

出國報告（出國類別：開會）

2024 西班牙 巴塞隆納
第 34 屆歐洲臨床微生物與感染症大會

服務機關：高雄榮民總醫院/感染管制室

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出國期間：2024/04/25-2024/05/01

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摘要

職有幸獲國科會補助於 2024/4/27 至 2024/4/30 參加於西班牙巴塞隆納舉行之 34 屆歐洲臨床微生物學和傳染病年會，並發表梅毒治療後產生免疫反應之研究論文。該學會每年在歐洲地區會召開年度歐洲臨床微生物學和傳染病大會，這是公認的最大的國際學術論壇、每年吸引數千名研究學者、臨床醫療人員及各領域醫療公衛專家發表有關於醫學微生物學和傳染病領域研究成果。參加會議除了吸收新知，與國外專家交流，更主要是可以沉澱情緒，好好思考自己研究方向以及未來發展方向。此次藉由歐洲臨床微生物學和傳染病學會所舉辦的學術研討，並與國外學者交流，了解汲取目前國際感染症現況及經驗分享，對於臨床及研究上是非常好的學術交流平台。

關鍵字

歐洲臨床微生物學和傳染病大會、學術交流

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一、 目的

職有幸獲國科會補助於 2024/4/27 至 2024/4/30 參加於西班牙巴塞隆納舉行之 34 屆歐洲臨床微生物學和傳染病年會(34th European Congress of Clinical Microbiology & Infectious Diseases)，並發表梅毒治療後產生免疫反應之研究論文。歐洲臨床微生物學和傳染病學會是一個總部設於瑞士巴塞爾的非營利國際組織，使命是透過促進和支持研究、教育、訓練和良好的醫療實踐來改善感染相關疾病的診斷、治療和預防。該學會每年在歐洲地區會召開年度歐洲臨床微生物學和傳染病大會，這是公認的最大的國際學術論壇、每年吸引數千名研究學者、臨床醫療人員及各領域醫療公衛專家發表有關於醫學微生物學和傳染病領域研究成果。參加會議除了吸收新知，與國外專家交流，更重要是可以沉澱情緒，好好思考自己研究方向以及未來發展方向。以感染症來說，人才培育凋零，在美國感染科也是全美 28 個專科之一醫師薪水倒數之專科。

感染症領域方面大會涵蓋面很廣包含個案討論，抗生素管理，新藥、感染管制及抗藥性細菌及微生物學、性病等方面。討論很多樣，內容很深入常包含分子生物學領域，更重要是有許多研究群組例如心內膜炎、退伍軍人症，抗藥性等領域，可以讓每位參與人員依自己興趣加入，日後也可以合作平台。利用本次會議思考結合本科部研究領域可以相互呼應及發展包含愛滋病、性病快速診斷及治療及蜂窩性組織炎、抗生素管理。愛滋病本為本院感染科核心醫療，目前本院約有 1200 名 HIV 感染者接受追蹤及治療，因為有個管師制度，診斷即馬上治療的政策，單錠複方藥物引進使得台灣約四萬個愛滋病患超過 90%病毒測不到而降低傳染風險，國內每年新增個案已經低於 1000 人。目前愛滋病已經成為一個慢性疾病，未來研究重點在於合併之性病，愛滋病抗藥性及新陳代謝相關問題(高血壓、高血酯及糖尿病)在蜂窩性組織炎方面，除了在感染科門診表上均有標註蜂窩性組織炎專長醫師外，未來可以結合整型外科、心血管外科及皮膚科發展軟組織感染相關醫療，結合皮膚照護理，保養，抗生素治療及手術提升醫療品質在性病方面可發展隱藏版高階一條龍健檢及快速治療，專業諮詢來解決特殊需求，並在民眾宣導衛教方面全自動化的匿名篩檢，引進 AI 技術讓民眾可以自行完成性病篩檢，同時過程中加以衛教，並自動連結醫療，如諮詢及門診治療。

此次藉由歐洲臨床微生物學和傳染病學會所舉辦的學術研討，並與國外學者交流，了解汲取目

前國際感染症現況及經驗分享，對於臨床及研究上是非常好的學術交流平台。

二、 過程

大會第一日(4月27日)的議程非常多元、有敗血症相關議題、年度管染管制專題、心內膜炎治療、metagenomic 在診斷及監測上的應用、對抗感染的創新方法(innovative approaches)、mpox 流行病學及預防、氣候改變對感染影響、性病相關議題及許多研究群組、會議中有許多感染症各領域專家學者的演講，內容包羅萬象、同時段在不同會議室往往有許多主題同時進行，可以挑選自己相關有興趣領域參與。職在此次大會發表的論文主題為原發梅毒及重複感染梅毒接受盤尼西林治療後免疫反應之差異研究，發表 e-POSTER 並同步於現場與各學者和研究團隊交流諮詢，並適時回答相關問題。

