype before the final report issued by the reference laboratory. The rapid molecular confirmation of melioidosis essentially facilitates risk communication and subsequent public health actions.

Direct Molecular Detection

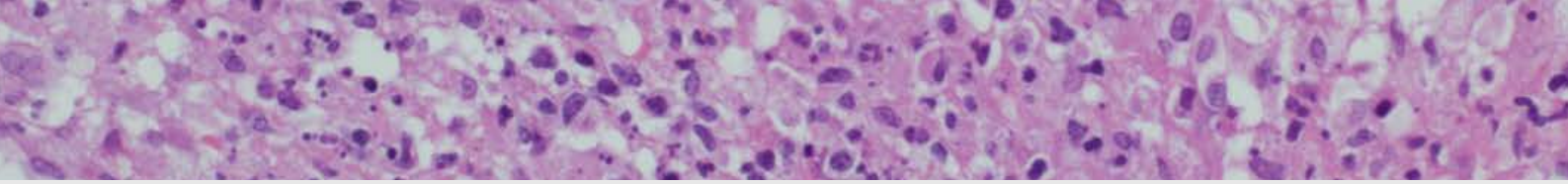
Given the non-specific clinical presentation and the high mortality of melioidosis, and the relatively poor yield of culture, a sensitive and specific PCR test that can detect *B. pseudomallei* directly from clinical specimens is imperative to aid early directed therapy. *Meumann EM et al* reported the overall sensitivity and specificity of the T3SS-1 real-time PCR assay on urine, sputum, wound swabs, and drained pus to be 73.2% and 89.2%[46], respectively. In particular, sputum represents a better sample than blood for PCR detection, due to the higher bacterial load[47]. A study on spiked blood demonstrated a 95% probability of detection of *B. pseudomallei* at a concentration of $8.4x10^3$ CFU/ml[43]. T3SS-1 real-time PCR test[43] was performed on culture positive samples in our laboratory (5 sputum and 1 blood culture); all were positive with cycle threshold (Ct) values ranging from 31.8 to 39.1 (unpublished data).

Serology

The serodiagnosis of melioidosis is difficult, due to a lack of commercial assays and high background seropositivity rates in endemic regions. In addition, serological tests generally have lower sensitivity than culture as 19-26% of culture-confirmed melioidosis cases never seroconverted[48,49]. Nevertheless, it can be a useful adjunct to the diagnosis of chronic melioidosis and neuro-melioidosis, when the negative predictive value of culture is low. The serum indirect hemagglutination assay (IHA), using poorly defined antigens from strains of *B. pseudomallei* adsorbed to sheep red blood cells, has been routinely performed in endemic areas and its cutoff values suggestive of infection are based on background seropositivity in the population (e.g., a cutoff titre of ≥ 1:80 in Thailand[50] and ≥ 1:40 in Australia[51]) Alternatively, IgM and IgG enzyme-linked immunosorbent assay (ELISA) using inactivated cell suspension, recombinant hemolysin-coregulated protein (HcP) type VI secretion system or recombinant GroEL protein have been described with sensitivities ranging from 90-93.7% and specificities ranging from 88.3-100%[12]. The serum of 18 patients were sent to Queen Mary Hospital for melioidosis antibody test (in-house ELISA antibody test using whole cell antigens, personal communication). Nine patients were both IgM and IgG positive (9 days to 10 weeks after onset) and one patient demonstrated seroconversion 17 days after onset of symptoms. Three patients with onset less than 14 days were IgM positive but IgG negative; on the contrary, one patient was only IgG positive 5 weeks after presentation. Possibly due to early presentation for less than 7 days, two patients were both IgM and IgG negative. Further studies on the performance characteristics of serological tests, time frame of the melioidosis antibody response and the relative importance of IgM and IgG detection are warranted.

Antimicrobial Susceptibility Testing

Meropenem (MEM) and ceftazidime (CAZ) are the first-line antimicrobials for the intensive phase of treatment, while trimethoprim-sulfamethoxazole (TMP-SMX), doxycycline (DOX), and amoxicillin-clavulanic acid (AMC) are used for eradication therapy[12]. Currently, the Clinical and Laboratory Standards Institute (CLSI) only has interpretative breakpoints of imipenem (IMI), CAZ, TMP-SMX, DOX, and AMC for a broth dilution method[52], while the European Committee on Antimicrobial Susceptibility Testing (EUCAST) also provides breakpoints for interpretation of zone diameters of the commonly used antimicrobials, including MEM[53]. In general, our isolates were susceptible to most used antimicrobials [MIC_{90}: MEM, 2 ug/ml; IMI 2 ug/ml; CAZ 4 ug/ml; TMP-SMX 2 ug/ml; DOX 1 ug/ml; AMC 4 ug/ml; Etest (Liofilchem ®, Italy)], except 3 isolates being non-susceptible to TMP-SMX (MIC 4 ug/ml) and 2 isolates non-susceptible to MEM (MIC 4 ug/ml). The uncommon resistance to first-line antimicrobial therapy is consistent with overseas data[12].



Laboratory Safety

B. pseudomallei has been designated a Tier 1 select agent by the US Centers for Disease Control and Prevention (CDC)[54]. To date, there have been two documented laboratory-acquired infections[55,56]. The first case was a 48-year-old laboratory staff who cleaned up a centrifuge spill of *B. pseudomallei* culture with bare hands[55] and the second case was a 33-year old laboratory staff who performed antimicrobial drug susceptibility testing on a *B. pseudomallei* isolate[56]. They developed symptoms of pulmonary melioidosis 3 and 4 days later after exposure, respectively. Inhalation of an infectious aerosol was thought to be the likely route of infection. Clinical diagnostic laboratories functioning at biosafety level 2 (BSL2) may isolate *B. pseudomallei* from a variety of sample types. Good laboratory practices will prevent most laboratory accidents involving exposure to *B. pseudomallei*. Specimen inoculation and transfer of bacterial isolates should be performed within a biosafety cabinet; a gown, gloves, and a respiratory mask should be worn during sample centrifugation[54]. A study demonstrated 100% reduction in viable organism when on-plate 70% formic acid was applied before processing for MALDI-TOF MS[56]. Besides, *Gassiep I et al* did not find any *B. thailandensis* (an avirulent substitute of *B. pseudomallei*) in air samples during 78 laboratory handling events, including plate opening, oxidase testing, and McFarland suspension creation[57]. Of 30 laboratory scientists handing *B. pseudomallei* on 1,267 occasions outside a biosafety cabinet, no infections or seroconversions were documented[57]. The existing evidence suggests that the risk of laboratory-acquired melioidosis is low. For high-risk exposure incident, e.g., generation of aerosol during sonication outside a biologic safety cabinet, 21 days prophylaxis of TMP-SMX may be considered[12].

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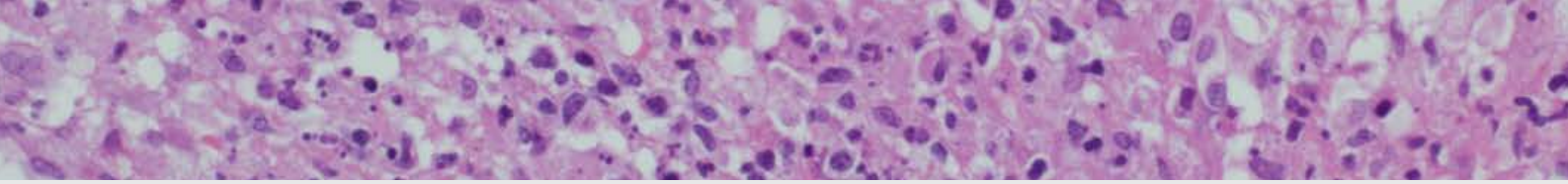

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The 18th Trainee Presentation Session

The 18th Trainee Presentation Session took place on 23rd November 2022. A total of 25 candidates had completed their presentations in the venue of HKAM with live broadcasting on the webinar platform. Physical poster was resumed, with virtual posters posted on the College's website. In addition to those who physically attended the TPS session, 12 participants attended via the Zoom Webinar, with average logged-in duration of 113.1 minutes. Four Fellows from different disciplines were invited as judges; they were: Dr AU YEUNG Kwok Him, Rex (Department of Pathology, QMH), Dr Michael BUCKLEY (Randwick Genomics Laboratory, Prince of Wales Hospital, New South Wales), Dr May LEE (Department of Microbiology, TKOH) and Dr KWONG Hoi Yi, Joyce (Department of Haematology, UCH). Dr CHAN Ka Yin, Aden (Department of Anatomical Pathology, Prince of Wales Hospital) was awarded the Best Trainee Presentation Prize. His title of presentation was "Combination of single gene biomarkers can precisely stratify 1,028 adult gliomas for prognostication".

