

## PROGRAM

MONDAY, April 17—7:00 PM

### Welcome and Introduction

**Maoyen Chi**, On behalf of CSH-Asia  
**Craig Roy**, On behalf of Meeting Organizers

#### **SESSION 1**      BIOLOGY AND PATHOGENESIS OF MYCOBACTERIA

**Chairperson:**      **Craig Roy**, Yale University, New Haven, Connecticut, USA

#### **A mechanism for phenotypic heterogeneity in mycobacteria**

Hesper Rego, Rebecca E. Audette, Eric J. Rubin [20'+10']

Presenter affiliation: Harvard TH Chan School of Public Health,  
Boston, Massachusetts.

1

#### **Lysosomal delivery of *M. tuberculosis* in vivo**

Varadharajan Sundaramurthy [20'+10']

Presenter affiliation: National Center for Biological Sciences,  
Bengaluru, India.

2

#### **Regulation of host immune signaling pathways and cellular functions by *M. tuberculosis* secreted effector proteins**

Cuihua Liu [20'+10']

Presenter affiliation: Institute of Microbiology, Chinese Academy of  
Sciences, Beijing, China.

3

#### **MicroRNA regulation of calcium-mediated autophagy controls intracellular survival of *Mycobacterium tuberculosis***

Feng Liu, Jianxia Chen, Baoxue Ge [10'+5]

Presenter affiliation: Shanghai Pulmonary Hospital, Shanghai, China.

4

#### **PPE38 protein of *Mycobacterium tuberculosis* is involved in inhibiting CD8+ T cell recruitment and virulence**

Lu Meng, Jingfeng Tong [10'+5]

Presenter affiliation: Fudan University, Shanghai, China.

5

TUESDAY, April 18—9:00 AM

**SESSION 2** BACTERIAL INTRACELLULAR TRAFFICKING

**Chairperson:** **Jörn Coers**, Duke University School of Medicine,  
Durham, North Carolina, USA

***Coxiella*-containing vacuoles and Clathrin-coated vesicles**

Eleanor A. Latomanski, Patrice Newton, Chen Ai Khoo, Hayley J. Newton [20'+10']

Presenter affiliation: University of Melbourne, Melbourne, Australia. 6

***Salmonella* forms intracellular persisters with TacT**

Sophie Helaine [20'+10']

Presenter affiliation: Imperial College London, London, United Kingdom. 7

**The impact of the autophagy pathway on *Neisseria gonorrhoeae* invasion and exocytosis of epithelial cells**

Ping Lu, Stijn van der Veen [10'+5]

Presenter affiliation: Zhejiang University School of Medicine, Hangzhou, China. 8

**Host membrane remodeling upon cellular stress inhibits *Shigella flexneri* infection**

Caroline S. Tawk, Jörg Vogel, Ana Eulalio [10'+5]

Presenter affiliation: University of Würzburg, Würzburg, Germany. 9

**Coffee / Tea Break**

**Ubiquitination and degradation of GBPs by *Shigella* IpaH9.8 effector to suppress host defenses**

Peng Li, Wei Jiang, Qin Yu, Bo Xu, Fengchao Wang, Feng Shao [10'+5]

Presenter affiliation: National Institute of Biological Sciences, Beijing, China. 10

**A Rab32 trafficking pathway protects from bacterial infections**

Stefania Spano [20'+10']

Presenter affiliation: University of Aberdeen, Aberdeen, United Kingdom. 11

**Sequestration of the energy stores of its host by an intracellular pathogen—Mechanisms and consequences**

Agathe Subtil [20'+10']

Presenter affiliation: Institut Pasteur, Paris, France; CNRS, Paris, France.

12

**Mechanisms of the mycobacterial cell cycle revealed by correlated optical and atomic force microscopy**

John McKinney [20'+10']

Presenter affiliation: Swiss Federal Institute of Technology in Lausanne (EPFL), Lausanne, Switzerland.

TUESDAY, April 18—2:00 PM

**SESSION 3** POSTER SESSION

**LPS binding to caspase-11/4/5 triggers pyroptosis by releasing the pore-forming activity of GSDMD**

Jingjin Ding, Jianjin Shi, Feng Shao

Presenter affiliation: National Institute of Biological Sciences, Beijing, China.