大會第二日(4月28日)上午的議程有各種微生物抗藥性比率及機轉、中樞神經系統感染、抗藥性的偵測、移植相關感染 microbiome, bacteriophage 治療等相關議題、微生物演進及分子生物學分型等，同時並有相關議題的海報與口頭報告研究團隊的最新研究成果。下午則有梅毒症狀探討、外科手術部位感染的最新進展，RSV 病毒相關議題。研究群組會議(移植、萊姆病、腦部感染、黴漿菌及披衣菌)等相關討論。最讓人印象深刻的是每一個主題都有很深入討論，讓有興趣的人加入對於專業的成長很有幫助。

大會第三日(4月29日)議程著重於針對各種世界上流行疾病的微物流行病學、年度重要感染疾病、HIV 及性病議題、臨床試驗、醫療相關感染、感染管制重要的國際議題。許多研究都很深入、要形成一個團隊大家一起合作才能成功發表。會中有討論到梅毒相關研究方法給予我許多啟發、日後回到台灣實驗可以參考。

三、 心得及建議

職於 113/5/1 返抵國門後，隨即整理相關大會議程與心得報告，並實驗室與研究團隊所有同仁報告此行發現與心得，修改研究設計。對於此次大會議程的內容豐富，也有網路平台加入、可做為日後舉辦學術研討會的參考。此次參加大會的所見所聞與心得報告，對於梅毒免疫反應的研究主題有非常重大和深遠的影響，本人將針對國內外團隊於此次大會發表的成果，參考納入研究設計並申請國科會計畫，相關研究成果將於整理實驗成果後陸續投稿於國際期刊。

利用本次會議提升本科臨床及研究學習之方向：

1. 結合本科部研究領域可相互呼應及發展包含愛滋病、性病快速診斷及治療及蜂窩性組織炎、抗生素管理。
2. 未來可以結合整型外科、心血管外科及皮膚科發展軟組織感染相關醫療，結合皮膚照護、保養，抗生素治療及手術提升醫療品質在性病方面可發展隱藏版高階一條龍健檢及快速治療，專業諮詢來解決特殊需求。
3. 推廣宣導衛教方面全自動化的匿名篩檢，引進 AI 技術讓民眾可以自行完成性病篩檢，同時過程中加以衛教，並自動連結醫療，如諮詢及門診治療。
4. 鼓勵院內同仁參加國外學術研討會，了解目前國際醫療之進展，互相探討及分享研究結果，打開醫院知名度，促進國際間合作。

附錄

發表之論文題目

Different cytokines responses after treatment with benzathine penicillin in patients with syphilis primary infection or reinfection

摘要

Background : Syphilis is a commonly sexually transmitted disease globally. Reinfection after treatment for syphilis is not unusual and the clinical presentation in patients with syphilis reinfection are asymptomatic or less symptomatic. In a study from Belgium, researchers showed that among the 91 individuals with syphilis (36 with initial syphilis and 55 with repeat syphilis) those with initial syphilis were more likely to be symptomatic and have higher levels of IL-10 than repeaters. This is compatible with the finding in other infections that the strength of the IL-10 response reflects the strength of the preceding inflammatory response. Our study aim was to evaluate the cytokines responses and Jarisch-Herxheimer reaction (JHR) in patients with first episode of active syphilis compared to those who with syphilis reinfection in Taiwan.

Materials and Methods: This prospective cohort study enrolled syphilitic participants after first dose of benzathine penicillin treatment between July 2018 and June 2023. Serum samples before and after the administration of the first dose of benzathine penicillin were obtained. The serum level of CRP, IL-6, TNF- α , CXCL-13 and IL-5 were determined by ELISA. The blood PCR targeting *Treponema pallidum* pol A gene was tested. The Mann-Whitney U test was used to compare the levels of cytokines in two different groups, and the Wilcoxon signed-rank test was used to compare changes in cytokines before and after benzathine penicillin treatment. The Chi square test was used to analyze the odds ratio of positive pol A PCR and presence of JHR.

Results: Sixty-five active syphilitic participants and 32 controls were enrolled. All 65 syphilitic patients were men, and 53 subjects (81.5%) were acquired with HIV. Thirty-one patients (47.7%) belonged to the first episode of syphilis infection. Overall, 41.5% (27/65) of the study participants developed JHR. There were increased serum IL-6 and TNF- α but decreased serum CRP and IL-5

in participants after treatment with first episode of syphilis, but not for patients with syphilis reinfection. Furthermore, there were significantly higher serum levels of IL-6 (median (IQR) 7.35(2.92-17.45) pg/ml v.s 17.8(7.14-47.19) pg/ml) and TNF- α (median (IQR) 9.46(5.47-22.12) pg/ml v.s 17.97 (7.5-26.9) pg/ml) in study participants with JHR. Those increased serum IL-6 and TNF- α in participants with JHR was found only in study participants treated with first episode of syphilis. There was association between positive blood *T. pallidum* *poA* PCR and presence of JHR ($p < 0.001$, OR 14.11, CI 3.95-50.37).