Dr YAU Tsz Wai
Vice-Chairman
Education Committee

Above:

Group photo of judges and participants

Below:

Dr LAI Koon Chi, Christopher, Chairman, and Dr YAU Tsz Wai, Vice-Chairman, of the Education Committee, presenting Certificate of Appreciation to Dr CHAN Ka Yin, Aden

Upper left: Judges panel, from left to right: Dr KWONG Hoi Yee, Joyce; Dr Michael BUCKLEY; Dr May LEE; Dr AU YEUNG Kwok Him, Rex
Upper right: Introduction by Dr YAU Tsz Wai
Left: Q&A session
Below (multiple): Some participants of the TPS and posters

Right:

Prize winner of Best Presentation Award, Dr CHAN Ka Yin, Aden, presenting his project

Abstract of Prize Winner of Best Presentation Award:

Combination of single gene biomarkers can precisely stratify 1,028 adult gliomas for prognostication

Dr CHAN Ka Yin, Aden, Department of Anatomical and Cellular Pathology, Prince of Wales Hospital, The Chinese University of Hong Kong

Advanced genomic techniques have now been incorporated into diagnostic practice in neuro-oncology in the literature. However, these assays are expensive, time-consuming and demand bioinformatics expertise for data interpretation. In contrast, single gene tests can be run much more cheaply, with short turnaround time and are available in general pathology laboratories. The objective of this study was to establish a molecular grading scheme for adult gliomas using combinations of commonly available single-gene tests. We retrospectively evaluated molecular diagnostic data of 1,275 cases of adult diffuse gliomas from three institutions where we were testing for *IDH1/2* mutation, *TERTp* mutation, 1p19q codeletion, *EGFR* amplification, 10q deletion, *BRAF* V600E and H3 mutations liberally in our regular diagnostic work-up. We found that a molecular grading scheme of grade Group 1 (1p19q codeleted, *IDH* mutant), grade Group 2 (*IDH* mutant, 1p19q nondeleted, *TERT* mutant), grade Group 3 (*IDH* mutant, 1p19q nondeleted, *TERT* wildtype), grade Group 4 (*IDH* wildtype, *BRAF* mutant), grade Group 5 (IDH wildtype, *BRAF* wildtype and not possessing the criteria of grade Group 6), and grade Group 6 (*IDH* wildtype, and any one of *TERT* mutant, *EGFR* amplification, 10q deletion or H3 mutant) could significantly stratify this large cohort of gliomas for risk. 1,028 (80.6 %) cases were thus classifiable with sufficient molecular data. There were 270 cases of molecular grade Group 1, 59 cases of molecular grade Group 2, 248 cases of molecular grade Group 3, 27 cases of molecular grade Group 4, 117 cases of molecular grade Group 5, and 307 cases of molecular grade Group 6. The molecular grades Groups were independent prognosticators by multi-variate analyses and in specific instances, superseded conventional histological grades. We were also able to validate the usefulness of the grades Groups with a cohort retrieved from TCGA where similar molecular tests were liberally available. We conclude that a single gene molecular grading stratification system, useful for fine prognostication, is feasible and can be adopted by a general pathology laboratory.

Experience of participation in the 18th Trainee Presentation Session

Participation in the 18th Trainee Presentation Session has been an amazing and invaluable experience for me. I am immensely grateful to the College and my research supervisor, Professor H.K. Ng, for providing me with the opportunity to participate in the Presentation Session. The experience of presenting my research project on the platform has undoubtedly enhanced my presentation skill. The stimulating questions and discussions from the panel of judges were truly enlightening, enabling me to gain a deeper understanding in my research project. Listening to the presentations by other trainees was also a precious experience with excellent educational value. I am truly fortunate to have been a part of such a remarkable event of the College, and would definitely encourage trainees of the College to participate in this important annual event of the College.

The 31st Annual General Meeting

The 31st Annual General Meeting (AGM) was held in the afternoon of 26th November 2022. Six Councillors were elected.

Four of them were in previous Council 2021/22: Dr LAI Koon Chi, Christopher was elected as Vice-President; Dr POON Wai Ming was elected as Council Member; while Dr CHENG Shui Ying and Dr NG Hoi Yan, Joshua were re-elected as Council Members.

Dr CHEONG Renee Constance Yue-Kew was elected as Honorary Treasurer. One new Council Member was elected: Dr Siddharth SRIDHAR.

We would like to take this opportunity to thank outgoing Honorary Treasurer Dr LUNG David Christopher and Council Member Dr CHEN Pak Lam, Sammy for their contribution to College Council.

Members of College Council 2022/23

Front row from left to right:

1. Dr LEUNG Ying Kit **(Deputy Registrar)**
2. Dr CHEONG Renee Constance Yue-Kew **(Honorary Treasurer)**
3. Dr MAK Siu Ming **(Vice-President)**
4. Dr CHAN Chak Lam, Alexander **(President)**
5. Dr CHAN Ho Ming **(Immediate Past-President)**
6. Dr LAI Koon Chi, Christopher **(Vice-President)**
7. Dr CHONG Yeow Kuan **(Registrar)***

Back row from left to right:

1. Dr POON Wai Ming
2. Dr AU YEUNG Kwok Him, Rex **(Registrar)***
3. Dr Siddharth SRIDHAR
4. Dr WONG Lap Gate, Michael
5. Dr CHAN Kui Fat
6. Dr NG Hoi Yan, Joshua
7. Dr CHENG Shui Ying

Absent with apologies:

Dr LEUNG Yuk Yan, Rock

** Dr CHONG Yeow Kuan was Registrar until 29th November 2022*
Dr AU YEUNG Kwok Him, Rex was Registrar since 15th December 2022
Dr WONG Chi Kin, Felix was appointed as Council Member on 15th December 2022

The 30th Conferment Ceremony

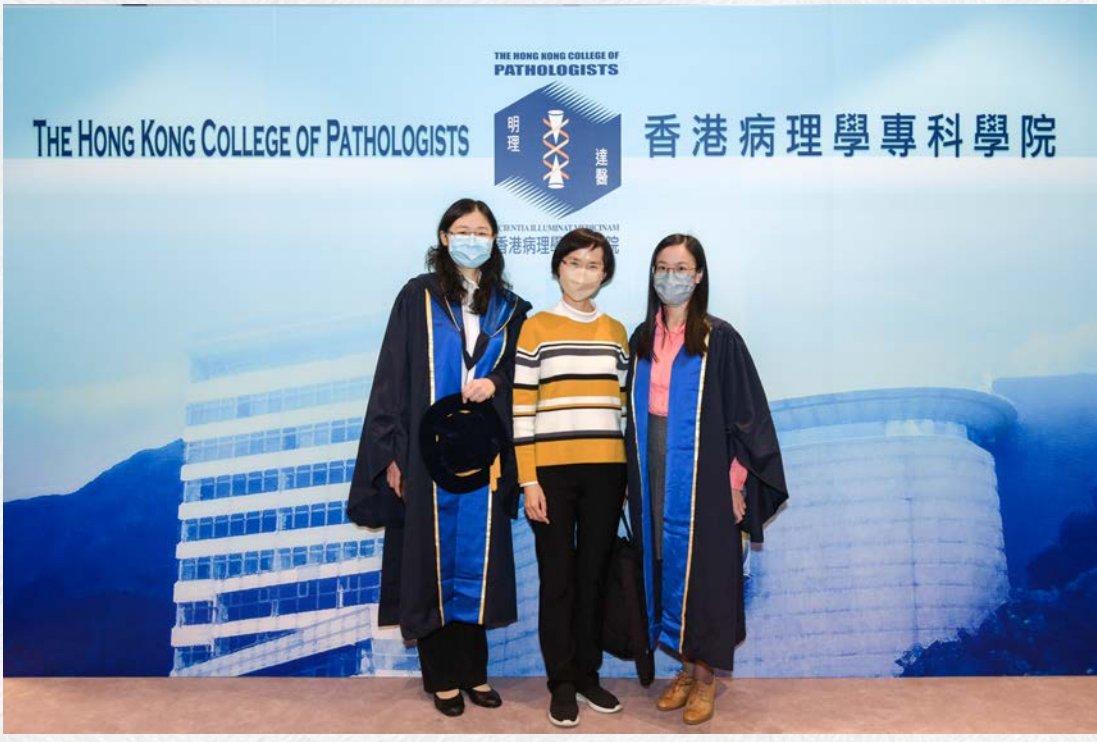
Fellows and Members admitted to the College in 2022 AGM were invited to this Conferment Ceremony. In 2022 AGM, 15 Fellows and 15 Members were admitted to the College. Five Fellows passed the Fellow Assessment in Genetic and Genomic Pathology in 2022. Dr Michael BUCKLEY was admitted as Honorary Fellow.

Honourable guests included Dr LEE Ha Yun, Libby, JP, Under Secretary for Health, Health Bureau, HKSAR; Dr CHOW Yu Fat, Vice-President (General Affairs), Hong Kong Academy of Medicine; Dr CHING Wai Kuen, Director (Strategy & Planning), Hospital Authority, HKSAR; Dr Hon LAM Tzit Yuen, David, Legislative Councillor (Medical and Health Services), Legislative Council, HKSAR; Dr LAM Man Kin, Ronald, JP, Director of Health, Department of Health, HKSAR; together with Presidents or their representatives from other Sister Colleges.