13

**RNAi-effecting vector construction in “obligate” anaerobic *Salmonella* strain YB1 as a potentially competent payload in cancer treatment**

Zhendong Feng, Bin Yu, Jiandong Huang

Presenter affiliation: the University of Hong Kong, Hong Kong.

14

**Site-specific phosphorylation and microtubule dynamics control Pysin inflammasome activation**

Wenqing Gao, Jieling Yang, Wang Liu, Yupeng Wang, Feng Shao

Presenter affiliation: National Institute of Biological Sciences, Beijing, China.

15

**Novel mode of induction of the innate immune response in *Drosophila* larvae**

Aki Hori, Hiroyuki Kenmoku, Shoichiro Kurata, Takayuki Kuraishi

Presenter affiliation: Kanazawa University, Kanazawa, Japan.

16

<b>Colonization of <i>Klebsiella pneumoniae</i> of human oral origin induces Th1 cells in the colon</b>	
<u>Takaaki Kawaguchi</u> , Koji Atarashi, Keiko Yasuma, Kenya Honda	
Presenter affiliation: Keio University School of Medicine, Tokyo, Japan; RIKEN Center for Integrative Medical Sciences, Yokohama, Japan.	17
<b>The anti-bacterial activity of QseC inhibitor against EHEC through enhancing macrophages phagocytosis and inflammasome activation</b>	
Di Qu, <u>Mingkai Li</u> , Xiaoxing Luo	
Presenter affiliation: The Fourth Military Medical University, Xi'an, China.	18
<b>Acetylation regulates protein stability and DNA-binding ability of hILD</b>	
Yu Sang, Jie Ren, <u>Shuting Liu</u> , Jing Tao, Yu-Feng Yao	
Presenter affiliation: Shanghai Jiao Tong University School of Medicine, Shanghai, China.	19
<b><i>Shigella</i> TTSS effector IcsB is a novel acyltransferase that can counteract host autophagy defense</b>	
<u>Wang Liu</u> , Yan Zhou, Tao Peng, Zilin Li, Howard Hang, Feng Shao	
Presenter affiliation: National Institute of Biological Sciences, Beijing, BeiJing, China.	20
<b>Blocking <i>S. typhimurium</i> Qsec inhibits macrophage pyroptosis via reducing the activation of inflammasome and potentiates the bacterial killing</b>	
Zhi Li, <u>Bo Ma</u> , Mingkai Li, Zheng Hou, Xiaoxing Luo	
Presenter affiliation: Fourth Military Medical University, Xi'an, China.	21
<b>Commensal bacterial promotion of IL-4 producing ILC2s in the colon</b>	
<u>Iori Motoo</u> , Yuji Nagano, Kenya Honda	
Presenter affiliation: RIKEN Center for Integrative Medical Sciences , Yokohama, Japan.	22
<b>Small intestinal mucosa has unique microbiota in human</b>	
<u>Manabu Nagayama</u> , Kenya Honda, Hironori Yamamoto	
Presenter affiliation: Jichi Medical University, Tochigi, Japan; Keio University School of Medicine, Tokyo, Japan; RIKEN Center for Integrative Medical Sciences, Kanagawa, Japan.	23