Discussion: IL-6 and TNF- α were involved in patients with active syphilis and JHR. Blood spirochetemia was associated with JHR.



Different cytokines responses after treatment with benzathine penicillin in patients with syphilis primary infection or reinfection

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Background

Syphilis is a commonly sexually transmitted disease globally. Reinfection after treatment for syphilis is not unusual and the clinical presentation in patients with syphilis reinfection are asymptomatic or less-symptomatic. In a study from Belgium, research has shown that among the 91 individuals with syphilis (36 with initial syphilis and 55 with repeat syphilis) those with initial syphilis were more likely to be symptomatic and have higher levels of IL-10 than repeaters. This is compatible with the finding in other infections that the strength of the IL-10 response reflects the strength of the preceding inflammatory response. Our study aim was to evaluate the cytokines responses and Jarisch-Herxheimer reaction (JHR) in patients with first episode of active syphilis compared to those who with syphilis reinfection in Taiwan.

Materials and Methods

This prospective cohort study enrolled syphilitic participants after first dose of benzathine penicillin treatment between July 2018 and June 2023. Serum samples before and after the administration of the first dose of benzathine penicillin were obtained. The serum level of CRP, IL-6, TNF- α , CXCL-13 and IL-5 were determined by ELISA. The blood PCR targeting *Treponema pallidum* *pol A* gene was tested. The Mann-Whitney U test was used to compare the levels of cytokines in two different groups, and the Wilcoxon signed-rank test was used to compare changes in cytokines before and after benzathine penicillin treatment. The Chi square test was used to analyze the odds ratio of positive *pol A* PCR and presence of JHR.

Results

Sixty-five active syphilitic participants and 32 controls were enrolled. All 65 syphilitic patients were men, and 53 subjects (81.5%) were acquired with HIV. Thirty-one patients (47.7%) belonged to the first episode of syphilis infection. Overall, 41.5% (27/65) of the study participants developed JHR. There were increased serum IL-6 and TNF- α but decreased serum CRP and IL-5 in participants after treatment with first episode of syphilis, but not for patients with syphilis reinfection. Furthermore, there were significantly higher serum levels of IL-6 (median (IQR) 7.35(2.92-17.45) pg/ml vs 17.8(7.34-47.19) pg/ml) and TNF- α (median (IQR) 9.46(5.47-22.12) pg/ml vs 17.97(7.5-26.9) pg/ml) in study participants with JHR. Those increased serum IL-6 and TNF- α in patients with JHR was found only in study participants treated with first episode of syphilis. There was association between positive blood *T. pallidum* *pol A* PCR and presence of JHR ($p < 0.001$, OR 14.11, CI 3.98-50.37).

Table 1. Demographic information among 65 subjects enrolled in this study.

Characteristics	N=65
Male	65 (100%)
Age, y, median (range)	33 (26-60)
Sexual orientation MSM	65 (100%)
HIV concurrent infection	53(81.5)
RPR titer before treatment	1:128(1.64-1:256)
Secondary syphilis	62(95.4)
First episode of syphilis infection	31(47.7)
JHR presence	27(41.5)
Time (hours) from treatment to development of the JHR	4(3.3-6.0)
Presence of JHR in those patients with first episode of syphilis (N=31)	16(51.6)
Presence of JHR in those patients with repeated episodes of syphilis (N=34)	11(32.4)

Table 2. Clinical manifestations of 27 patients with syphilis and JHR after benzathine penicillin treatment.

Parameter	Occurrence (%)
Fever	23(85.2)
Exacerbated skin rash	24(88.9)
Chills	27(100)
Diarrhea/headache	4(14.8)
Weakness	27(100)
Myalgia	13(47.8)

pol A gene PCR n=65	JHR	
	Positive n=14(21.5%)	Negative n=51(78.5%)
	16(114.3%)	11(21.2%)
	11(78.6%)	40(78.8%)
	27(41.5%)	51(78.5%)
	16(51.6%)	11(32.4%)

Figure 7. There was an association between presence of blood *T. pallidum* *pol A* PCR and presence of JHR.

Abbreviations:
JHR: Jarisch-Herxheimer reaction;
CRP: C-reactive protein;
CXCL-13: chemokine ligand 13;
IL-6: interleukin 6;
IL-5: interleukin 5;
TNF- α : tumor necrosis factor alpha.

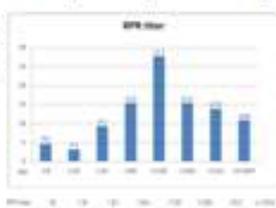


Figure 1. RPR titer distribution among 65 patients enrolled in this study.

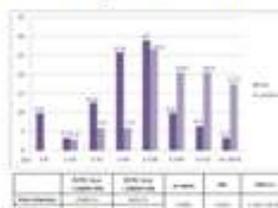


Figure 2. RPR titer distribution among syphilis primary infection or reinfection.