Right:

From left to right: Dr CHOW Kai Ming; Dr CHAN Ho Ming; Dr YUEN Kwok Keung; Dr CHAN Chak Lam, Alexander

What a joyous moment!



Congratulations!

Left

From left to right: Dr CHAN Kui Fat; Dr CHOW Kai Ming; Dr CHAN Ho Ming

Right

From left to right: Prof CHEUNG Nga Yin, Annie; Dr CHENG Shui Ying

Happy moments together!

Above

From left to right: Dr Hon LAM Tzit Yuen, David; Prof LAM Ching Wan

Below

From left to right: Prof CHEUNG Nga Yin, Annie; Prof CHU Kent Man

Above

From left to right: Dr CHENG Wai Tsoi, Frankie; Dr David CHAO; Dr PANG Fei Chau

Right

From left to right: Dr MAK Siu Ming; Dr LAM Man Kin, Ronald; Dr LEE Ha Yun, Libby; Dr CHAN Chak Lam, Alexander

Below

From left to right: Dr SO Chi Chiu, Jason; Dr CHOW Yu Fat; Dr MA Shiu Kwan, Edmond; Dr CHAN Ho Ming

Right

From left to right: Dr NGAI Chi Man; Dr CHING Wai Kuen; Dr Wilson LI

Below

From left to right: Dr CHOW Kai Ming; Dr LEUNG Chiu Man, Katherine

Above

From left to right: Prof CHU Kent Man; Dr YUEN Kwok Keung; Dr LAM Wai Cheung; Dr CHAN Yiu Cheung; Dr LAW Chi Wing

Left

From left to right: Dr CHENG Wai Tsoi, Frankie; Dr LEE Ha Yun, Libby; Dr CHAN Chak Lam, Alexander

Left

From left to right: Dr SO Hing Yu; Dr CHAN Chak Lam, Alexander; Dr LEE Ha Yun, Libby; Dr CHOW Yu Fat

A big thank you to our distinguished guests for their support!

Snapshots of our President presenting certificates to Dr Buckley, our Honorary Fellow and new Fellows of the College!

Michael Francis BUCKLEY

CHAN Yim, Candace

CHEUNG Chun Kei

CHIU Hei Yeung, Kelvin

CHOW Che Ying Maria, Bernadette

FUNG Ching Ki

GAO Yang

HAU Man Nga

HUNG Ling Yin

KWOK Lok Ming, Angie

LI Ting Hon, Stanford

SIN Ching Tai, Eugene

SZE Kin Ho

HO Cheuk Lam

HO Tin Wai

LAM Ping Hei

LI Xin

LOONG Chi Wang

LUI Yin Wing

NG Hoi Yi, Dorcas

TSANG Chui San, Zara

YUEN Wing Nam

LI Xiuling

WONG Chi Kin, Felix

Welcome, new Members of the College! Congratulations also to Fellows who successfully passed Fellowship Assessment in Genetic and Genomic Pathology!

Congratulations & Thank You

We would like to express our gratitude to our College Secretary Ms Adrienne YUNG for her support in organizing the event. A big thank you to Dr Victoria TSE for being the Mistress of Ceremonies at the AGM and Conferment Ceremony. We would also like to thank our photographer Ms Amelia YUNG for her excellent work, and our helpers Ms YEUNG and Ms NG for their help.

The 30th T.B. Teoh Foundation Lecture

The 30th T.B. Teoh Foundation Lecture was delivered by Dr Michael Francis BUCKLEY, our new Honorary Fellow of the College, Director of the Randwick Genomics Laboratory, NSW Health Pathology in Prince of Wales Hospital of Sydney, on 26th November, 2022 in the Run Run Shaw Hall of the Academy. The title of his talk was “Exams and Genomes: from Bedside to Bench-top”. He shared his experience about investigating rare genetic diseases in childhood and prenatal genetic diagnosis.

Above left:

Dr BUCKLEY and his audience

Above right:

Upper: Our President, Dr CHAN Chak Lam, Alexander, presenting a souvenir to Dr BUCKLEY

Lower: Dr BUCKLEY delivering his lecture

Below left:

Dr BUCKLEY on the stage

Below right:

Dr CHAN Ho Ming introducing the speaker

Dinner with Dr Michael BUCKLEY

After the T.B. Teoh Foundation Lecture, a number of us had dinner with the speaker, our Honorary Fellow Dr Michael BUCKLEY, in the evening on 26th November 2022 in the Academy Lounge (3/F), The Hong Kong Academy of Medicine Jockey Club Building.

First row sitting from left to right:

Dr LAI Koon Chi, Christopher; Dr CHAN Ho Ming; Dr Michael Francis BUCKLEY; Dr CHAN Chak Lam, Alexander; Dr Tony ROSCIOLI

Second row standing from left to right:

Dr WONG Lap Gate, Michael; Dr SO Chi Chiu, Jason; Dr LUNG David Christopher; Dr POON Wai Ming; Prof CHEUNG Nga Yin, Annie; Dr MAK Siu Ming; Dr LEUNG Ying Kit

Announcement from College Council:

Effective date of subscription rate for Overseas Fellows and Retired Fellows

The College Council has endorsed the following policy on the effective date of the reduced subscription rate for Overseas Fellows and Retired Fellows on 30th June 2023:

To be eligible for the reduced subscription rate, Fellows of the College who are residing outside Hong Kong or those who have retired and wish to change their Fellowship status to Overseas Fellow or Retired Fellow must submit formal written applications to the College before 31st December of the year of application.

The reduced rates for Overseas Fellow and Retired Fellow will be effective on 1st January of the next subscription year after the College has received the application.

The application form for change of fellowship status can be downloaded here:

http://www.hkcpath.org/files/change_of_fellowship_status_application_form_20150421.doc

The 29th Annual Fellowship Conferment Ceremony of the Hong Kong Academy of Medicine

Let's share the happy moment! The 29th Annual Fellowship Conferment Ceremony of the Hong Kong Academy of Medicine was held on 16th December 2022 (Friday). Congratulations to the newly admitted HKAM fellows! Congratulations to Dr Lois CHOY for winning the Gold Medal of the Hong Kong Academy of Medicine 2022 Best Original Research by Trainees (BORT)! Her fascinating research topic is "Single-molecule Sequencing Enables Long Cell-free DNA Detection and Direct Methylation Analysis for Cancer Patients". Warmest congratulations on Lois's achievement!

Best Original Research by Trainees (BORT) of the Hong Kong Academy of Medicine

When I saw the email about the Prize for Best Original Research by Trainees (BORT) of the Hong Kong Academy of Medicine, I have just finished my first research project as a first year trainee. My research interest lies in the biology of cell-free nucleic acids and their applications to the development of novel molecular diagnostics.

Traditionally, in the field of liquid biopsy, next-generation sequencing is often employed for cell-free DNA (cfDNA) analysis. However, previous studies mainly focused on short cfDNA molecules. It is not known whether long cfDNA molecules exist in cancer patients. Also, methylation analysis, being an important aspect in liquid biopsy, was often done by the means of bisulfite sequencing. Bisulfite sequencing has been notorious for causing DNA degradation, rendering it not ideal for methylation analysis in long DNA molecules.

In my project, we tried to tackle these problems by utilizing a third-generation sequencing platform for direct methylation analysis of the plasma DNA molecules of cancer patients. Our work has demonstrated for the first time the existence of long cell-free DNA molecules in cancer patients. We also investigated the potential clinical utility of long cfDNA molecules in liquid biopsy by developing a metric based on single-molecule methylation patterns. The use of long cfDNA molecules enhanced the cancer discriminatory power. Our work has opened new possibilities in long cell-free DNA-based molecular diagnostics. As I was eager to introduce my research to the medical community and would love to learn about the research projects done by other doctors, I decided to join this competition.

I have made the right decision. During the final presentation session, I got the precious opportunity to learn about the exciting research work of the doctors from other specialty colleges. I was glad to know that there are many trainee doctors who are working hard for the common goal of bringing benefit to our patients through research and innovation. Moreover, I received numerous valuable advice from the panel of judges. This experience has enhanced my presentation and communication skills which would be conducive to my medical and research career.

All finalists of the competition were invited to the HKAM Annual Dinner on the same day, during which the result was announced. I was overwhelmed with joy when I learned that I was awarded the Gold Medal. I am immensely grateful to my supervisor, Prof Dennis LO, and to other seniors and colleagues for their tremendous support and guidance all along. This has been a memorable experience for me and will serve as a motivation for my continuous journey in medical research.

Lastly, I would like to thank the College for giving me the opportunity to share my experience in this issue of the Newsletter. Looking forward to seeing more trainees of our College to participate in this meaningful competition for the exchange of research ideas.