<p><b>Adoptive transfer of IL-17 producing cells protects immunodeficient mice from gut-associated disseminated candidiasis</b>  <u>Chien-Hsiung Pan</u>  Presenter affiliation: NHRI, Miaoli County, Taiwan.</p>	24
<p><b>Preliminary results in the crystal structure characterization of <i>Mycobacterium tuberculosis</i> PknG</b>  <u>David Ruiz Carrillo</u>  Presenter affiliation: Xi'an Jiaotong Liverpool University, Suzhou, China.</p>	25
<p><b>GSDMD-mediated pyroptosis controls anti-bacterial defense and lethal effects of inflammasome activation</b>  <u>Xuyan Shi</u>, Yue Zhao, Jianjin Shi, Feng Shao  Presenter affiliation: The National Institute of Biological Sciences, Beijing, China.</p>	26
<p><b>The diverse host immune responses to environmental and clinical <i>Legionella pneumophila</i></b>  <u>Haoyu Wang</u>, Xuefeng Duan, Jiao Lu, Min Fang  Presenter affiliation: CAS Key Laboratory of Pathogenic Microbiology and Immunology, Institute of Microbiology, Beijing, China; Institute of Health Sciences, Hefei, China.</p>	27
<p><b>Self-produced proteins of bacteria balance biofilm formation and dispersal</b>  Tianhu Zhao, Huijun Wu, Shan Yu, <u>Shiwei Wang</u>, Luyan Z. Ma.  Presenter affiliation: Institute of Microbiology, Chinese Academy of Sciences, Beijing, China.</p>	28
<p><b>Novel method for visualization of commensal localization and mucus distribution in the intestine</b>  <u>Eiichiro Watanabe</u>, Seiko Narushima, Kenya Honda  Presenter affiliation: RIKEN Center for Integrative Medical Sciences, Yokohama, Japan.</p>	29
<p><b>Diversity and evolution of CRISPR Loci in <i>Salmonella enterica</i> serovar Gallinarum biovar Pullorum</b>  <u>Xiaolei Xie</u>, Yachen Hu, Qiuchun Li, Xinan Jiao  Presenter affiliation: Jiangsu Key Lab of Zoonosis, Yangzhou, China.</p>	30

<p><b>Outer membrane channel protein TolC and its associated efflux pumps contribute to the biofilm formation in <i>Escherichia coli</i></b>  Tingying Xia, Sean Michael, Hongkai Wu, <u>Aixin Yan</u>  Presenter affiliation: The University of Hong Kong, Hong Kong SAR, China.</p>	31
<p><b>Molecular characterization of a broad spectrum peptide that blocks the cellular entry of various CoVs</b>  <u>Lei Yan</u>, Bei Yang, Wilson A. Ian  Presenter affiliation: ShanghaiTech University, Shanghai, China.</p>	32
<p><b>Rapid transportation of secondary bile salts fails to activate virulence production in <i>Vibrio cholerae</i></b>  Mengting Shi, Yuanyuan Xue, Fan Xie, Na Li, Yue Zheng, <u>Menghua Yang</u>  Presenter affiliation: Zhejiang A&amp;F University, Lin'an, China.</p>	33
<p><b>Immunotherapy Targeting Adenosine Synthase A Decreases Severity of <i>Staphylococcus aureus</i> Infection in mouse model</b>  <u>Bao-zhong zhang</u>, Zhendong Feng, Kwok-Yung Yuen, Jian-Dong Huang  Presenter affiliation: The University of Hong Kong, Hong Kong.</p>	34
<p><b>Recombinant attenuated <i>Salmonella</i> Typhimurium with heterologous expression of the <i>Salmonella</i> Choleraesuis O-polysaccharide—High immunogenicity and protection</b>  <u>Xin-xin Zhao</u>, Qin-Long Dai, De-Kang Zhu, Ma-Feng Liu, Shun Chen, Kun-Feng Sun, Qiao Yang, Ying Wu, Qing-Ke Kong, Ren-Yong Jia.  Presenter affiliation: Sichuan Agricultural University, Chengdu, China.</p>	35
<p><b>Immunomodulatory property of <i>Brucella</i> Lipopolysaccharide</b>  <u>Yun Zhao</u>, Sean Hannify, Sylvie Memet, Vilma Arce-Gorvel, Raquel Conde-Álvarez, Ignacio Moriyon, Jean-Pierre Gorvel  Presenter affiliation: Aix Marseille Univ, CNRS, INSERM, Marseille, France.</p>	36
<p><b>Genome-wide identification of virulence factors using Tn-Seq in <i>Vibrio parahaemolyticus</i></b>  Yantao Li, <u>Jun Zheng</u>.  Presenter affiliation: University of Macau, Macau, Macau.</p>	37

**Function of a heme transporter as a redox switch for T6SS-mediated zinc scavenging**

Meiru Si, Yao Wang, Bing Zhang, Chao Zhao, Yiwen Kang, Dawei Wei, Lingfang Zhu, Lei Zhang, Tao G Dong, Xihui Shen  
Presenter affiliation: Northwest A&F University, Yangling, Shaanxi, China.