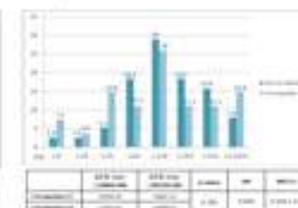


Figure 3. RPR titer distribution among patients without JHR.

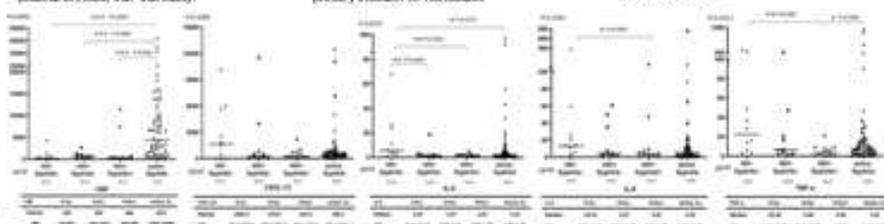


Figure 4. CRP, CXCL-13, IL-6, IL-5 and TNF- α in 65 patients with active syphilis.

Abbreviations: CRP: C-reactive protein; CXCL-13: chemokine ligand 13; IL-6: interleukin 6; IL-5: interleukin 5; TNF- α : tumor necrosis factor alpha.

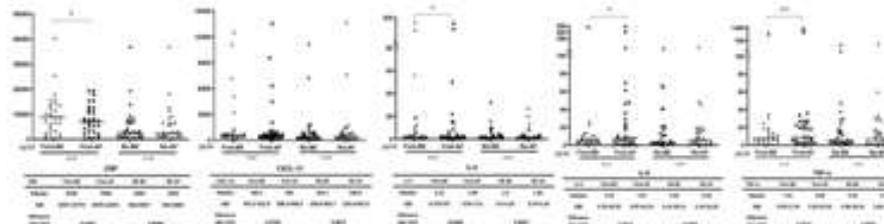


Figure 5. Increased IL-6 and TNF- α in patients with syphilis primary infection after treatment.

Abbreviations: CRP: C-reactive protein; CXCL-13: chemokine ligand 13; IL-6: interleukin 6; IL-5: interleukin 5; TNF- α : tumor necrosis factor alpha.

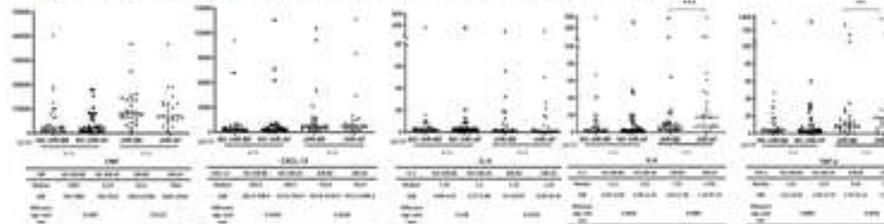


Figure 6. CRP, CXCL-13, IL-5, IL-6 and TNF- α changes in patients with JHR.

Abbreviations: CRP: C-reactive protein; CXCL-13: chemokine ligand 13; IL-6: interleukin 6; IL-5: interleukin 5; TNF- α : tumor necrosis factor alpha.

Discussion

IL-6 and TNF- α were involved in patients with active syphilis and JHR. Blood spirochetemia was associated with JHR.