Dr CHOY Lok Yee, Lois

Clinical Lecturer, Department of Chemical Pathology, The Chinese University of Hong Kong
Honorary Resident, Department of Chemical Pathology, Prince of Wales Hospital

Winning article - Single-molecule Sequencing Enables Long Cell-free DNA Detection and Direct Methylation Analysis for Cancer Patients

L.Y. Lois Choy[a,b,c,d ^], Wenlei Peng[a,c,d^], Peiyong Jiang[a,b,c,d^], Suk Hang Cheng[a,c,d], Stephanie C.Y. Yu[a,c,d], Huimin Shang[a,c,d], O.Y. Olivia Tse[a,c,d], John Wong[e], Vincent Wai-Sun Wong[f], Grace L.H. Wong[g] ,W.K. Jacky Lam[a,b,c,d], Stephen L. Chan[b,h], Rossa W.K. Chiu[a,,c,d], K.C. Allen Chan[a,b,c,d], and Y.M. Dennis Lo[a,b,c,d*]

[a]Centre for Novostics, Hong Kong Science Park, Pak Shek Kok, Hong Kong SAR, China
[b]State Key Laboratory of Translational Oncology, The Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, Hong Kong SAR, China
[c]Li Ka Shing Institute of Health Sciences, The Chinese University of Hong Kong, Shatin, Hong Kong SAR, China
[d]Department of Chemical Pathology, The Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, Hong Kong SAR, China
[e]Department of Surgery, The Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, Hong Kong SAR, China
[f]Department of Medicine and Therapeutics, The Chinese University of Hong Kong, Shatin, Hong Kong SAR, China
[g]Medical Data Analytics Centre (MDAC), Department of Medicine and Therapeutics, The Chinese University of Hong Kong, Shatin, Hong Kong SAR, China[h]Department of Clinical Oncology, Sir Y.K. Pao Centre for Cancer, The Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, Hong Kong SAR, China
^These authors contributed equally to this work.

Abstract

Objective:
Analysis of circulating tumor DNA has become increasingly important as a tool for cancer care. However, the focus of previous studies has been on short fragments of DNA. Also, bisulfite sequencing, a conventional approach for methylation analysis, causes DNA degradation, which is not ideal for the assessment of long DNA properties and methylation patterns. This study attempted to overcome such obstacles by single-molecule sequencing.

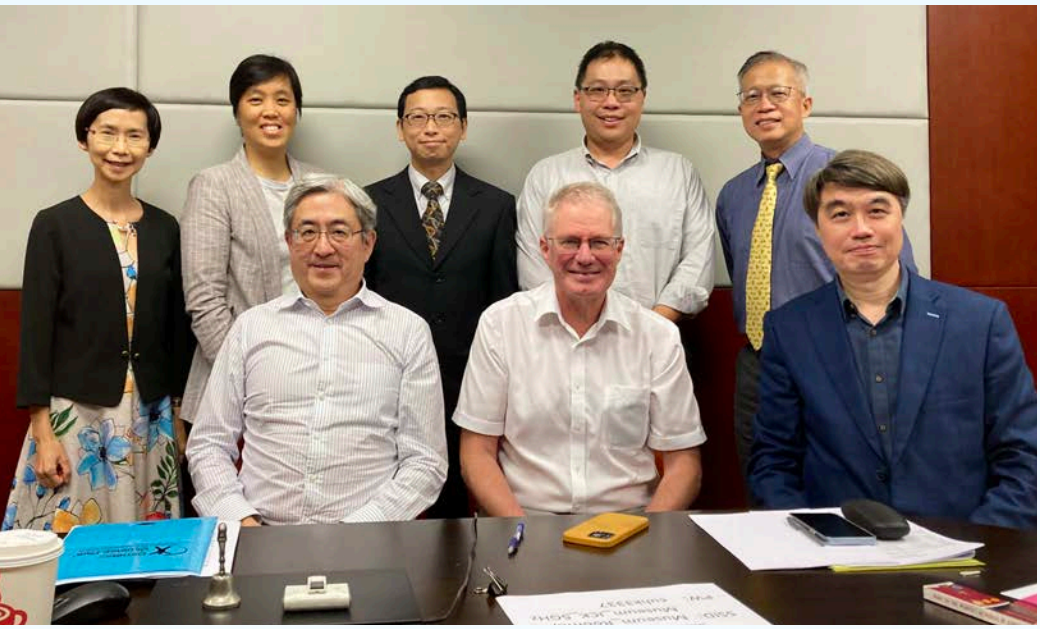
Study design:
Single-molecule real-time (SMRT) sequencing was used to sequence plasma DNA. We performed fragment size and direct methylation analysis for each molecule. A methylation score concerning single-molecule methylation patterns was used for cancer detection.

Results:
A substantial proportion of plasma DNA was longer than 1 kb with a median of 16% in hepatocellular carcinoma (HCC) patients, hepatitis B virus carriers and healthy individuals. The longest plasma DNA molecule in the HCC patients was 39.8 kb. Tumoral cell-free DNA (cfDNA) was generally shorter than nontumoral cfDNA. The longest tumoral cfDNA was 13.6 kb. Tumoral cfDNA had lower methylation levels compared with nontumoral cfDNA (median: 59.3% versus 76.9%). We developed and analyzed a metric reflecting single-molecule methylation patterns associated with cancer, named the HCC methylation score. HCC patients displayed significantly higher HCC methylation scores than those without HCC. Interestingly, compared to using short cfDNA (Area-Under-the-Curve, AUC: 0.75), the use of long cfDNA molecules greatly enhanced the discriminatory power (AUC: 0.91).

Conclusion:
A previously unidentified long cfDNA population was revealed in cancer patients. The presence and direct methylation analysis of these molecules open new possibilities for cancer liquid biopsy.

This work has been published in the journal Clinical Chemistry (https://academic.oup.com/clinchem/article/68/9/1151/6588669)

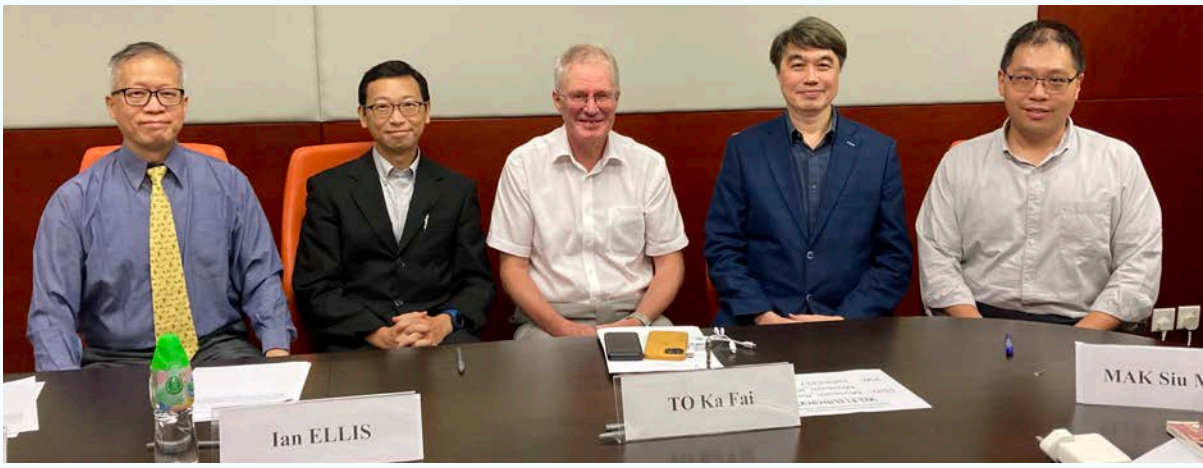
Panel of Examiners 2023



Anatomical Pathology (Fellowship Assessment)

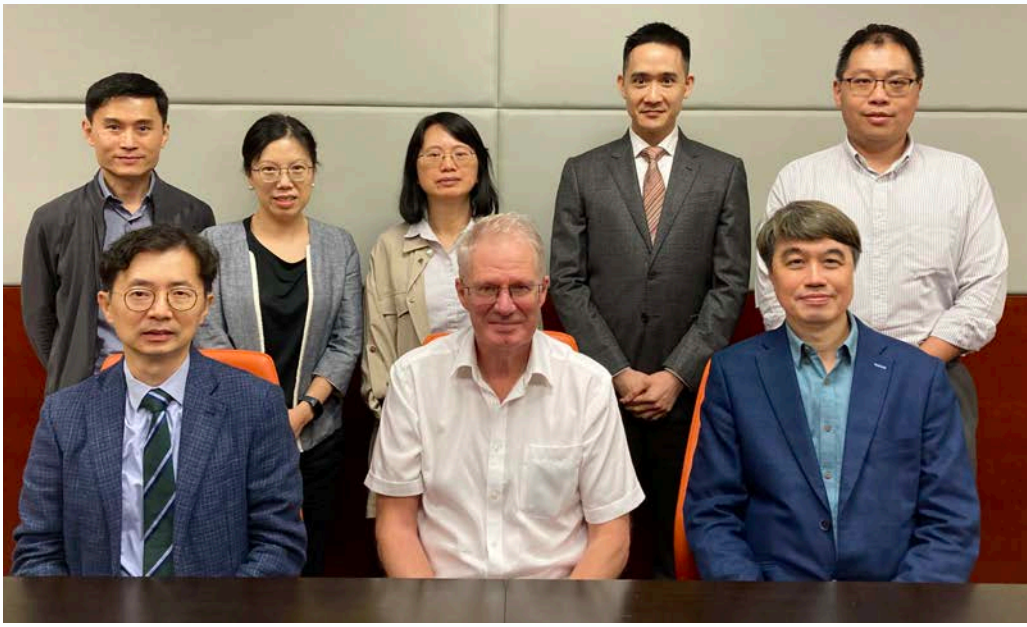
From left to right:
Front row: Dr CHAN Wai Kong; Prof Ian ELLIS (External Examiner); Prof TO Ka Fai (Chief Examiner)
Back row: Dr LAM Woon Yee, Polly; Dr CHEONG Renee Constance Yue-Kew; Dr LO Wing Ip, Anthony; Dr MAK Siu Ming (Deputy Chief Examiner), Dr LUI Yun Hoi