38

TUESDAY, APRIL 18—4:30 PM

**Chinese Tea and Beer Tasting**

TUESDAY, April 18—7:00 PM

**KEYNOTE SPEAKER**

**Quorum sensing, cooperation and conflict in populations of the opportunistic pathogen *Pseudomonas aeruginosa***

Peter Greenberg [30+10']

Presenter affiliation: University of Washington, Seattle, Washington; South China Agricultural University, Guangzhou, China.

39

TUESDAY, April 18—8:00 PM

**SESSION 4** REGULATION OF GENE EXPRESSION AND VIRULENCE TRAITS IN PATHOGENIC MICROBES

**Chairperson:** **Sam Miller**, University of Washington, Seattle, Washington, USA

**Dual RNA-seq and Single-cell RNA-seq approaches to studying *Salmonella* pathogenesis**

Jörg Vogel [20'+10']

Presenter affiliation: University of Würzburg, Würzburg, Germany.

40

**The role of acetylation in regulating PhoP activity**

Jie Ren, Yu Sang, Yu-Feng Yao [10'+5]

Presenter affiliation: Shanghai Jiao Tong University School of Medicine, Shanghai, China.

41

**Coordinate regulation of bacterial nitrate and nitrite assimilation by 3' UTR derived sRNA**

Chuan Wang, Qian Gao [10'+5]

Presenter affiliation: Fudan University, Shanghai, China.

42

**Host microbiome interactions in health and disease**

Eran Elinav [20'+10']

Presenter affiliation: Weizmann Institute of Science, Rehovot, Israel.

43

WEDNESDAY, April 19—9:00 AM

**SESSION 5**      HOST RESPONSE TO BACTERIAL INFECTION

**Chairperson:**      **Kenya Honda**, Keio University / RIKEN Center for Integrative Medical Sciences, Tokyo / Yokohama, Japan

**Pyroptosis in anti-bacterial immunity—Sensing and execution**

Feng Shao [20'+10']

Presenter affiliation: National Institute of Biological Sciences, Beijing, China.

44

**Recognition of intracellular pathogens by guanylate binding proteins**

Jörn Coers [20'+10']

Presenter affiliation: Duke University Medical Center, Durham, North Carolina.

45

**Myeloid cell identity shapes inflammasome signalling pathways and cell death decisions**

Kate Schroder [20'+10']

Presenter affiliation: The University of Queensland, Brisbane, Australia.

46

**Coffee / Tea Break**

**Immune responses against mycobacteria via C-type lectin receptors**

Sho Yamasaki [20'+10']

Presenter affiliation: Osaka University, Suita, Japan.

47



**The role of new signaling effectors in TLR pathways against Gram-bacterial infection**

Weiyun Li, Jun Xiao, Chi Zhang, Li Ma, Hongyan Wang [10'+5]  
Presenter affiliation: Chinese Academy of Sciences, Shanghai, China. 48

**Membrane vesicles from *Pseudomonas aeruginosa* activate the non-canonical inflammasome through caspase-5 in human monocytes**

Natalie J. Bitto, Paul J. Baker, Jennifer K. Dowling, Le Son Tran, Amanda De Paoli, Katryn J. Stacey, Ashley Mansell, Seth L. Masters, Richard L. Ferrero [10'+5]  
Presenter affiliation: Hudson Institute of Medical Research, Melbourne, Australia; Monash University, Melbourne, Australia. 49

**Mechanisms of IL-1 $\alpha$  secretion in macrophages infected with *Streptococcus pneumoniae***

Rendong Fang, Rui Wu, Bing Jiang, Guihua Lei, Siwei Feng, Tingjuan Zhang [10'+5]  
Presenter affiliation: Southwest University, Chongqing, China. 50

**Infection, innate immunity and cancer in the gastrointestinal tract—Organoids as new model**

Sina Bartfeld [20'+10']  
Presenter affiliation: University of Würzburg, Würzburg, Germany. 51

WEDNESDAY, April 19—1:30 PM

**Visit to Old Suzhou**

WEDNESDAY, April 19—7:00 PM

**SESSION 6 GASTROINTESTINAL COLONIZATION**

**Chairperson:** **Jörg Vogel**, University of Würzburg, Würzburg, Germany

**Commensal *E. coli* expansion within the CF intestinal tract**

Sam Miller [20'+10']  
Presenter affiliation: University of Washington, Seattle, Washington.