<p>08:30 - 09:00 2024 Goals of current drug therapy developments (EP101)</p> <p><i>Abstracts: Poster Session</i></p>	<p>09:00 - 09:30 Emerging concepts in transmission and outbreak control (EP102)</p> <p><i>Abstracts: Poster Session</i></p>	<p>09:30 - 10:00 Public health in COVID continuing challenges (EP103)</p> <p><i>Abstracts: Poster Session</i></p>
<p>10:00 - 10:30 Red flags in the spread of resistant non-ferrous (EP104)</p> <p><i>Abstracts: Poster Session</i></p>	<p>10:30 - 11:00 Modelling the immune response to infectious diseases (EP105)</p> <p><i>Abstracts: Poster Session</i></p>	<p>11:00 - 11:30 The good, the bad and the ugly in drug practice ... (EP106)</p> <p><i>Abstracts: Poster Session</i></p>
<p>ARENA 3</p>		
<p>11:30 - 12:00 Emerging environmental and genetic factors pathways (EP107)</p> <p><i>Abstracts: Poster Session</i></p>	<p>12:00 - 12:30 Diagnostic challenges: early pathways for some, caution for others (EP108)</p> <p><i>Abstracts: Poster Session</i></p>	<p>12:30 - 13:00 Emerging concepts in resistance: the case of benzoyl ... (EP109)</p> <p><i>Abstracts: Poster Session</i></p>
<p>13:00 - 13:30 Teasing into genomic for identifying disease transmission ... (EP110)</p> <p><i>Abstracts: Poster Session</i></p>		
<p>ARENA 4</p>		
<p>13:30 - 14:00 Red flags in Sub-Saharan (EP111)</p> <p><i>Abstracts: Poster Session</i></p>	<p>14:00 - 14:30 Research systems and models in COVID (EP112)</p> <p><i>Abstracts: Poster Session</i></p>	<p>14:30 - 15:00 Single PRS: antimicrobial resistance and justice ... (EP113)</p> <p><i>Abstracts: Poster Session</i></p>
<p>15:00 - 15:30 Antimicrobial stewardship powered by data science (EP114)</p> <p><i>Abstracts: Poster Session</i></p>		
<p>FIREPLACES AREA</p>		
<p>09:00 - 09:00 ENCORE ESCMO Study Group for Adaptive trials (ESCMO) (E115)</p>	<p>09:00 - 09:00 ENCORE ICC 2017 Paper Clinic, United States (E125)</p>	<p>09:00 - 09:00 ENCORE ESCMO Study Group for Microbiome and Diagnostics ... (E126)</p>
<p>10:00 - 10:00 ENCORE ESCMO Study Group for Laboratory Medicine (ESCMO) (E127)</p>	<p>10:00 - 10:00 ENCORE ICC 2017 Educational Personal Diagnostics, Toronto, Peru (E128)</p>	<p>10:00 - 10:00 ENCORE ESCMO Study Group for Microbiome and Diagnostics ... (E129)</p> <p><i>Fireplace Session</i></p>
<p>10:00 - 10:00 ENCORE International Society of Antimicrobial ... (E130)</p>	<p>10:00 - 10:00 ENCORE ICC 2017 Hospital Antimicrobials Program for Public Health (E131)</p>	<p>10:00 - 10:00 ENCORE ESCMO Study Group for Immunogenetics and Health ... (E132)</p>
<p>10:00 - 10:00 ENCORE ESCMO Study Group for Laboratory Medicine of the Eastern ... (E133)</p>	<p>10:00 - 10:00 ENCORE ESCMO Study Group for Immunogenetics and Health ... (E134)</p> <p><i>Fireplace Session</i></p>	<p>10:00 - 10:00 ENCORE ESCMO Study Group for Immunogenetics and Health ... (E135)</p>
<p>ROCHE ROOM</p>		

27 April 2024 Program - 08

<p>09:00 - 10:00 100 Day (E140)</p> <p><i>Special Session</i></p>		
<p>MEETING ROOM 8.11 (HALL 8.1 - CCB UPPER FLOOR)</p>		
<p>09:00 - 09:00 Microbiome in the Clinic: Study Group open meeting (E141)</p> <p><i>ESCMO open meeting</i></p>	<p>10:00 - 10:00 Formative and Postformative Microbiology Study Group open meeting (E142)</p> <p><i>ESCMO open meeting</i></p>	<p>10:00 - 10:00 Public Health Microbiology Study Group open meeting (E143)</p> <p><i>ESCMO open meeting</i></p>
<p>MEETING ROOM 8.12 (HALL 8.1 - CCB UPPER FLOOR)</p>		
<p>09:00 - 09:00 Food and Water safety practices Study Group open meeting (E144)</p> <p><i>ESCMO open meeting</i></p>	<p>10:00 - 10:00 Immunity: Immunity Study Group open meeting (E145)</p> <p><i>ESCMO open meeting</i></p>	<p>10:00 - 10:00 One Health: One Health Study Group open meeting (E146)</p> <p><i>ESCMO open meeting</i></p>
<p>MEETING ROOM MUNICH (HALL 8.0)</p>		
<p>10:00 - 10:00 Antimicrobial Stewardship Study Group open meeting (E147)</p> <p><i>ESCMO open meeting</i></p>	<p>10:00 - 10:00 Fungal infection Study Group open meeting (E148)</p> <p><i>ESCMO open meeting</i></p>	<p>10:00 - 10:00 Continuum of Care Study Group open meeting (E149)</p> <p><i>ESCMO open meeting</i></p>
<p>MEETING ROOM VIENNA (HALL 8.0)</p>		
<p>09:00 - 09:00 Clinical Research: Study Group open meeting (E150)</p> <p><i>ESCMO open meeting</i></p>	<p>10:00 - 10:00 Respiratory viruses: Study Group open meeting (E151)</p> <p><i>ESCMO open meeting</i></p>	<p>10:00 - 10:00 PSO of non-infectious Study Group open meeting (E152)</p> <p><i>ESCMO open meeting</i></p>
<p>10:00 - 10:00 Psychiatric Infections Study Group open meeting (E153)</p> <p><i>ESCMO open meeting</i></p>		
<p>INNOVATION THEATER</p>		
<p>10:00 - 10:00 The global threat of AMR: understanding the challenge and answering ... (EP115)</p> <p><i>Innovation Theatre</i></p>	<p>10:00 - 10:00 Enhancing technology's role in the monitoring of the ... (EP116)</p> <p><i>Innovation Theatre</i></p>	<p>10:00 - 10:00 Critical results for critical samples (EP117)</p> <p><i>Innovation Theatre</i></p>
<p>10:00 - 10:00 Stewardship gains: TAM system - Programs role and ... (EP118)</p> <p><i>Innovation Theatre</i></p>	<p>10:00 - 10:00 AMR impact for antibiotic use in health institutions (EP119)</p> <p><i>Innovation Theatre</i></p>	<p>10:00 - 10:00 A future without antibiotic resistance: what can the bioscience ... (EP120)</p> <p><i>Innovation Theatre</i></p>