Anatomical Pathology (Fellowship Assessment in Genetic and Genomic Pathology)



From left to right:
Dr LUI Yun Hoi; Dr LO Wing Ip, Anthony; Prof Ian ELLIS (External Examiner); Prof TO Ka Fai (Chief Examiner); Dr MAK Siu Ming (Deputy Chief Examiner)

Anatomical Pathology (Membership Examination)



From left to right:
Front row: Dr CHEUK Wah, Prof Ian ELLIS (External Examiner); Prof TO Ka Fai (Chief Examiner);
Back row: Dr CHAN Shueng Wai, Gavin; Dr. CHAN Ngot Htain, Alice; Dr FUNG Ngai Sheung; Dr TSANG Koon Ho; Dr MAK Siu Ming (Deputy Chief Examiner)

Chemical Pathology

From left to right:
Dr POON Wing Tat; Dr CHAN Ho Ming; Dr Alan McNEIL (External Examiner); Dr CHEN Pak Lam, Sammy (Chief Examiner); Dr Sidney TAM; Dr CHING Chor Kwan

Clinical Microbiology and Infection

From left to right:
Dr LUK Shik; Dr FUNG Sau Chun, Kitty; Prof CHAN Kay Sheung, Paul (Chief Examiner); Prof Peter HAWKEY (External Examiner); Dr TSE Wing Sze, Cindy, Dr QUE Tak Lun; Dr WONG Sai Yin, Samson

Forensic Pathology

From left to right:
Dr LAM Wai Man, Joey; Prof BEH Swan Lip, Prof Michael POLLANEN (External Examiner), Dr POON Wai Ming (Chief Examiner), Dr LAM Wai Kwok, Dr FOO Ka Chung

Haematology

From left to right:
Front row: Dr MA Shiu Kwan, Edmond; Dr LEUNG Yuk Yan, Rock (Chief Examiner); Dr Anne TIERENS (External Examiner); Dr CHOW Yu De, Eudora; Dr CHU Wan, Raymond;
Back row: Dr LEUNG Fung Shan, Kate; Dr CHAN Pui Ha, Natalie; Dr SO Chi Chiu, Jason; Prof. NG Heung Ling, Margaret; Dr IP Ho Wan (Deputy Chief Examiner); Dr YIP Sze Fai

Immunology

Dr CHAN Yuk Tat, Eric (Chief Examiner); Dr LEE Ji-Yoon, Frederick (External Examiner); Dr WONG Oi-Ling, Melanie (External Examiner)

Congratulations!

We are pleased to announce that the following candidates have passed the Fellowship Assessment or Membership Examination. Congratulations!

Fellowship Assessment – Anatomical Pathology

CHAN Ka Yin
CHEUNG Kevin Ka-chun
LAU Cheuk Hei
LI Po Yin
LO Chun Hai
LUI Yin Wing
LUNG Chee Heng, Cheryl
TSANG Chui San, Zara

Fellowship Assessment – Chemical Pathology

CHAN Tina Yee Ching

Fellowship Assessment – Clinical Microbiology and Infection

LEE Lok Hang

Fellowship Assessment – Forensic Pathology

LAM Tony
MOK Ka Kin

Fellowship Assessment – Haematology

LI Wai Yan, Jamilla
YEUNG Ka Pik, Vivian

Fellowship Assessment – Immunology

LAM Ki

Fellowship Assessment – Genetic and Genomic Pathology

AU Yuen Ling, Elaine
CHENG Hua Tse, Timothy
LEUNG Mei Tik
LIAO Jiawei

Membership Examination – Anatomical Pathology

CHAN Hoi Tung
LAM Kwok Wing, Joyce
LU Jianlin
TAN Han Yang
YUET Kam Ting

Announcement from Training and Examinations Committee (TEC):

Training and Regulations in 2018 (CMI)

Under the Regulations on Postgraduate Training and Examinations 2018, the formats of the Membership Examination and Fellowship Assessment in Clinical Microbiology and Infection (CMI) are listed as follows:

Examinations in Clinical Microbiology and Infection

Membership Examination:

(1) Two written papers. One paper includes questions on basic pathological sciences.

(2) Practical

(3) Oral

Fellowship Assessment:

(1) Oral component – consisting of a comprehensive viva with a practical component, covering the log book documentation of laboratory experience

(2) Casebook of a minimum of 100 cases of infectious diseases, one report on hospital infection control and one report on public health, with commentaries demonstrating an in-depth understanding and competence in each component.

(3) Two refereed published papers.

Please be reminded that the examination application deadline is 31 March of each year. Candidates who withdraw later than 14 calendar days after the deadline will forfeit the entire fee. Regarding the Fellowship Assessment, items (2) and (3) must be submitted to TEC by 30 June of the same year. Failure to do so will result in a "FAIL" grade for the exam and the forfeiture of the entire fee. The assessment results for items (2) and (3) will be announced in July. It is mandatory to achieve a passing grade on items (2) and (3) in order to proceed to the oral examination (item (1)).

Policy on using Large Language Model (LLM) or similar technologies in written assignments of specialist trainees

The College Council endorsed the College Policy for the use of the Large Language Model or similar technologies in written assignments of specialist trainees. The policy is copied below for your reference. The policy is also available in our College website for future reference.

The College recognizes the rapid development of Large Language Model (LLM) or similar technologies (e.g. ChatGPT) and acknowledges the potentials and limitations of using such generative AI tools in providing information and ideas to assist trainees to complete written assignments for examination or assessment purposes, including but not limited to coursework / presentation material / theses / case reports / research dissertations etc.
Trainees shall observe the following principles and guidelines with respect to the application of generative AI tools in the preparation and the assessment of written assignments:

1. Trainees are responsible for ensuring that their own submitted works are of sufficient originality. Only works which are of sufficient originality will be accepted. Contents which are produced solely or substantially by the generative AI tools do not satisfy this criterion for the purpose of submission for thesis or dissertation that would lead to a fulfilment of requirement for intermediate or exit qualification.

2. Output from generative AI tools should be critically appraised and verified by the trainee regarding its accuracy and authenticity, and should only be used, if at all, to guide or assist the preparation of written assignment. When applying such materials in preparing a written assignment, trainees are required to supplement, where appropriate, knowledge and information drawn from recognised academic resources, and to provide relevant discussions (e.g., alternative views or arguments etc.).

3. Trainees must disclose and acknowledge the use of any output from generative AI tools and the way that such output has been used when preparing all works including abstracts and posters for Trainee Presentation Sessions, and written assignments for Membership Examination and Fellowship Assessment.

4. The Chief Examiner will exercise his / her judgment on the appropriateness on the use of the generative AI tools on the written assignment. Justifications may be required to be submitted by trainees upon request.

5. Academic honesty and integrity should be upheld without compromise. Failure to comply or disclose in advance of submission of the written assignment will be put forward to Training and Examinations Committee (TEC) for potential disciplinary actions. Each case will be discussed on a case-by-case basis. The disciplinary actions, if any, will be submitted to College Council for endorsement. Trainees could appeal according to the guidelines set forth by Credentials & Appeal Committee (CAC).

6. The Trainee Presentation Session judges, and Chairman and Vice-Chairman of the Education Committee will exercise their judgment on the appropriateness of the use of the generative AI tools in the Trainee Presentation Sessions or other similar presentations. If in circumstances where suspected inappropriate or undisclosed use is identified, each case will be discussed within the Education Committee, and follow-up actions with trainees and their supervisors, if necessary, will be put forward after endorsement by the College Council.

7. Trainees should consult the relevant training supervisors whenever in doubt.

8. College is required to disseminate this policy to trainees when appropriate and to investigate questionable use of such technologies with due diligence.

Review of Examination Fees in 2024

As endorsed by College Council, the examination fees in 2024 will be revised as follows:

TYPE OF EXAMINATION	EXAMINATION / EXEMPTION FEE	
	2023	2024
Fellowship Assessment	$22,000	$25,000
Membership Examination	$18,000	$20,000
Membership Examination Exemption	$18,000	$20,000
Supplementary Examination	$18,000	$20,000

I Ching: What is It?