**Antimicrobial peptides and bacterial niche competition in the GI tract**

Nita Salzman [20'+10']

Presenter affiliation: Medical College of Wisconsin, Milwaukee, Wisconsin.

52

**Metabolic and fitness determinants for in vitro growth and intestinal colonization of the bacterial pathogen *Campylobacter jejuni***

Beile Gao, Jorge Galan [10'+5]

Presenter affiliation: South China Sea Institute of Oceanology, Guangzhou, China.

53

**Phosphate starvation induces resistance to polymyxin B and bile salts in enteric bacteria through up-regulation of lipid A modification and multidrug efflux pump MdtEF**

Ziqing Deng, Jiezhong Jiang, Xiaoyun Liu, Aixin Yan [10'+5]

Presenter affiliation: The University of Hong Kong, Hong Kong, China.

54

**Genetic and phenotypic diversification during *Helicobacter pylori* stomach colonization**

Nina R. Salama [20'+10']

Presenter affiliation: Fred Hutchinson Cancer Research Center, Seattle, Washington.

55

THURSDAY, April 20—9:00 AM

**SESSION 7 THE MICROBIOME IN HEALTH AND DISEASE**

**Chairperson:** **Feng Shao**, National Institute of Biological Sciences, Beijing, China

**Immune modulation by the gut microbiota**

Kenya Honda, Takeshi Tanoue, Koji Atarashi, Seiko Narushima [20'+10']

Presenter affiliation: Keio University School of Medicine, Tokyo, Japan; RIKEN, IMS, Yokohama, Japan; AMED-LEAP, Tokyo, Japan.

56

Jeffrey F. Miller [20'+10']

Presenter affiliation: University of California, Los Angeles, Los Angeles, California.

**NOD1 mediates proteolytic processing of interleukin-18 in epithelial cells to maintain tissue homeostasis in *Helicobacter pylori* infection**

Le Son Tran, Hassan Chaudhry, Kimberley D'Costa, Amanda De Paoli, Julia Como, Jennifer Dowling, Jonathan Ferrand, Ashley Mansell, Ben A. Croker, Ueli Nachbur, Seth Masters, Richard L. Ferrero [10'+5]

Presenter affiliation: Monash University, Melbourne, Australia.

57

**Coffee / Tea Break**

**Adaptation to anaerobic tetrathionate respiration enhances the infectivity and drug resistance in *Salmonella enteric* serovar Typhimurium**

Jingjing Sun, Zhen Wang, Xiaoyun Liu, Kunihiko Nishino, Aixin Yan [10'+5]

Presenter affiliation: The University of Hong Kong, Hong Kong, China.

58

***Drosophila* intestinal tract as a model to decipher symbiotic and pathogenic interactions between host and microorganisms**

Takayuki Kuraishi [20'+10']

Presenter affiliation: Kanazawa University, Kanazawa, Japan.

59

**Outer membrane channel protein TolC and its associated efflux pumps contribute to the biofilm formation in *Escherichia coli***

Tingying Xia, Sean Michael, Hongkai Wu, Aixin Yan [10'+5]

Presenter affiliation: The University of Hong Kong, Hong Kong SAR., China.

60

THURSDAY, April 20—2:00 PM

**SESSION 8 BACTERIAL TOXINS AND PATHOGENESIS**

**Chairperson:** **Stephania Spano**, University of Aberdeen, Aberdeen, United Kingdom

**Bacterial protein toxins—How to conquer GTPase signaling and cytoskeleton functions of the host**

Klaus Aktories [20'+10']

Presenter affiliation: Albert-Ludwigs-University, Freiburg, Germany.