27 April 2024 Program - 08

<p>ESCMO Global</p>		
<p>PROGRAM: 28 April 2024</p>		
<p>Event Overview: EuropeParis</p>		
<p>Keynote Lecture</p>	<p>Special Session</p>	<p>2-hour Symposium</p>
<p>2-hour Educational Session</p>	<p>1-hour Oral Session</p>	<p>2-hour Symposium</p>
<p>2-hour Case Session</p>	<p>Meet the Expert</p>	<p>2-hour Oral Session</p>
<p>Integrated Symposium</p>	<p>Poster Flash Session</p>	<p>Hygiene Corner</p>
<p>Open Forum</p>	<p>Fireplace Session</p>	<p>ESCMO open meeting</p>
<p>HALL A</p>		
<p>09:00 - 09:00 Genomic surveillance for AMR: supporting public health ... (EP121)</p> <p><i>Keynote Lecture</i></p>	<p>10:00 - 10:00 Innovations in diagnosis, treatment and prevention of ... (EP122)</p> <p><i>Keynote Lecture</i></p>	<p>10:00 - 10:00 Selective pressure: antibiotic use (E123)</p> <p><i>Special Session</i></p>
<p>10:00 - 10:00 The role of trained innate immunity in infections (E124)</p> <p><i>Keynote Lecture</i></p>	<p>10:00 - 10:00 Ways in Public Health (EP125)</p> <p><i>2-hour Symposium</i></p>	
<p>HALL B</p>		
<p>09:00 - 09:00 Subsidiary AMR-associated opportunistic infections (EP126)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Using evolutionary principles to fight antimicrobial ... (EP127)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Diagnostic stewardship: moulding clinician behaviour (EP128)</p> <p><i>2-hour Symposium</i></p>
<p>10:00 - 10:00 Antibiotic resistance: does it matter? (EP129)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 The impact of medical practice and clinical microbiology (EP130)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 New developments in antibiotic drugs (E131)</p> <p><i>2-hour Symposium</i></p>
<p>HALL C</p>		
<p>09:00 - 09:00 Staphylococcus aureus: bacteremia emerging ... (EP132)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Small and fast? A fast-acting antibiotic ... (EP133)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 What a clinician should know about antibiotic use (E134)</p> <p><i>2-hour Symposium</i></p>
<p>10:00 - 10:00 Emerging antibiotic resistance mechanisms (EP135)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 The role and Omega of antimicrobial stewardship: optimizing ... (E136)</p> <p><i>2-hour Symposium</i></p>	
<p>HALL D</p>		

28 April 2024 Program - 07

<p>09:00 - 09:00 Fungal infections: From a One Health perspective (EP137)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Salmonellosis: epidemiology of antimicrobial-resistant bacterial infections (E138)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 New diagnostic and treatment innovations for tuberculosis based ... (EP139)</p> <p><i>2-hour Symposium</i></p>
<p>10:00 - 10:00 Real-world use of new antimicrobials (E140)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Digital solutions for surveillance (E141)</p> <p><i>2-hour Symposium</i></p>	
<p>HALL E</p>		
<p>09:00 - 09:00 Training EMR infections using machine learning ... (EP142)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Disrupting fungal infections in clinical practice (EP143)</p> <p><i>Meet the Expert</i></p>	<p>10:00 - 10:00 New concepts against multi-drug resistant ... (E144)</p> <p><i>2-hour Symposium</i></p>
<p>10:00 - 10:00 Human pathogenesis: should we intervene more than before? (E145)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Expanding frontiers: cutting-edge vaccines in development for ... (E146)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Using antimicrobial susceptibility testing of methicillin ... (E147)</p> <p><i>Meet the Expert</i></p>
<p>HALL F</p>		
<p>09:00 - 09:00 Rapid detection of antibiotic resistance: state-of-the-art (EP148)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Cytoplasts in diagnosis and treatment of viral ... (EP149)</p> <p><i>Meet the Expert</i></p>	<p>10:00 - 10:00 Antimicrobial resistance: the impact of ... (EP150)</p> <p><i>2-hour Symposium</i></p>
<p>10:00 - 10:00 Secret 2024: integrating transformation medicine in the daily practice (E151)</p> <p><i>2-hour Symposium</i></p>		
<p>HALL G</p>		
<p>09:00 - 09:00 The incidence and global burden of infectious diseases (EP152)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Biotechnology: strategies for better infections ... (EP153)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Children are not just small adults: new drug products ... (E154)</p> <p><i>Meet the Expert</i></p>
<p>10:00 - 10:00 CR session: Implementation of diagnostics in real ... (E155)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Virus and cancer (E156)</p> <p><i>2-hour Symposium</i></p>	
<p>HALL H</p>		
<p>09:00 - 09:00 Treatment strategies for transplant-associated ... (EP157)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Genetic epidemiology of antibiotic resistance (E158)</p> <p><i>2-hour Symposium</i></p>	<p>10:00 - 10:00 Bioinformatic viruses and other pathogens affecting migrants (E159)</p> <p><i>2-hour Symposium</i></p>