Dr LOO Ka Tai

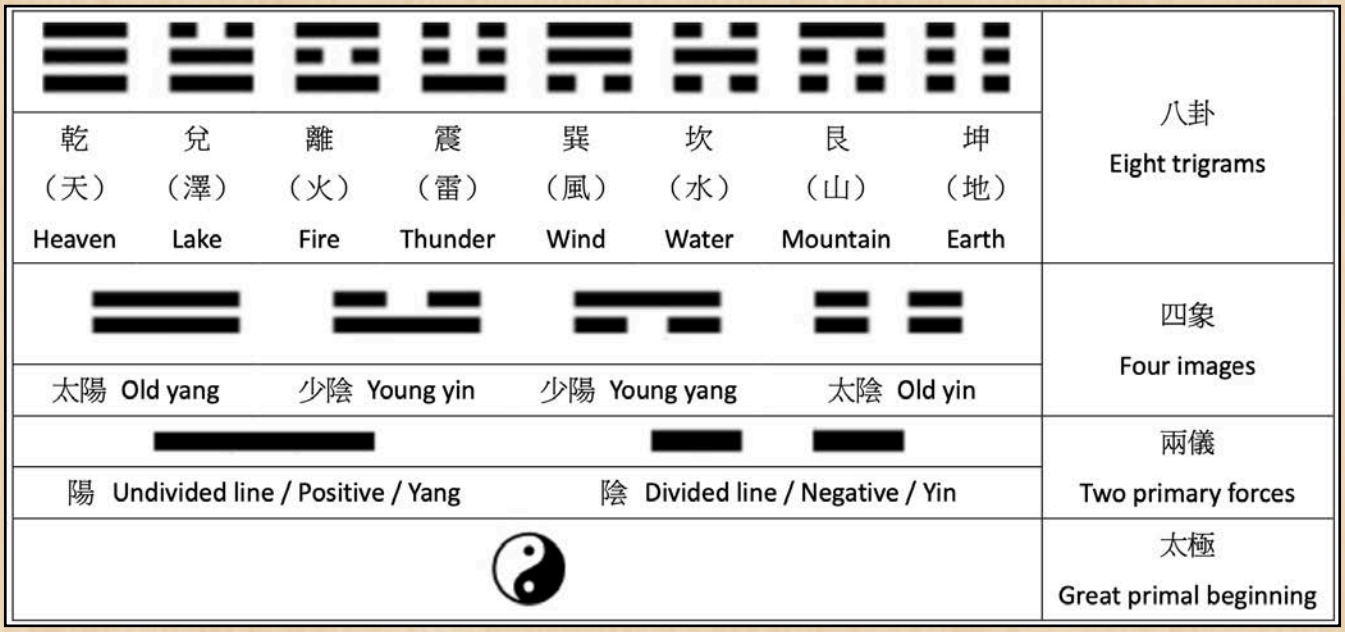
The I Ching易經took its origin from records of oracles which imperial rulers of antiquity consulted for important occurrences or undertakings. Succeeding generations embellished the compilation 經, transforming it to a classic, while learned commentators wrote explanations傳 for the text. The I Ching was constructed on a model of the cosmos centring around eight major natural elements, symbolized by trigrams/八卦; the trigrams were then combined with one another to form sixty-four hexagrams六十四卦in order to represent a host of diverse objects, phenomena and activities.

"When in early antiquity Pao Hsi (Fu Xi) ruled the world, he looked upward and contemplated the images in the heavens; he looked downward and contemplated the patterns on earth. He contemplated the markings of birds and beasts and the adaptations to the regions. He proceeded directly from himself and indirectly from objects. Thus he invented the eight trigrams in order to enter into connection with the virtues of the light of the gods and to regulate the conditions of all beings." *

古者包犧氏 [注: 即伏羲氏] 之王天下也，仰則觀象於天，俯則觀法於地，觀鳥獸之文，與地之宜，近取諸身，遠取諸物，於是始作八卦，以通神明之德，以類萬物之情。(繫辭．下)

* The excerpts and some English terms are taken from the translation by Richard Wilhelm - Cary F Baynes, and other terms from the translations by Richard Rutt and John Minford.

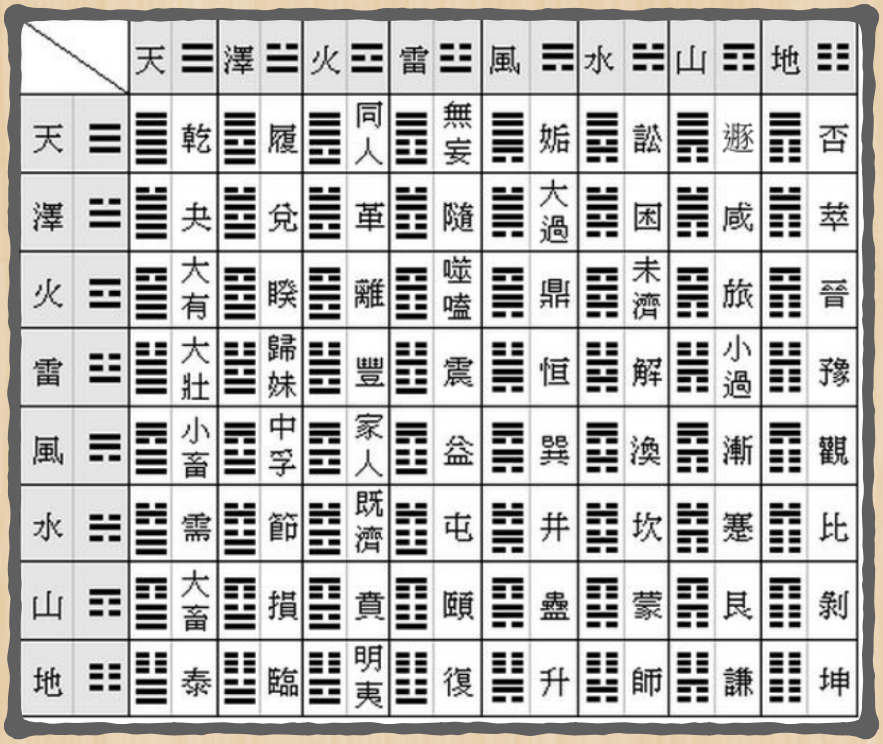
Below are the eight trigrams and the elements they symbolize. Each trigram comprises three horizontal lines爻each of which is either undivided ⚊ (symbolizing positive or yang陽爻) or divided ⚋ (symbolizing negative or yin陰爻). Each hexagram comprises six horizontal lines.



“… there is in the Changes the Great Primal Beginning. This generates the two primary forces. The two primary forces generate the four images. The four images generate the eight trigrams. The eight trigrams determine good fortune and misfortune. Good fortune and misfortune create the great field of action.”
… 易有太極，是生兩儀，兩儀生四象，四象生八卦，八卦定吉凶，吉凶生大業。(繫辭．上)

The symbol of the Tai Ji太極depicts the cyclical waxing and waning of the yin (dark) and yang (light) forces. The dots symbolize the transient dormant state of one force at the climax of its counterforce.

The names and structures of the sixty-four hexagrams are as follows.



The oracular經part of the I Ching consists of the hexagram卦畫i.e. the symbol, the hexagram name卦名, the hexagram judgment卦辭and the line statement爻辭of each hexagram. Each judgment or line statement includes a prognostication, which may be good fortune吉, profit利, humiliation吝, repent悔, blame咎, danger厲or misfortune凶, and in most cases an image象. Each hexagram represents a series of points in a changing continuum of time and space, the condition of which point is determined by “the time / the occasion” 時and “the position” 位.

“The Master said: The holy sages set up the images in order to express their thoughts completely; they devised the hexagrams in order to express the true and the false completely. Then they appended judgments and so could express their words completely.”
子曰：「聖人立象以盡意，設卦以盡情偽，繫辭以盡其言。」(繫辭．上)

The text and structure of the first hexagram Qian乾are listed by way of illustration.

乾：元亨，利貞。	*hexagram name* 卦名 *and hexagram judgment* 卦辭
初九：潛龍，勿用。	*line statement of the beginning line* 初爻爻辭
九二：見龍在田，利見大人。	*line statement of the second line* 二爻爻辭
九三：君子終日乾乾，夕惕若，厲，无咎。	*line statement of the third line* 三爻爻辭
九四：或躍在淵，无咎。	*line statement of the fourth line* 四爻爻辭
九五：飛龍在天，利見大人。	*line statement of the fifth line* 五爻爻辭
上九：亢龍有悔。	*line statement of the top line* 上爻爻辭
用九*：見群龍无首，吉。	*line statement when all the lines are nines* 用九爻辭

* The first two trigrams Qian乾and Kun坤has each an additional seventh line designated as用九、用六respectively due to its either all-yang (“all lines are nines”) or all-yin (“all lines are sixes”) composition.