61

- Genome-wide CRISPR screen defines the colonic epithelial receptor for *C. difficile* toxin B**  
 Liang Tao, Jie Zhang, Paul Meraner, Alessio Tovaglieri, Xiaoqian Wu, Ralf Gerhard, Xinjun Zhang, William Stallcup, Ji Miao, Xi He, Julian Hurdle, David Breault, Abraham Brass, Min Dong [20'+10']  
 Presenter affiliation: Boston Children's Hospital, Boston, Massachusetts; Harvard Medical School, Boston, Massachusetts. 62
- Mpn491, a secreted nuclease of *Mycoplasma pneumoniae* plays a critical role in evading killing by neutrophil extracellular traps**  
Koichi Kuwano, Takeshi Yamamoto, Yutaka Kida [10'+5]  
 Presenter affiliation: Kurume University School of Medicine, Kurume, Japan. 63
- Heparin-binding hemagglutinin of *Mycobacterium tuberculosis* is an inhibitor of autophagy**  
Yueyun Ma [10'+5]  
 Presenter affiliation: The Fourth Military Medical University, Xi'an, China. 64
- Modification of Rho GTPases by a MARTX effector**  
Yongqun Zhu [10'+5]  
 Presenter affiliation: Zhejiang University, Hangzhou, China. 65
- Coffee / Tea Break**
- Novel host targets for bacterial ubiquitin ligase NleL, an effector from EHEC O157:H7**  
 Xiangpeng Sheng, Qing You, Feng Shao, Ronggui Hu [20'+10']  
 Presenter affiliation: Shanghai Institute of Biochemistry & Cell Biology, CAS, Shanghai, China. 66
- Proteomic analysis of interactions between the microsporidian pathogen *Nosema bombycis* and its host *Bombyx mori***  
Yongqi Shao [10'+5]  
 Presenter affiliation: Zhejiang University, College of Animal Sciences, Hangzhou, China. 67
- Tracking inter-bacterial interactions during *V. cholerae* intestinal infection through *in vivo* DNA conjugation**  
Yang Fu, Brian T. Ho, John J. Mekalanos [10'+5]  
 Presenter affiliation: Harvard Medical School, Boston, Massachusetts. 68

THURSDAY, April 20—6:00 PM

## COCKTAILS and BANQUET

### Poster Award Announcement

By Jörg Vogel

FRIDAY, April 21—9:00 AM

#### SESSION 9 NEW APPROACHES TO INVESTIGATING THE HOST PATHOGEN INTERFACE

**Chairperson:** **Hayley Newton**, University of Melbourne at the Peter Doherty Institute for Infection and Immunity, Melbourne, Australia

#### **Identifying *Legionella* effectors that contribute to host pathogenesis**

Craig Roy [20'+10']

Presenter affiliation: Yale University, New Haven, Connecticut.

#### **Using images to understand structure, function and dynamics of type VI secretion systems**

Marek Basler [20'+10']

Presenter affiliation: University of Basel, Basel, Switzerland.

69

#### **Attenuation of *Coxiella burnetii* by curing its endogenous plasmid and importing an exogenous Arr enzyme**

Shengdong Luo, Tao Wang, Yonghui Yu, Zhihui Sun, Lihua Song [10'+5]

Presenter affiliation: Beijing Institute of Microbiology and Epidemiology, Beijing, China.

70

#### **Coffee / Tea Break**

#### **A chemical biological approach to studying infection**

Deborah Hung [20'+10']

Presenter affiliation: Harvard Medical School, Boston, Massachusetts; Massachusetts General Hospital, Boston, Massachusetts; Broad Institute of MIT & Harvard, Cambridge, Massachusetts.

71

**Bacterial oxidoreductases trigger the host innate immune responses via promoting disulfide bond formation of TAK1**

Lin Wang, Jie Wang, Baoxue Ge [10'+5]

Presenter affiliation: Tongji University, Shanghai, China.

72

***Talk by Poster Award Winner***

**Concluding Remarks**