28 April 2024 Program - 07

<p>14:00 - 14:15 Streaming IPTV Starting with Microsoft's technology (PTV1)</p> <p>Microsoft Theatre</p>	<p>14:00 - 14:15 Start well for the year with our K17 results from another ... (PTV1)</p> <p>Microsoft Theatre</p>
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PROGRAM: 29 April 2024

Event Categories: Europe/Paris

- 1-hour Symposium
- 2-hour Educational Session
- 2-hour Symposium
- Integrated Symposium
- Open Forum
- ESCMID open meeting
- Keynote Lecture
- 1-hour Oral Session
- 1-hour Case Session
- Whistle-Blower Session
- Inspire Session
- Innovation Theatre
- Keynote Scientific Interview
- Meet-the-Expert
- 2-hour Oral Session
- Practice Corner
- Special Session

HALL A

<p>08:00 - 09:00 1-hour Keynote Lecture Session (PTV1)</p> <p>Keynote Lecture</p>	<p>12:00 - 12:00 Emergence of group A streptococcal disease from Singapore to ... (PTV1)</p> <p>Keynote Lecture</p>	<p>16:00 - 16:00 The systems of life and the ... (PTV1)</p> <p>Keynote Scientific Interview</p>
<p>09:00 - 09:00 1-hour Keynote Lecture Session (PTV1)</p> <p>Keynote Lecture</p>	<p>13:00 - 13:00 1-hour in Clinical Microbiology (PTV1)</p> <p>2-hour Symposium</p>	

HALL B

<p>09:00 - 09:00 2-hour Symposium Session (PTV1)</p> <p>2-hour Symposium</p>	<p>10:00 - 10:00 Global epidemiology of emerging and re-emerging dengue ... (PTV1)</p> <p>2-hour Oral Session</p>	<p>11:00 - 11:00 Small molecules, big ideas: groundbreaking anti-infective ... (PTV1)</p> <p>2-hour Oral Session</p>
<p>10:00 - 10:00 2-hour Keynote Lecture Session (PTV1)</p> <p>2-hour Keynote Lecture</p>	<p>12:00 - 12:00 Those who are now named identifying "difficult" bacteria ... (PTV1)</p> <p>2-hour Oral Session</p>	<p>13:00 - 13:00 How to use follow-up blood cultures in patients with ... (PTV1)</p> <p>2-hour Oral Session</p>

HALL C

<p>09:00 - 09:00 The future of infection medicine and prevention in the ... (PTV1)</p> <p>2-hour Symposium</p>	<p>10:00 - 10:00 Clinical trials: Respiratory vaccine efficacy ... (PTV1)</p> <p>2-hour Oral Session</p>	<p>11:00 - 11:00 Respiratory vaccine efficacy: implications for action and prevention ... (PTV1)</p> <p>2-hour Symposium</p>
<p>10:00 - 10:00 Clinical trials: respiratory vaccine efficacy ... (PTV1)</p> <p>2-hour Oral Session</p>	<p>12:00 - 12:00 Infectious prevention and control (IPC) around the world ... (PTV1)</p> <p>2-hour Educational Session</p>	

HALL D

<p>09:00 - 09:00 1-hour Symposium Session (PTV1)</p> <p>2-hour Symposium</p>	<p>10:00 - 10:00 When to say you've reached organ donor will know ... (PTV1)</p> <p>2-hour Oral Session</p>	<p>11:00 - 11:00 New Antimicrobials: Hydroxyethyl ... (PTV1)</p> <p>2-hour Oral Session</p>
<p>10:00 - 10:00 Don't forget the PCDs in infection diagnosis and follow up ... (PTV1)</p> <p>2-hour Symposium</p>	<p>12:00 - 12:00 Emerging strategies for invasive fungal disease management ... (PTV1)</p> <p>2-hour Oral Session</p>	<p>13:00 - 13:00 Drug resistance in fungi: a growing risk ... (PTV1)</p> <p>2-hour Oral Session</p>

HALL E

<p>09:00 - 09:00 Clinical trials: antimicrobial resistance ... (PTV1)</p> <p>2-hour Oral Session</p>	<p>10:00 - 10:00 Soilless and disinfectant efficacy ... (PTV1)</p> <p>2-hour Symposium</p>	<p>11:00 - 11:00 Clinical practice guidelines on COVID-19 and future ... (PTV1)</p> <p>2-hour Educational Session</p>
<p>10:00 - 10:00 Prevention of transmission-resistant infections ... (PTV1)</p> <p>2-hour Symposium</p>	<p>12:00 - 12:00 Update on the ... (PTV1)</p> <p>2-hour Oral Session</p>	