The numbers 9 and 6 (the latter occurs in hexagrams other than Qian乾) denote yang lines 陽爻and yin lines陰爻respectively, being assigned by the procedure of the yarrow-stalk oracle大衍筮法, the classical divination method using yarrow蓍 (Achillea alpina) stalks. However, the terms yin and yang do not appear regularly in the oracular text, but actually originated from non-Confucian schools; the qualifiers firm剛and yielding柔are more often employed in the explanations.

Two earlier versions of the I Ching are recognized, the Lian Shan連山and the Gui Cang歸藏, and are believed to date from the Xia夏and Shang商Dynasties respectively. The most “modern” version, the Zhou Yi周易, took shape in the Western Zhou西周period and was eventually adopted as the received text通行本. The title I Ching has since been understood to refer to this version.

The meaning of “I”易in the title is threefold, according to age-old dictums: simple簡易, changing變易, and constant不易, as the following quotes explain.

Simple: *“The Creative is decided and therefore shows to men the easy. The Receptive is yielding and therefore shows to men the simple.” “What is easy, is easy to know; what is simple, is easy to follow.”*

夫乾，確然示人易矣；夫坤，隤然示人簡矣。… 易則易知，簡則易從。(繫辭．下)

Changing: *“Its tao is forever changing— Alteration, movement without rest, … They cannot be confined within a rule; It is only change that is at work here.”*

為道也屢遷，變動不居，… 不可為典要，唯變所適。(繫辭．下)

Constant: *“Heaven is high, the earth is low; thus the Creative and the Receptive are determined. In correspondence with this difference between low and high, inferior and superior places are established.”*

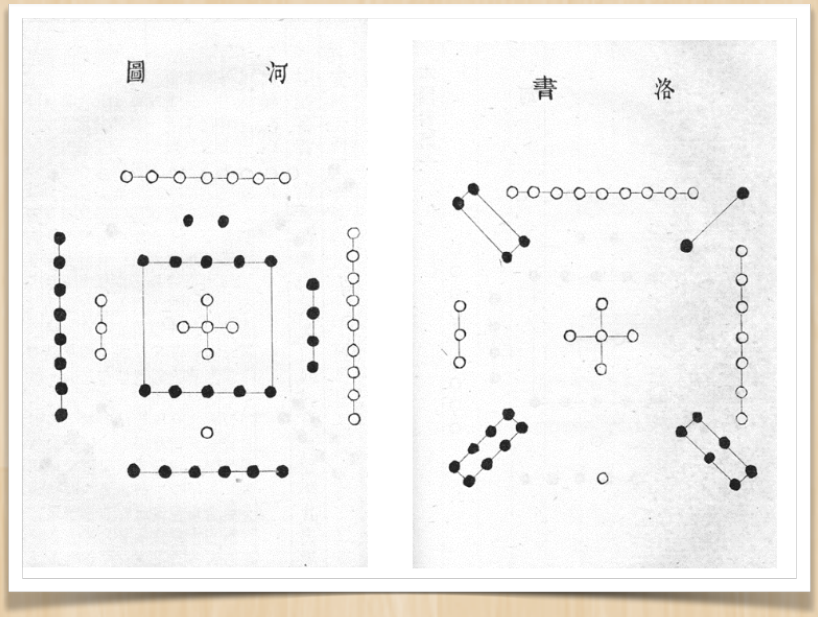
天尊地卑，乾坤定矣；卑高以陳，貴賤位矣。(繫辭．上)

Classified as a manual of divination, the I Ching was spared the burning of books by the First Qin Emperor. Emperor Wu Di武帝of the Han漢Dynasty, acceding to Dong Zhongshu 董仲舒's counsel, conferred canon status on the five Confucian classics五經 and set up an imperial institution dedicated to their instruction. The I Ching was commonly reputed to be the chief of these classics.

The explanations of the oracles經are collectively named Expositions傳or specifically易傳 and also, more popularly, the "Ten Wings"十翼. These include: Commentary On the Decision彖傳 (two parts), Commentary On the Images象傳 (two parts), The Great Treatise or Attached Statements繫辭 (two parts), Commentary on the Words of the Text文言, Discussion of the Trigrams說卦, The Sequence of the Hexagrams序卦, and Miscellaneous Notes on the Hexagrams雜卦. Among them, the most important is the Great Treatise繫辭 which sets out the broad themes and principles of the entire text. Wang Bi of the Wei Dynasty魏．王弼first merged the Expositions with the oracles into a single, somewhat heterogeneous, volume. The Expositions are generally thought to be written by different authors of different times, rather than Confucius, as had been assumed until critics, notably Ouyang Xiu of the Song Dynasty宋．歐陽修, refuted the notion. The Great Treatise, many scholars have pointed out, contains ideas that are close to the worldview of early Taoism道家.

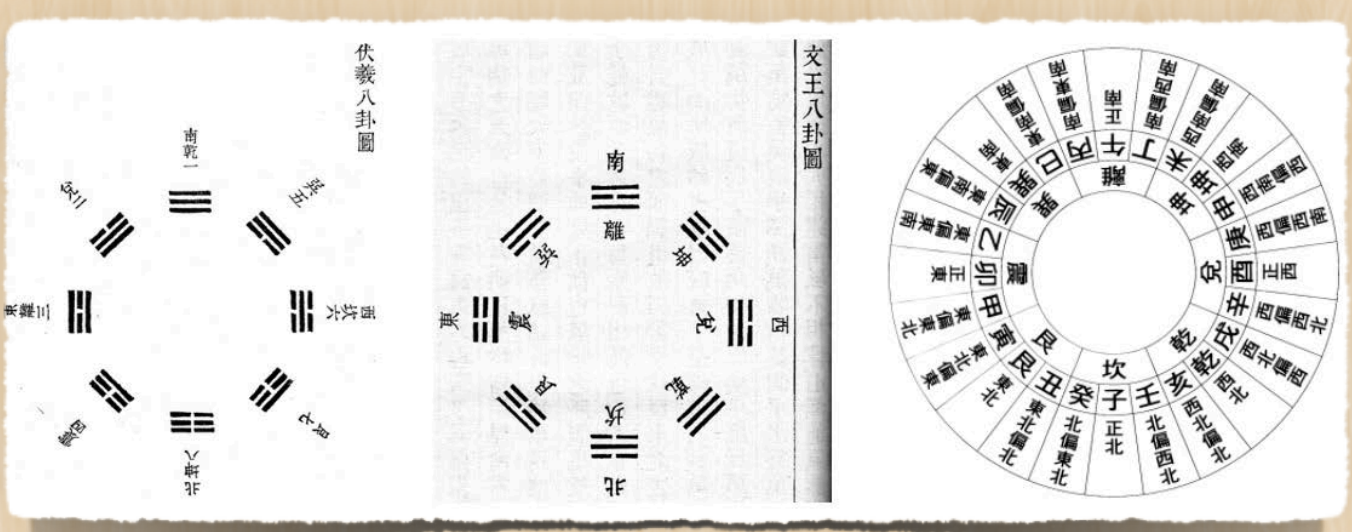
Archeological excavations of the last century brought to daylight ancient inscriptions of the I Ching on pieces of silk and slips of bamboo. These versions differed from the received text通行本; their discovery generated renewed impetus to the emendation校勘 of the I Ching. The most publicized of these historical artefacts are the Mawangdui silk manuscript馬王堆帛書 (unearthed in 1973), Fu Yang slips阜陽簡 (unearthed in 1977) and Shanghai Museum slips上博簡 (unearthed in 1994).

With the passage of time, the study of the I Ching split into divergent courses that had contrasting emphasis in interpretation. The two most influential branches are "principle" 義理and "form-number" 象數. Many methods of fortune-telling grew out of the latter. The number concept was initially derived from the legendary Yellow River Chart河圖and Luo River Document洛書.



"The Yellow River brought forth a map and the Lo River brought forth a writing; the holy men took these as models."
河出圖，洛出書，聖人則之。（繫辭．上）

The trigrams were associated with the cardinal directions to produce the eight trigrams diagram/八卦圖which displayed two alternative formats based on two sequences, the "earlier-than-heaven" 先天圖ascribed to Fu Xi伏羲氏and the "later-than-heaven" 後天圖to Wen Wang周文王, in line with the Yellow River Chart and the Luo River Document respectively. The trigrams were later also incorporated together with the Celestial Stems天干and Terrestrial Branches地支into a circular chart which became the blueprint of the modern-day compass utilized in feng shui風水survey.



The I Ching, despite its enigmatic phraseology and elusive meaning, is a veritable distillation of Chinese wisdom, as relevant to the real world now as in millenia past. In John Minford's words, "It is … more than a book. It is a Spiritual Entity. This Power of the I Ching is intangible and infinite."

Gentoo Penguins

KEY FACTS

By Dr LO Hui Yin

TERMINOLOGY

- 巴布亞企鵝
- *Pygoscelis papua*
  - *Pygoscelis*: brush-tailed
  - *Papua*: a misnomer; naturalist Johann Forster wrongly assumed the penguins came from Papua New Guinea
- No one is sure why they were also named "gentoo"

PHYLOGENY

- All extant penguin species belong to the same order (Sphenisciformes) and family (Spheniscidae)
- Gentoo penguins are under the genus *Pygoscelis*, the "brush-tailed penguins". Two other extant species exist, including the Adelie penguin (*P. adeliae*) and Chinstrap penguin (*P. antarcticus*)

ADDITIONAL INFORMATION

- Distribution: Antarctic peninsula and sub-antarctic islands
- Diet: crustaceans, small fishes, and squid
- Predators
  - Leopard seals, sea lions and orcas
  - For chicks and eggs: birds such as skuas, giant petrels, snowy sheathbills etc.
- Lifespan: around 15-20 years
- They are the fastest underwater swimming penguins (up to 36 km/h)
- Conservation status: Least concern
- "Gentooficiation"
  - Gentoo penguins are not usually seen on sea ice, they generally prefer a (relatively) warmer climate; however due to climate change, sea ice decreases and temperature rises, resulting in population increase and southward expansion

MACROSCOPIC

- White eye patches
- Bright orange-red bill
- Long brushy tail that is more prominent than any other penguins

DIFFERENTIAL DIAGNOSES

- Adelie penguin
- Chinstrap penguin

(Left) *Gentoo penguins can be easily identified by their white eye patches and brightly coloured bill.* **(Right)** *During breeding season gentoo penguins will build a nest from stones. They choose the stones carefully, sometimes even resort to theft or physical fight.*

Gentoo penguin

Gentoo penguin picking up a stone

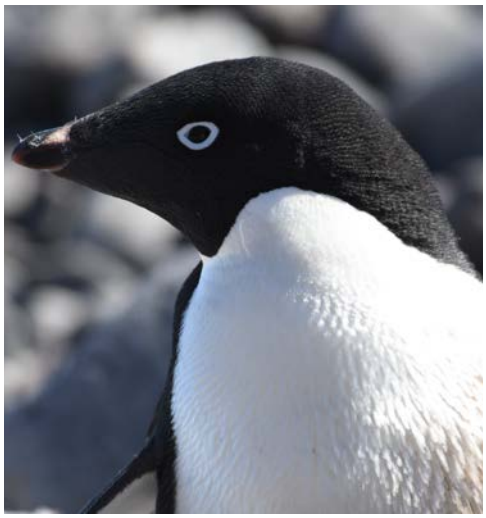
Gentoo Penguins

Gentoo penguin and egg

Gentoo penguin chicks

(Left) *Two eggs are laid and incubated by parents. The eggs hatch in around 4-5 weeks.* **(Right)** *The chicks stay with the parents during the first month.*

Adelie penguin

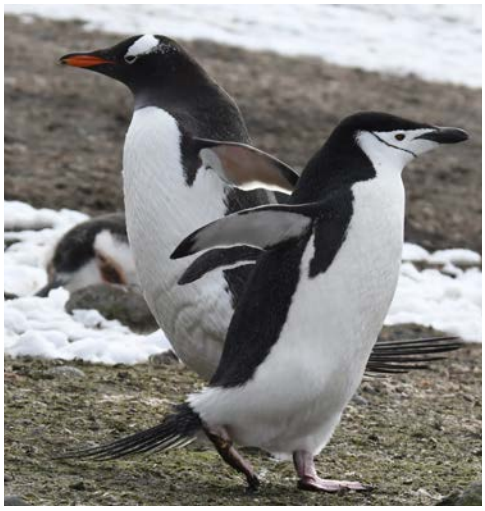


Adelie and Gentoo penguins

(Left) *Adelie penguins are widespread along the entire coast of the Antarctic continent, as well as the southerly regions. They are easily recognised by their black head, white eye ring, and black iris.* **(Right)** *Gentoo penguins can be easily distinguished from Adelie penguins by their eye patches and bill.*

Chinstrap penguin

Chinstrap and Gentoo penguins



(Left) *Chinstrap penguins have a black head, white face, and their namesake - a thin black stripe on their chin.* **(Right)** *Gentoo penguins are larger than Adelie and Chinstrap penguins. With a body length up to 90 cm and weight up to 8.5 kg, Gentoo penguins are the third largest penguins.*

Photos were taken in various locations on the Antarctic peninsula and surrounding islands.

Beauty of iron – tenmoku

Dr NG Kwan Shun

When talking about iron, surgical pathologists will think about the golden brown granules of haemosiderin, and their Prussian blue color by Perls' reaction. Iron is much more colourful in pottery. In monochrome glaze, it can be yellow, green, red, brown, or black. And interestingly, with just the right amount of iron, right firing atmosphere, right heating curve, and right cooling condition, a single iron-containing glaze can give rise to lustrous surface with captivating metallic reflections and wide variability of colors in unique and unpredictable patterns. They are now known as 'tenmoku'.

Tenmoku was born during the Song Dynasty of China. Its simplicity and elegance resonated with the Zen Buddhism philosophy, and was widely used in tea bowls in tea ceremonies. With the flourishing of Buddhism and tea culture in Japan, tenmoku was imported to Japan and had deep influence on Japanese pottery. The production of tenmoku gradually declined and vanished after the Yuan dynasty. However, their elegance and beauty have shone over centuries and capture the eyes of contemporary ceramists. With modern science and countless efforts, ceramists can now grasp this lost traditional technique, and revive the legend of these charming vessels with timeless appeal.

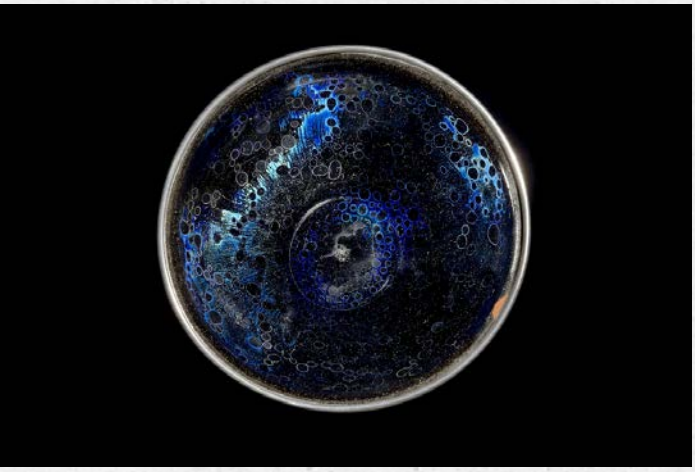


Fig 1 - Yohen Tenmoku (耀變天目)

Yohen Tenmoku (耀變天目)

The name originally meant 'kiln mutation'. It is the rarest and the most precious kind of tenmoku. There are only 3 existing intact Yohen Tenmoku that passed down from the Song Dynasty, and all of them are regarded as national treasures in Japan. They have characteristic spots which glisten with aurora-like pattern against black background. They are highly praised as 'a vessel in which one can visualize a universe'.

Yuteki Tenmoku (油滴天目)

Literally yuteki means 'oil spots'. It is characterized by the small, round or elongated metallic spots on the glaze surface. The light on these metallic spots contrast with the dark glaze in the background.

Fig 2 - Yuteki Tenmoku (油滴天目)

Fig 3 - Nogime Tenmoku (禾目天目)

Nogime Tenmoku (禾目天目)

This type of tenmoku is characterized by the thin streaks and lines on the glaze surface. The lines are so thin that they resemble the fur of rabbits.

Konoha Tenmoku (木葉天目)

It is characterized by a light image of a leaf in a background of dark glaze. It is created by attaching leaves on the tenmoku glaze before firing.

Fig 4 Konoha Tenmoku (木葉天目)

Photos credits:

Fig 1 https://fujita-museum.or.jp/topics/2022/03/25/1903/

Fig 2 https://openmuseum.tw/muse/digi_object/917ce3f085096a897303afeaa13349ed#112211 油滴天目_1。典藏者：九州國立博物館。創用CC 姓名標示 4.0國際（CC BY 4.0 International）。發佈於《開放博物館》[https://openmuseum.tw/muse/digi_object/917ce3f085096a897303afeaa13349ed#112211]（2023/10/09瀏覽）。

Fig 3 https://openmuseum.tw/muse/digi_object/998d3c2f53b98f1bfaaddced6dccf4ac#117542 禾目天目_1。典藏者：東京國立博物館。創用CC 姓名標示 4.0國際（CC BY 4.0 International）。發佈於《開放博物館》[https://openmuseum.tw/muse/digi_object/998d3c2f53b98f1bfaaddced6dccf4ac#117542]（2023/10/09瀏覽）。

Fig 4 https://apisites.jmapps.ne.jp/mocoor_o/en/collection/44?keywords=tenmoku&kwd_and_or=and&list_type=LLC&list_count=10&title_query=yes&page=1&sort_field=&sort_type=asc The Museum of Oriental Ceramics, Osaka (gift of SUMITOMO Group, the ATAKA Collection), photograph by NISHIKAWA Shigeru