HALL F

<p>09:00 - 09:00 Advances in healthcare settings: practical guidance and case ... (PTV1)</p> <p>2-hour Educational Session</p>	<p>10:00 - 10:00 Update on the ... (PTV1)</p> <p>2-hour Symposium</p>	<p>11:00 - 11:00 The paper in infectious respiratory infections ... (PTV1)</p> <p>2-hour Symposium</p>
<p>10:00 - 10:00 The key elements of making infectious disease ... (PTV1)</p> <p>2-hour Educational Session</p>		

HALL G

<p>09:00 - 09:00 Automated surveillance of bloodstream infections ... (PTV1)</p> <p>2-hour Symposium</p>	<p>10:00 - 10:00 Revisiting MALDI-TOF applications in clinical microbiology ... (PTV1)</p> <p>2-hour Symposium</p>	<p>11:00 - 11:00 Respiratory infection in the A&E patient with ECG support ... (PTV1)</p> <p>2-hour Symposium</p>
<p>10:00 - 10:00 New data on the management of community-acquired ... (PTV1)</p> <p>2-hour Symposium</p>	<p>12:00 - 12:00 Antimicrobial resistance: lessons from ... (PTV1)</p> <p>2-hour Oral Session</p>	

HALL H

<p>09:00 - 09:00 Management of lower respiratory tract infections ... (PTV1)</p> <p>2-hour Educational Session</p>	<p>10:00 - 10:00 Antimicrobial resistance: updated tool for action ... (PTV1)</p> <p>2-hour Symposium</p>	<p>11:00 - 11:00 2024: progress in disease prevention and response ... (PTV1)</p> <p>2-hour Oral Session</p>
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<p>09:00 - 09:00 New treatments for COVID infections ... (PTV1)</p> <p>2-hour Symposium</p>	<p>10:00 - 10:00 Antimicrobial stewardship: accelerated programmes ... (PTV1)</p> <p>2-hour Symposium</p>
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HALL I

<p>09:00 - 09:00 Bacterial pathogens: impact on health & genetic risk ... (PTV1)</p> <p>2-hour Symposium</p>	<p>10:00 - 10:00 Emerging priority pathogens and infection control ... (PTV1)</p> <p>2-hour Symposium</p>	<p>11:00 - 11:00 EUCAST: 15 years of ... (PTV1)</p> <p>2-hour Oral Session</p>
<p>10:00 - 10:00 New approaches for antimicrobial resistance: accelerating ... (PTV1)</p> <p>2-hour Oral Session</p>	<p>12:00 - 12:00 Tough topics: the challenges and future of ... (PTV1)</p> <p>2-hour Symposium</p>	<p>13:00 - 13:00 What's new in influenza and COVID-19 vaccination ... (PTV1)</p> <p>2-hour Oral Session</p>

HALL J

<p>09:00 - 09:00 Emerging zoonotic and zoonotic disease ... (PTV1)</p> <p>2-hour Symposium</p>	<p>10:00 - 10:00 Addressing complex challenges in ... (PTV1)</p> <p>2-hour Symposium</p>	<p>11:00 - 11:00 Calendar to pathogens: when good goes bad ... (PTV1)</p> <p>2-hour Oral Session</p>
<p>10:00 - 10:00 Post-antibiotic persistence of ... (PTV1)</p> <p>2-hour Oral Session</p>	<p>12:00 - 12:00 Respiratory infection in action ... (PTV1)</p> <p>2-hour Oral Session</p>	<p>13:00 - 13:00 The antibiotic era: how green can we become? ... (PTV1)</p> <p>2-hour Oral Session</p>

HALL K

<p>09:00 - 09:00 Advances in upper respiratory tract ... (PTV1)</p> <p>2-hour Symposium</p>	<p>10:00 - 10:00 Detection and control of nosocomial infections ... (PTV1)</p> <p>2-hour Symposium</p>	<p>11:00 - 11:00 Fungal risk and its ... (PTV1)</p> <p>2-hour Oral Session</p>
<p>10:00 - 10:00 OTIs with ... (PTV1)</p> <p>2-hour Symposium</p>	<p>12:00 - 12:00 Update on research from The Lancet group ... (PTV1)</p> <p>2-hour Symposium</p>	

HALL L

<p>09:00 - 09:00 Antimicrobial resistance: lessons for ... (PTV1)</p> <p>2-hour Symposium</p>	<p>10:00 - 10:00 Antimicrobial resistance: lessons for ... (PTV1)</p> <p>2-hour Symposium</p>	<p>11:00 - 11:00 Antimicrobial resistance: lessons for ... (PTV1)</p> <p>2-hour Symposium</p>
<p>10:00 - 10:00 Combating the key challenges of ... (PTV1)</p> <p>2-hour Symposium</p>	<p>12:00 - 12:00 Update on research from The Lancet group ... (PTV1)</p> <p>2-hour Symposium</p>	

HALL M

大會照片

